

ItalDenim CEO Luigi Caccia (left) and finishing department manager Alberto Rimoldi



# Accurate Fabric Shrinkage on Every Metre

*Edward J. Elliott reports on the quality improvements delivered by YieldMAX at a top Italian denim finisher*

ItalDenim SpA, based in Arconate, Italy, reflects the style-conscious atmosphere so apparent in the nearby fashion centre of Milan. The Caccia brothers, Luigi and Gilberto, co-owners of ItalDenim, have built upon the foundation of their father Mario's acquisition of a mill in 1974 with the goal to offer premier-quality fabrics for the global discerning public.

Today, 280 employees at ItalDenim pride themselves on their ability to produce stylish denim fabrics of 100% cotton, plus blends of cotton and elastomeric fibre.

Another important aspect to ItalDenim's business model is its 'green' attitude, as demonstrated by the use of organic cotton and the company's certifications, such as AIAB. It is currently investigating self-

generation of electricity, using methane-based fuel, originating from landfills or anaerobic digestion of animal wastes. Even cooling water from the shrinking rubber belt is recovered and re-used in washing applications. Heat recovery is an additional 'green' initiative.

Modern business owners must provide products and services that the market wants, while being good stewards of the

environment and also providing financial returns. Efficiency with excellent quality is mandatory. ItalDenim recognised that control of fabric shrinkage has been a largely elusive goal of textile finishers for many years. To date, most automation and control technologies have centred on the counting of picks and/or the measurement of input and output speeds.

Because of the inherent problems with accurately using the available technologies, the finishing department continues to use the 'stick' or ruler method...a manual measurement of shrinkage by the operator. At best, this manual technique is flawed, with the usual variations in human skill. The 'stick' is an approximation of resultant shrinkage until the actual lab wash test is performed, often several hours after the finished fabric has been despatched to the customer.

Expansion of control automation to include all possible process factors continues to be strong trend among all world-class manufacturers. While there are many sensors that will 'tell' what the individual components of a range are doing, to date there have been shortcomings in continuous-length measurement instrumentation.

WESTechnologies, of the USA, feel they have addressed this need in a unique manner. Their YieldMAX system 'tells' what is actually happening to the fabric, thus serving the immediate need of the finisher and customer. It gives the finisher a tool to accurately and efficiently determine the shrinkage of every metre, while the fabric is still in the compressive shrinking process.

The task of the finisher is to achieve the shrinkage specifications required by the garment designer, while at the same time not 'over-shrinking' the fabric, with its attendant loss of 'yield' and reduced invoiced yardage. This double goal has always vexed the finisher, but with the coupling of computerised logic and a high-tech laser detector, YieldMAX and the associated YieldWARE data-management software have provided new tools in the quest for each criterion.

ItalDenim adopted a YieldMAX for one compressive shrinking range, based solely on the lucid sales presentation by local agent Dr Ernesto Rapizzi. Luigi Caccia quickly recognised the technology as an automated reproduction of the 'stick' technique used by his father years ago and continued today. Correlation studies between the 'stick', actual lab wash tests and YieldMAX proved to be exact. The lab wash test is only a confirmation of what was the actual shrinkage delivered to the customer.

ItalDenim feels that this is the shrinkage-measurement technology that its marketing department could also use to prove shrinkage quality and subsequently ordered a second YieldMAX system.

The system's marking module (MM) applies invisible marks on to the fabric at a specific distance. At the exit end, following the palmer, the detection module (DM) determines the new distance between the marks and reports this information to the YieldMAX controller, which is the operator interface and heart of the system. The operator is able to load shrinkage targets and thresholds by article, as well as track

data by lot, operator, shift or compressive-shrinkage machine. The system will alert the operator of any shrinkage threshold exceptions.

Shrinkage data is transferred to the YieldWARE central monitoring system, where the manager can perform statistical analysis, identifying shrinkage trends shift-to-shift and operator-to-operator variations and taking appropriate action.

Besides the continuous accurate measurement of shrinkage, YieldMAX relieves the operator of the former task of intermittently using the 'stick' to measure shrinkage. With today's quest for quality fabric, an operator now has more time to visually observe the actual fabric for other visible quality parameters. By measuring actual invisible indicator points, YieldMAX is different from other offerings that rely on mechanical devices (encoders, etc) and other optical devices that attempt to monitor pick count.

Mr Caccia said: "Pick counters display an average of many pick counts, and it isn't unusual to see a fractional pick count. But we do not have actual fractional pick counts in our weave design, nor finished fabric."

Luigi Caccia expressed his evaluation of YieldMAX as follows: "Our laboratory wash tests confirm the accurate on-line determinations of YieldMAX. We are very proud to be able to ship our fashion-oriented customers, like GAP, Levi, VF, JC Crewe and Diesel, products that adhere to strict quality control standards."

In concluding the interview, Mr Caccia said: "Process sensing is a useful tool, but product sensing is what meets the stringent specifications of the customer." ○