Quality is the answer

Modern dyeing technology is a key component in remaining competitive for Turkish manufacturers

TURKISH COMMISSION dyer Inkisaf Dermirta plays a key role in the integrated chain of one of Turkey's key textile manufacturing regions located around Bursa, across the Sea of Marmara from Istanbul.

Dyeing and finishing in Bursa was initially perfected to support the products woven from the silkworms brought to its textile industry from agricultural regions across Turkey – Bursa has traditionally been on the route of the famous 'Silk Road'.

Export

Today Inkisaf dyes and finishes the fabrics of ten of the leading fabric manufacturers in the region whose products are solely targeted for export – primarily to the European market.

The company was founded in 1993 and over the past 15 years has gained a leading reputation for its ability to successfully dye specialised blended fabrics such as polyamide/cotton, polyamide/viscose and viscose/polyester, in addition to these products with Lycra.

This, says head of the family-owned company Ali Ihsan Eskin, takes no little skill and know-how, in achieving the right colour – as well as assuring consistent reproducibility – and avoiding other problems such as crease-marks and imperfections.

Inkisaf's Ali Ihsan Eskin: "In exporting goods to Europe, customers want reproducibility and fabrics of the same high quality every time."

"A good laboratory is also required," he added. "Some companies in Bursa have made the mistake of buying good stenters but opting for cheap dyeing machines. As a result, they have been obliged to try and correct dyeing mistakes on the stenter, but this is not always successful."

Inkisaf splits its fabrics into two weight groups – those below 100gsm and those above, with the new machines said to be particularly good at treating middleweights.

Short ratios

During 2008 the company took delivery of four of the latest Lufto-roto plus dyeing machines from Germany's Thies.

The Luft-roto Plus units allow blends to be run with short liquor ratios, where previously they could only be processed through long chamber machines.

This latest Thies development combines safe fabric transport and flexibility with new innovations in liquor transfer, liquor penetration and process technology.

The ascending fabric passes through the machine's liquor nozzle before moving over to the transport winch, enabling practical liquor ratios as low as 1:3 to be achieved. An air transport system ensures optimised plaiting of the impregnated material into the almost liquor free, gravity driven, inner rotating chamber.

Piece dyeing at Inkisaf's plant in the traditional textile manufacturing city of Bursa.

The novel technology of the Luft-roto Plus reduces both process times and energy consumption while at the same time enhancing the quality of the materials being processed. The highly versatile machines can be used to dye all types of fabrics, fibres and blends.

Reproducibility

"We are involved in only one part of the textile manufacturing process – piece dyeing – and our goal from the outset is to be the best in this," said Mr Eskin. "What is very important in exporting goods to Europe is that customers want reproducibility and fabrics of the same high quality every time.

Gülle's dyeing plant houses machines varying in capacity from an hourly 25kg up to 600kg.

"Today in Turkey we cannot compete with developing countries in terms of rising costs for wages, environmental demands and energy, and these costs will not go down," he said. "The things we can win on are best quality, economic production processes and flexibility – guaranteed by investment in the best technology – and our close proximity to the market in terms of the increasing trend to fast fashion – with collections moving off the shelves, often in the space of less than a month.

"Far East companies are producing fabrics more and more cheaply than us, but a major advantage is that we are closer to Europe – this is becoming more important than prices and the latest technology is what allows us to guarantee short delivery times."

Inkisaf's latest investment in Thies dyeing machines also sees a new change in perspective in terms of capacity. The first Luftroto machines just installed have a capacity of 500kg, and the second two of 750kg.

"Dyeing machines rely on water and chemical consumption, and these new Thies machines are capable of treating the same amount of fabrics using much less water than two or three of the older machines we had previously," said Mr Eskin. "And with the same quick turnaround and flexibility."

Gülle Entegre

Another company which has recently made a significant investment in new machines from Thies is Gülle Entegre Tekstil, which now has a daily production capacity of 40 tons of dyed yarn and the same for dyed knitted fabric.

The company is looking to exploit the considerable advantages of its accumulated know-how and Turkish location, to build on its reputation as a leading exporter of yarns and fabrics, according to Ismet Gülle, one of four brothers now at the helm of the company which was founded by their father in 1970.

With its headquarters in Avcilar, Istanbul, the company's manufacturing operations are located in Çorlu, where its operations consist of integrated knitting and yarn manufacturing, yarn and fabric dyeing and printing. It also has its own energy plant and employs 750 people.

Special yarns

"Our regular production is of cotton and viscose and their blends," said Mr Gülle, "but we have also developed special yarns employing fibres such as Trevira and Outlast, as well as other small lots of wool and silk."

The Thies installation has been put in place over the past three years and consists of both yarn and piece dyeing. In total, the state-of-the-art plant houses 16 vertical ecobloc-x machines, two RIII high pressure dryers, eight rotoMaster units and four mini-soft TRD machines. These machines vary in capacity from an hourly 25kg up to 600kg.

The versatile ecobloc-x machines can handle packages, warp beams or loose material providing not only the highest standard treatment of the material but also allowing economical process control.

Reproducible quality, shorter production times and cost reduction by energy savings are the key benefits of the RIII pressure dryers, which are engineered to avoid over-drying, yellowing or migration.

The rotoMaster has a reputation world-wide for its operational reliability and versatility. By the special piling and gentle movement of the fabric, the rotating drum provides an optimal product.

The Thies mini-soft TRDs are positioned next to the company's laboratory for both testing and small-lot production. Shading is tested and corrected on these units before going into regular production, since the results can be transferred to all of the bigger dyeing machines, to ensure best quality and product in advance.

The Gülle dyeing operations are also equipped with a centralised automated system for dispensing the chemicals, dyestuffs, salt and soda that is required in production.

Quality

"Our strategy in investing in this Thies installation was primarily to reduce the costs related to labour and energy, as well as using less dyestuffs," said Mr Gülle. "We have now reached this position. The textile sector is not easy at the moment and quality is the only answer.

Ismet Gülle: "The flexibility these machines provides us with is essential, since retailers no longer want to carry stock."

"At the same time, the flexibility that these machines provide us with is essential, since retailers no longer want to carry stock – and they certainly don't want to order a million t-shirts in one go. Brands like Zara and Mungo now introduce new collections to their shelves every 15 days – whereas in the past there were only two seasons a year. Anyone without the latest technology cannot cope with this situation."

Triple stream

Meanwhile, complete control of quality is being achieved at the brand new dyehouse of Kral Tekstil in Manisa, Turkey, with a triple-stream Thies MPS automatic dosing and dispensing system accurately feeding thirteen dyeing machines.

Following a significant investment in the dyehouse, along with a wide range of state-of-the-art European finishing machines, the plant began operations in June 2008.

The company has had no trouble in sourcing quality yarns for its knitting production, both locally and from India and Indonesia, but found that the subsequent stage of dyeing and finishing its fabrics could be problematic.

Options

"In this area there are just a few dyehouses with old equipment," explained technical manager Murat Cakli. "Cost, quality and delivery efficiency were all being affected by our limited options in this respect."

Mr Cakli, a dyehouse specialist with previous experience with such well-known Turkish textile companies as Dortel in Ankara and Ayboy in Izmir, assembled the team for the new dyeing and finishing plant, bringing in experienced professionals to be in charge of the four key areas of dyeing, finishing, the laboratory and quality control.

"I was well aware of the efficiency of Thies machines from using them at previous plants," he said.

Among the machines Thies has so far supplied for the new Kral operation is a Luft-roto plus SII unit which represents a significant development in short liquor ratio dyeing technology.

Alongside it at the Kral plant are seven rotoMaster fabric dyeing machines with capacities varying from 100 to 750kg. A characteristic of the rotoMaster is its inner rotating drum which allows ultra low liquor ratios to be achieved, starting at approx. 1:3.5 for synthetics and 1:4.5 for cotton.

Kral has also installed five Minisoft units to bridge the gaps between research, laboratory and production, with capacities of between 10 and 40kg.

Automatic dosing

Playing a critcal role in the smooth running and efficiency of the dyehouse are the three Thies MPS systems – MPS-L for the supply of chemicals, MPS-D for dyestuff dispensing and MPS-S for granules such as soda and salt – all of which are controlled by the Orgatex control system .

"This system allows much greater control of quality and just as importantly the ability to track the history of production on any of the machines by time or batch order," said Kral automation engineer Selim Kondakgi. "Running step by step it allows us to analyse the dyeing curve and from it create the specific recipe before automatically creating the batch order. This not only makes things easier in respect of guaranteeing reproducibility, it also means if there is a problem, we can analyse the batch, recipe and dyeing curve back through the system to find out exactly where the problem occurred, quickly rectify it and ensure it doesn't happen again."

Automatic dosing and dispensing at Kral guarantees reproducibility.

Quality control

"The reason for the company's move into dyeing and finishing is simple – we needed control of the quality of our products" added Murat Cakli. "The Thies MPS system and Orgatex controller ensure this.

"When you are putting together a new team you usually need time for education and training on the machines, but our problem was that orders came in very fast so there was virtually no time for trials. Happily, we had the system in place from the start to do a lot of the work for us."

Kral's garment manufacturing customers in Izmir supply to the leading European brands including H&M, Marks & Spencer and Zara.

"So far we have been very successful in dyeing and finishing cotton, viscose and polyester knitted fabrics with or without elastane, in addition to yarn-dyed fabrics," said Mr Caki. "At the moment, in addition to finishing around 250 tons of our own production every month, we are also handling around 100 tons of fabric as a sub-contractor for other companies."

Finishing steps carried out include drying, sanforising, emerising, brushing, carbon brusing and softening, in addition to treatments for such properties as flame retardancy and water repellancy.

"In general, the situation is not so good for dyeing and finishing operations in Turkey right now," said company chairman Ugur Kiralogu, whose father founded the company. "But we are enjoying very healthy business and our aim now is simply to provide the highest quality finished products to customers as efficiently as is possible.

"At the same time, we are already working at full capacity and plan to expand again very shortly. We may also invest in our own printing operation in the near future." TM