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2 2003 May

SPECIAL

ITMA SURVEY: THE EUROPEAN TEXTILE INDUSTRY'S EXPECTATIONS

SUCCESSFUL WOOL SPINNER

NEEDLEPUNCHED UPHOLSTERY FABRICS

IMPROVED MIGRATION IN WOOL DYEINGS

ITS

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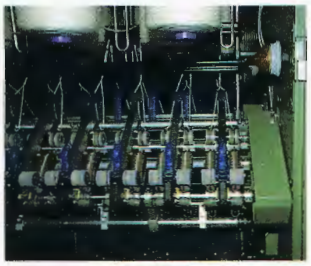

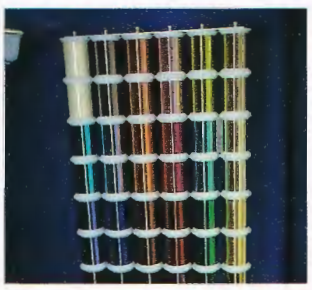

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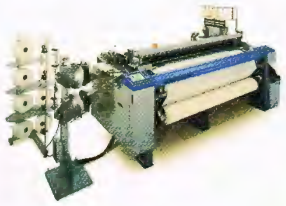

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The future of knitting

Speaking at a knitting congress held in Manchester (GB), a senior knitwear technologist from one of the world's most famous retail organisations outlined to an audience of nearly 200 international delegates how the pace of change is increasing, and how many new elements are having an impact on knitting innovation.

Derek T. Ward

ITS Contributing editor

The congress was organised by the William Lee Innovation Centre. The newly formed centre has been created within UMIST to bring together multi-disciplinary expertise to form what is claimed to be Europe's first research, technology, translation and skills group focussing specifically on fibre architecture. The event drew 41 speakers from the global industry and various academic bodies.

Mervyn Davies *(Fig. 1)*, Marks & Spencer (GB), said retail customers have never demanded more than they do today, and their requirements have never been so diverse. He listed present day requirements, together with recent innovations, as including: garments that keep you safe; products that make you feel better; products that are more comfortable, especially if you are particularly sensitive; garments that fit better (virtually bespoke clothing); garments that make you more comfortable by heating up or cooling down; products that ease communication, even incorporating mobile phones; more environmentally friendly garments in terms of manufacture and disposal; those meeting the demands of a specific use, such as travel; new fibres derived from corn starch or even wool; and wool reconstituted to produce microfibres or films possessing all the natural attributes of wool – such as antibacterial, flame resistant performance and breathability.

Mr Davies said new knitting machinery technology, and the resultant innovative structures made possible, also facilitate the development of an increasing number of products for use in the medical and industrial fields.

Colour, weight, touch and handle

Other speakers covered more specific aspects of the contemporary knitting industry. Dr Massimiliano Zegna Barufa, of Zegna Barufa Borgosesia SpA (I), said colour, weight, touch and handle are the characteristic elements of a yarn, which itself constitutes the smallest yet most important component of knitwear. He described how research and development of the initial concept of a new yarn involves close contact with trade associations, trade fair organisations, boutiques de style, fibre supplier, boutiques and general markets to identify trends and to initiate new ideas.

He said: "Sensitivity, intuition, experience, creativity, and constant commitment are the main factors required for working in the spinning industry." He claimed these factors are the basis of a craft inherited from the culture and tradition of the Biella area of Italy. Giving two examples of the effect on knitwear design, he said "Cashwool", developed in the 1980's at a time when the market wanted something different from fluffy lambswool, offers almost limitless versatility. Available in mélange, solid and mouliné colours and machine-washable forms, "Cashwool" is used for men's and women's classic, performance knitwear and may even be used with other types of yarn. The second example given was Shamir ultrafine cashmere yarns. These were created in response to an almost niche market request and rescued the appeal of cashmere at a time when conventional yarns of this type appeared to be suffering a decline in quality.

Fig. 1: Mervyn Davies, Marks & Spencer: «The pace of change is increasing.»
Picture: DW

Innovative, high performance, high tech

In a paper reviewing recent developments in yarn technology, Antonino Piccolini, Fil Man Made Group (I), suggested yarns may be classified into three groups: innovative, high performance, and high tech items. He said, however, these terms are often the cause of confusion and misunderstanding.
He summarised the many ways of developing innovative yarns basically into six routes, although combinations of the six routes can also be used.

- By using a fibre based on a new polymer
- or a fibre produced by chemical modification
- or a new fibre produced by cross-section modification
- or a fibre with modified physical and mechanical features
- or by blending two or more fibres
- or a yarn produced by new spinning techniques

He defined a high performance yarn as being one with a "way of working or functioning clearly superior to the yarns normally intended for specific end-uses." This group included flame retardant yarns based on intrinsically flame retardant fibre, and anti-bacterial yarns based on anti-bacterial fibre.

High tech yarns were described as being usually based on "engineered organic synthetic polymers" such as para- and meta-aramids, although a number of fibres based on inorganic materials could be included. He mentioned how "Basofil" (melamine), "Zylon" (poly-phenylene-2,6benzobisoazole) and "Panox" and "Lastan" (both partially oxidized polyacrylonitrile) are already being evaluated for knitting applications although they are really still under development. Inorganic items such as carbon and various metallic fibres are also being used, alone or in blends. He noted that all the Formula-1 teams, pilots and mechanics, wear knitted underwear, socks and gloves made with high tech yarns. "The yarns are in continuous evolution, as are spun yarns based on meta- and para-arid microfibre"

In conclusion, Mr Piccolini said "Besides a marketing investigation aimed at identifying the requirements of the niche market at which the new yarn is aimed, the development of an innovative product requires expertise and, many times, significant financial effort, for the whole textile chain, including fibre producer, spinner, knitter, dyer and finisher, and manufacturer. The return on the investment is often long term."

Whole garment knitting

A paper delivered by Hidekazu Masui, Shima Seiki Mfg Ltd (J), suggested how the concept of whole garment knitting as a means to boost productivity has become more attractive in high labour cost countries at a time of increasing competition in global markets. He explained how Shima Seiki has worked for many years to overcome

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