monforts

world of home textiles

Monforts Reference Reports | Issue 1 | www.monforts.com

Traditional African art fused with contempory patterns was a theme by Sapphire Textiles (See page 21)

Monforts solutions for **home** textiles

There are clear signs of an upturn in the international textiles market in the year 2015.

There is expected to be, for example, a further rise in consumer confidence in the United States, which along with Europe, is the major destination for exports of home textiles from the leading manufacturing countries – China, India, Bangladesh, Pakistan, etc.

The global market for home textiles was worth around $ 34 billion in 2014, accounting for 4% of all trade in textiles, but much higher in countries where the manufacturing of commodity apparel products is no longer viable. In Germany, for example, home textiles account for over 30% of all production.

The home textiles market is, however, a highly competitive field and product differentiation can often be as much the key to success as price.

Here at Monforts we continue to develop the finishing technology platforms from which our customers can develop the winning products to ensure they maximise their quality, efficiency and profitability.

We are proud to present our references for home textiles in this publication.

Roland Hampel,
Managing Director

Monforts customers furnish the **European** home

As an indication of the global importance of the European home textiles market, the 2015 Heimtextil exhibition in Frankfurt attracted some 2,759 exhibitors from 68 countries – up from 2,714 in 2014.

And more than 50 were highly valued Monforts customers.

High quality and differentiation through advanced finishing techniques are essential to success in the highly-competitive home textiles market which is dominated by four key supplier countries – China, India, Pakistan and Turkey.

All have been highly successful in supplying to the major home textiles markets which remain Europe and the USA. And state-of-the art technology and vertically-integrated manufacturing operations have been crucial to this success

The annual Heimtextil gets bigger each year and extends to virtually all of the halls of the huge Messe Frankfurt fair grounds – corresponding to an area the equivalent to around 29 football pitches!

In addition to attracting the top brands in the sector, it has also become an international launchpad for small and highly creative labels and young designers.

As a consequence, over 68,000 visitors were drawn to the event.

Figures presented during the show put the total value of textile and clothing exports at US$ 766 billion in 2013, with growth in textile production of between 3-5% anticipated for textiles alone in 2014, once final calculations have been made.

The home textiles market at the moment is mainly growing as a result of the improved business climate in the USA.

In Europe though, there are also some signs of a business recovery, and in the first nine months of 2014, imports of home textiles into the EU from Pakistan were up 27%, those from China up 10% and from Turkey 8%.

Europe's own manufacturers have also enjoyed success, with 2014 home textiles exports to Egypt up 30%, to Pakistan up 28% and to China up 18%.

The domestic home textiles retail market in Germany remains very strong, and had a value of around € 8 billion in 2014.

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BLUECOMPETENCE Alliance Member
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VALERON

Ottoman **elegance** from Valeron

Valeron – possibly the best-known of the international brands of the **Zorlu Textiles Group** – unveiled its latest Premium Collection.

Manufactured from 100% pure Egyptian cotton with a 600-thread count that gives it the quality of satin, and blended with specially produced French lace, the collection is among Valeron's most exclusive, characterised by hand-made craftsmanship, superior design and the highest quality.

It brings together a rich array of products ranging from duvet covers, piqués and bedspread sets to bathrobes, towels, curtains and decorative items.

Behind the success of the Valeron brand are superior yarn and weaving techniques, combined with the most advanced finishing.

Founded in 1953 as a weaving atelier in Denizli, Turkey, Zorlu has grown into one of the leading manufacturers of home textiles globally, with an annual output of around 100 million metres.

In 1998, Zorlu USA was established on 5th Avenue in New York to build on the Stateside success of the company's bed linen sets –"designed to bring the magnificent elegance of Ottoman palaces into your home". With its strong sourcing capabilities and relationships with manufacturers in China, India and Pakistan, Zorlu USA has become the foremost supplier and distributor of home textiles to the major US retailers.

It was also in 1998 that Zorlu made a $150 million investment in vertically-integrated textile manufacturing at an 85,000m² centre for weaving, dyeing, printing, finishing and make up in Turkey. **The installation includes no less than seven Montex stenters.**

MORI TESSUTI

A new **eco** standard with Organicotton

Mori Tessuti's GOTS-labelled home textile fabric ranges are a must for designers and specifiers who are conscious of the environment.

The Global Organic Textile Standard (GOTS) is recognised as the world's leading processing standard for textiles which are made from organic fibres.

Only textile products that contain a minimum of 70% organic fibres can become GOTS certified and all chemical inputs such as dyestuffs and auxiliaries must meet defined environmental and toxicological criteria.

Mori Tessuti S.p.a., based in Cicognara, Italy is capable of meeting all of these demands with ease.

The company's Organicotton fabric ranges are made from cotton which is organically farmed without using any genetically-modified organisms (GMOs) or chemical pesticides.

Printing and dyeing too, are carried out using products that have a very low environmental impact, without any chlorine bleaching and without any heavy metals such as nickel, chromium, copper or cobalt too, and using only reactive colours.

Celebrating its 40th anniversary in 2015, Mori is a finishing specialist in the northern Italian tradition and a valued Monforts customer able to exploit all the tools of textile treatment to their full.

Its key finishes for regular fabrics include flame retardancy, acrylic resin, titanium and metallic foil coating, water and oil repellency, sueding, anti-microbial, anti-mould and dust mite-resistance treatments, sanforizing, and both transfer and digital printing.

MUSTAQIM

Aiming to be 'top choice'

As one of the fastest-growing home textile manufacturers in Pakistan, **Mustaqim** has just acquired a 36,000-spindle spinning mill.

"We have been trialling it for the past few months and it represents a major step for us in becoming more vertically integrated," said Director Saad Bilwani.

"Our initial focus has always been to be the 'Top Choice' of our global business partners and to acquire that goal, we started the operations from commission printing and finishing in 1999.

"We began exporting our own goods to the UK, Germany, South Africa and Sweden. This side of the business has grown to be very successful as we have updated and operated our Standard Operating Procedures (SOPs) with all the basic elements of Supply Chain Management Systems."

Founded in 1994 in Karachi, Mustaqim has three printing machines in widths of between 1.8 and 3.2 metres and is equipped with two

Saad Bilwani, Director

Montex stenters, with the most recent to be installed having a width of 3.2m.

Along with bleaching, sanforizing and singeing, the company is now finishing around 50 million metres of fabric annually.

"Sustainable manufacturing is very important to us," Mr Bilwani said. "We are using only Azo-free dyes and chemicals in our finishing operations, for example, and have Oeko-Tex Class One certification."

"We have also converted all of our standard plant operating procedures according to the Energy Conservation Programme and switched our generators from diesel to gas, to reduce CO2 emissions. We were also the first in Karachi to start up a full waste water treatment plant."

"The key markets for us now are in Europe, which makes Heimtextil a very important show and we are also experiencing increasing success in North America. We've been very happy with the business generated here in Frankfurt."

SÖNMEZ

Specialising in towels

Sönmez Tekstil was formed in 1963 as a soft fabric goods producer. Since then production of terry towels, bath robes and kids textile products were started.

Today the company is producing terry woven and flat woven products as well as towels, bathrobes, nursery products, bed linen, hamam and wellness products, beach towels and one-side terry towels.

Towel production features jacquard with fringes, handmade lace or satin ribbon and flash borders.

Highlighted, according to Mr Serhat Süalp, CEO was a range of 320 – 340gsm lightweight bath robes.

"Although introduced almost two years ago interest is still high," he said.

Towels are produced from 300 - 1200gsm featuring a wide range of ring spun and combed yarn reactive

dyed and tumble dyed to ensure a quality finish.

Supersoft and extra absorption towels and bathrobes with an ultra-rich pile are available with a variety of elegant plain or striped colours.

ALOK INDUSTRIES

India's **Alpha** performer

Mr Deora, CEO, Alok Terry Division

Alok Industries is India's fastest growing textile company, having increased its turnover from $719 million in 2010 to $2.5 billion in 2014 – representing unbelievable annual growth of 36.7%.

At Heimtextil, **Alok** was promoting home textile ranges made with its new Alpha Cotton fabrics, representing a new breakthrough in what is possible with cotton and polyester blend yarns.

"The benefit of Alpha Cotton fabric is that it's a polycotton in which all of the polyester is sheathed within the cotton, as a result of how it's cross woven," explained Mr Deora, CEO of the Alok Terry Division.

"As a result, it provides all the advantages of 100% cotton, but at a much more competitive price. We're now promoting it in both bedding sheet sets and towels."

"The company set up its first polyester texturising plant in 1989 and subsequently expanded into weaving, knitting, processing, home textiles and garments," explained Sanjay Deora at Heimtextil.

"As a consequence, we've evolved into a diversified manufacturer of home textiles, garments, apparel fabrics and polyester yarns, selling directly to manufacturers, exporters, importers, retailers and to some of the world's top brands, including M&S, Walmart, BHS, Target and C&A."

Headquartered in Mumbai, it has also gained a strong foothold in India's domestic retail market through its H&A stores, and in addition, owns more than two hundred Store 21 clothing shops across the UK.

On the manufacturing front, the company made a substantial $240 million investment a few years ago which included provision for comprehensive finishing equipment, including a new Montex stenter, a Pad Thermosol and a second Thermex continuous dyeing system.

ALTINBAŞAK

Highest **quality**

Turkey's Altinbaşak took the opportunity to highlight its comprehensive range of high quality towels, duvet cover sets comprising cover, bed sheets and pillow cases, and 100% cotton bathrobes.

Prominently displayed were its new embroided pillow cases and towels featuring new colours; all produced to the highest quality and innovation.

According to Ömer Çalişkan, Europe represents its biggest export market for leading brands such as Carre Blanc, Laura Ashley, John Lewis and Zara.

Boasting an all in-house production the company has a monthly capacity for 150 tonnes for hand - and bath - towels, 45,000 pieces of bed linens and pillow cases, 50,000 pillows and 15,000 quilts.

Founded in 1971 in Denizli, Altinbaşak employs more than 500 employees and has a turnover of $ 50 million.

KOHINOOR TEXTILE MILLS

A **close-knit** community

Yarns in an extremely wide range of counts and produced from both cotton and manmade fibres by **Kohinoor Textile Mills Limited (KTML)** find their way into everything from institutional bed linens to the finest quality home furnishings.

Around 30 million metres of woven fabric is produced by the company each year and it is one of Pakistan's leading producers of wide width greige fabrics.

The company's processing, finishing and cut-and-sew operations produce high-quality printed and dyed fabrics, and made-up products for both the institutional and home textile markets

The finishing plant is equipped with a range of Monforts equipment, including Pad Thermosol, Sanforizing and Curing ranges, along with two Montex stenters, all working to a uniform width of 1.8 metres.

Founded in 1949, the company now employs 1,500 highly qualified and technically trained staff who have become a close-knit community at the company's 103-acre plant in Kasur close to Lahore in Pakistan.

As a socially responsible company, KTML complies with International Labour Organisation standards and is also certified for ISO 9001:2000, Oekotex 100, SA 8000:2001, WRAP and C-TPAT

Enabling energy efficiency sustainability meets **profit**

With volatile commodity and energy prices as well as requirements from brands, retailers, consumers and governments, sustainability has become a significant competitive factor for textile manufacturers.

Technology is a key to reach sustainability targets. German textile machines ensure substantial raw material and energy savings to demonstrate that 'Sustainability meets profit'.

Sustainable production is a prime focus of the textile industry. Volatile prices, for example, for commodities and energy, forces the industry to pay the highest attention to resource saving and energy efficiency.

Furthermore, sustainability is a subject to which the textile industry is increasingly confronted by legislation, by brands and retailers and by consumers.

To summarize, sustainability is an issue with hard economic aspects. It has become a significant competitive factor. Technological upgrading is one of the keys to realise sustainable textile production and so remain competitive.

The German mechanical engineering industry plays a prominent role in developing and realising sustainable solutions. For example, effective solutions for new energy concepts and effective handling of scarce resources.

The VDMA has assumed patronage of the Blue Competence sustainability initiative. Blue Competence aims to interconnect all of Germany's mechanical engineering industry. It pools the resources, know-how and strengths of VDMA members.

Textile machines are usually designed for the different demand profiles of the textile manufacturer.

These profiles result from the textile product to be manufactured and the specific process to be undertaken. In other words, the textile producer directly affects the specific energy use in many ways.

Machine-based logos and classification of textile machines into energy efficiency classes are no solution from a professional perspective. Textile machines are not refrigerators!

BLUEcoMPETENCE Textile Machinery

Energy Management

Blue Competence therefore defines management criteria and process standards. They apply to all alliance members taking part in the initiative.

The Blue Competence logo allows sustainable solutions, products and companies to be quickly and easily identified.

Alliance member companies are responsible to follow engineering design guidelines with sustainability criteria over the entire lifecycle of a machine.

They need to show in product documentation and instructions how to operate their machines in a resource friendly manner.

Alliance members have to offer expert advice to customers. This means advice on energy efficiency and resource conservation for the daily operating process. The effectiveness of products has to be quantified in case studies.

Alliance members of Blue Competence are responsible to maintain a management system setting and monitoring sustainability and quality targets. And they have to assign sustainability topics directly to a member of the board of management.

Energy efficiency

Monforts has been actively involved from the beginning of the VDMA Blue Competence activities - convinced that the Blue Competence concept results in technical and economic advantages for its customers.

Energy management has been one of Monforts primary goals for many years, driving the company to develop energy efficient and resource conserving solutions.

For many years textile finishing has operated with chemical and thermal processes which, by present-day standard, can have a severe impact on the environment.

The energy costs are high, and the use of chemicals absolutely essential. But with innovative ranges and advanced auxiliaries, Monforts has succeeded in optimising these processes.

The savings benefits that have been achieved in recent years are in some cases, quite considerable.

Monforts Blue Competence

- Defined economic targets and proven examples of particular products and processes.
- Electrical and electronic components with highest efficiency
- Sustainability as a R&D target.
- Product documentation contains guidelines for sustainable use of the product.
- Monforts provides service and consultancy to improve sustainability related to its products.
- Sustainability as a management target.

and resource saving -

A joint paper by Nicolai Strauch, VDMA and Peter Tolksdorf, Head of Technology, A. Monforts Textilmaschinen, at the AUTEX World Textile Conference.

Monforts Eco Applicator

An excellent example highlighting how the Blue Competence concept can influence the R&D activities is the Eco Applicator; a unit which significantly reduces the initial moisture content before the drying process.

The challenge of sustainability is to save natural resources without compromising production quality of the final products.

The Eco Applicator ensures reduced energy consumption, faster drying and higher productivity compared with standard equipment such as padding systems.

Padding is a process employed in the textile industry for wet treatment of textiles. The fabric or 'substrate' is transported through a trough containing the finishing or dying liquor.

The term 'liquor' is generally used to refer to an aqueous liquid in which textiles are washed, bleached, dyed or impregnated. It contains all the dissolved, emulsified or dispersed constituents such as dyestuffs, pigments or chemicals.

During the further course of the production process, the substrate is transported through rollers to remove the excess liquor.

A liquor absorption of 70% - which is a typical value in standard padding application - means that 100 kg of textile fabric has to absorb 70 kg of liquor. After the impregnation process, the wetted fabric is dried in a final step by means of a Montex stenter.

For this process, drying energy is required which, in the textile finishing industry, is a major cost factor.

Influencing factors for the energy consumption and costs of drying processes are the initial moisture content, residual moisture content, drying temperature and relative water vapor content of the ambient air.

The degree of initial moisture is the crucial point for determining how much evaporation heat and energy is necessary for drying.

Benefits

Reducing the liquor pick up, which is the means of operation of the Monforts Eco Applicator, results in less evaporation heat and lower operating costs.

With the Eco Applicator, the liquor is not applied to the fabric by dipping it through a trough but by using steel rollers which transfer the required amount of liquor onto the fabric.

With lower waste water contamination the application unit becomes a resource -conserving alternative to padding.

The Eco Applicator has a wide range of potential uses: The liquor can be applied to one or both sides of the substrate, or different liquors can be applied to the front and rear sides.

Peter Tolksdorf, Head of Technology, A. Monforts Textilmaschinen

Small liquor contents mean low residual liquor volumes.

The possibility of applying different liquors at the same time allows multi-functional products to be created. This could be, for example, a sportswear fabric that provides rain protection outside whilst it has hydrophilic properties inside.

In addition to the traditional dry in wet application, Eco Applicator is also suitable for wet in wet applications.

Compared with conventional systems, an extremely precise application without any diluting effects can be achieved. No intermediate drying step is necessary resulting in higher production capacity and saving of natural resources.

The sustainable strengths

The Eco Applicator can be used in a very wide range of applications: home textiles, smart clothes, building textiles, medicine/ hygiene and further Techtex areas.

The new unit achieves a maximum energy yield, because moisture that is not applied to the textile fabric does not have to be dried.

The Eco Applicator allows conservative use of water and energy resources.

BIERBAUM

Bierbaum starts with a **bang**

Bierbaum, the leading German household textiles group started the year with an announcement at Heimtextil of a very strong performance in 2014 and significant new expansion plans.

'Smail' by **Bierbaum** is a completely new design collection for the premium segment. It is characterised by clear shapes and sophisticated structures in fresh aqua shades, elegant silver, warm cream colours and on-trend coral.

The company also continues to introduce new designs into the Roy Robson Luxurious Dreams collection which it distributes under licence.

The Irisette brand meanwhile celebrates its 60th birthday in 2015, marked by the introduction of the new Strenesse bedding collection at Heimtextil.

Surface finishing is one of the core competences of the Bierbaum group, and while its weaving operations are now carried out in Slovakia, all finishing operations, along with advanced nonwovens production, have remained in its Borken-based headquarters.

Product features, the company stresses, are essentially characterised by technical know-how and experience. Continuous development always leads to new product ideas and improvements.

For bed linen products, special finishes such as non-iron, easy iron and mite protection treatments meet the highest demands, while the stringent environmental standards of the Borken plant enable finishing that complies with the Global Organic Textile Standard (GOTS) to be successfully undertaken.

Ambitious bed linen designs are manufactured using the most modern rotary printing presses and the company has both its own workshop for separation and a template laser engraving machine to ensure a continuous optimal production structure.

All materials, chemicals and auxiliary materials employed are constantly checked for human ecological safety to the Öko-Tex Standard 100 and environmental compatibility by the Hohenstein Textile Testing Institute and Bureau Veritas.

It is currently carrying out a €9 million production expansion programme to include new finishing equipment and see the production areas at Borken extended by 12,000m² to 98,000m².

Both customers and end consumers increasingly value the security and the sustainability of a modern European production plant and the social and ecological standards connected with it.

ÇELIK TEKSTIL

Bed linen **galore**

As one of Turkey's biggest bed linen suppliers, **Çelik Tekstil** offered a wide range at the show.

In addition the company also produces bath robes, terry goods and towelling, blankets and bed covers, duvets and pillows, kitchen linen and decorative upholstery cushions.

Typical of its products, jacquard sateen fabrics in 240 cm wide, 100% cotton and 40/40 dobby fabrics.

Microfibre finishing for Liberty Mills

Liberty Mills is a specialist in the processing of woven and knitted cotton and polycotton fabrics in counts from T-120 to T-400.

Mr Muhammed Asif Munshi

With an annual turnover of $170 million, the company is currently considerably expanding its finishing operations.

Executive director Muhammad Asif Munshi explained that while the company already operates four rotary dyeing ranges, it has installed a new continuous dyeing range and will commence reactive- and also disperse- dyeing on microfibres which is currently proving very popular for the home textiles market.

"In the past, this market has been dominated by manufacturers from China but now the key players in Pakistan are increasingly being recognised as reliable suppliers of such materials," Mr Munshi said.

Founded in 1963 in Karachi-based Liberty Mills consists of four divisions. In addition to home textiles, one is dedicated to the hospitality and institutional markets and produces fully finished medical gowns, drapes and other protective items with special finishes.

Another specialises in the dyeing of stretch fabrics which are primarily supplied to customers in Europe, while the fourth is a fully integrated stitching and making-up operation.

Liberty's daily finished fabric production amounts to 500,000 sqm, while its Stitching Department is one of the largest cut and sew facilities in the industry, responsible for the monthly production of – among other items – around 520,000 woven bed linen sets, 100,000 knitted duvet cover sets, 100,000 pairs of curtains and 50,000 sets of table linen.

"The whole production is exported directly and indirectly to customers which include vendors of internationally recognised brands, department stores and mail order firms," said Mr Munshi.

"Upgrading the quality of our products and services, personnel, equipment and infrastructure is an ongoing feature of our operation."

Liberty's Home Textiles division is currently supplying polycotton woven fabrics for bedding and heavier materials in the weight range of 220-240 gsm for furnishing fabrics.

GUL AHMED

From the **Indus** Valley...

As a supplier to leading European brands such as Ikea, Karachi-headquartered **Gul Ahmed** operates both yarn dyeing and fabric finishing lines from Monforts, as part of its highly integrated operations.

The company's fabrics for the home textile sector are renowned for their fusion of the centuries-old traditions and craftsmanship of the east and the fine finishes made possible by such advanced European technology.

Gul Ahmed fabrics are based on the purest of cotton fibres produced from the fertile lands of the Indus Valley. White, dyed, printed or yarn-dyed fabrics and made-up products are all available from a single source.

As one of the oldest groups on the subcontinent, Gul Ahmed began operations in 1953, although it had been trading in textiles since the early 1900's.

Today, it has a fabric capacity of over ten million metres per month of both reactive and pigment printing (rotary and flatbed), in addition to wider width continuous dyeing.

In addition to an installed capacity of more than 130,000 spindles, 300 state-of-the-art weaving machines and the most modern yarn dyeing, processing stitching units, Gul Ahmed also has its own captive power plant comprising gas engines, gas and steam turbines and backup diesel engines.

The opening of its flagship store - 'Ideas by Gul Ahmed' – in Karachi in 2003, marked the group's entry into the retail business and an extensive chain of more than 40 retail stores has subsequently been established across Pakistan.

ZABER & ZUBAIR

Fully **vertical** in Bangladesh

Zaber & Zubair's 6,000 strong workforce turn out 35,000 bed sets, 5,000 pairs of curtains and 2,000 quilted comforters daily; with dyeing and finishing plant including Monforts stenters to ensure a solid range of colours and patterns and an equally diverse set of added coating treatments.

A vertically-integrated process, production starts at one of five Zaber & Zubair mills which include one of the country's strongest spinning bases equipped with 463,600 spindles.

Although it only began commercial production in 2000, Zaber & Zubair was in the position to double its entire manufacturing capacity by 2005 and is now supplying its home fashions to leading European and US retailers and supermarkets including Aldi, Asda, Carrefour, Lidl, JYSK, M&S, IKEA and Wal-Mart.

"Our mission is simply to achieve excellence in what we do," says Nurul Islam, chairman of the Noman Group, the parent company of Zaber & Zubair.

"Our commitment is to cost effective production and full compliance with product standards. We also ensure that Zaber & Zubair complies with all legal, social and environmental requirements, and in addition to investing in new manufacturing equipment, have doubled the size of our effluent treatment plant too".


COMO

TAVELMO MOVELTA

Montex takes **centre** stage

Contract furnishing fabrics specialist, Tavelmo Movelta's, replacement Montex stenter increases speed of production and provides improved quality at its Belgian finishing operation.

Consolidating its two business operations, Belgium's contract furnishing fabrics specialist, Tavelmo Movelta, replaced its two stenters with a single Monforts Montex stenter; ensuring faster production speeds and improved quality; ordered through local Monforts representative Le Clair & Meert.

"Advanced finishing is at the heart of everything we do here," said Frans Hellyn, owner of the highly successful Tavelmo Movelta Group, one of Europe's leading manufacturers of contract furnishing fabrics, "and the Montex stenter is at the heart of our finishing operations."

Two previously separate businesses within the group have been consolidated at a state-of-the-art, integrated weaving and finishing plant in Nijverheidslaan, between the Belgian cities of Lille and Ghent.

Both yarn and piece dyeing are carried out at a separate plant in nearby Sint-Niklaas.

The Movelta brand has been well known for many years for its ranges of woven velvets, while the Tavelmo name is equally renowned for flat wovens and cheniles.

Home textiles for sofas, curtains and bedding are exported to more than 60 countries and the group also supplies materials extensively to manufacturers of caravans and mobile homes, boats and outdoor furniture.

With the merging of the two operations at the Nijverheidslaan plant, a six chamber Montex stenter with a working width of 1.8 m has been installed to replace two older machines.

"It does the jobs both were previously handling much faster and with much better uniform quality results," said Mr Hellyn.

"Everything we produce here goes through the stenter at least once, and often twice. If we mercerise the fabrics, they then go through the stenter again, and if we coat or print them, stentering also follows."

He added that a conscious decision was made to focus on added-value wet and dry finishing operations and

Frans Hellyn (left) stands with the family-owned company's third generation, daughter Charlotte (centre) and son Oliver (right).

to invest in the best machines available for each process.

Heavy weight fabrics

Tavelmo Movelta generally deals with fabrics that are much heavier than those produced for apparel, in the weight range of between 350-500 gsm, and finishes such as flame retardancy, moisture repellency and even chlorine resistance for the marine market have to be accurately applied and their effectiveness guaranteed.

Specific products within the company's vast range demand especially sensitive handling, such as polypropylene-based outdoor fabrics where precise temperature control is essential, or the latex back-coating of caravan fabrics. In the treatment of face-to-face velvets, meanwhile, the even backing applied on the Montex stenter is essential for achieving accurate pile anchorage.

"We are lucky to have a highly-experienced team here who can get the most out of the machines," Mr Hellyn said.

New developments

Tavelmo Movelta received the 2014 Blue Drop Award at the MOOD (Meet Only Original Designs) trade fair held in Brussels, for its development of a special velvet quality, based on bamboo polyester.

"The company succeeded in creating a kind of pelt, similar to fur," said MOOD trends co-ordinator Niek De Prest of the development. "The ultimate softness obtained with the naturally antibacterial bamboo fibre is unrivalled and even the discolouration is perfect."

Another new development which is attracting a lot of interest – and is also particularly demanding on the company's technicians and the stenter – is the new Easy Clean finish, developed in collaboration with a chemicals supplier.

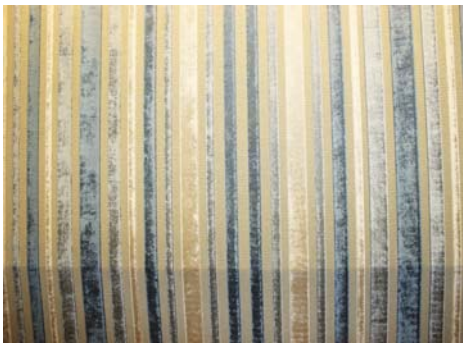
With Easy Clean, stains on furnishing fabrics including ink, tomato sauce and red wine can be easily removed with water and unlike other treatments, its effectiveness is permanent.

"The difference," Mr Hellyn observes, "is that we are embedding the coating deep within the fibres of the fabrics, which took a lot of research and development work to achieve."

Third generation

Tavelmo Movelta was founded in 1948 by Mr Hellyn's father. Today his son Olivier and daughter Charlotte run the business with him as the family-owned firm looks towards its third generation success.

"It's not possible today to compete as purely a weaver of fabrics," he concluded. "We are running against the wind in producing in Europe, which is why we have to specialise and have made heavy investments in our finishing equipment."




Beatify
Worry

MENDERES TEKSTIL

A beautiful morning wins **orders**

'Beautiful Morning', a 100% cotton and satin, 120 gsm fabric was one of several new fabrics highlighted by Turkey's **Menderes Tekstil** for the company's range of bedlinen.

Company Sales Executive, Ergül Künar confirmed that the new collection was proving very successful and winning orders.

"The new collection is highlighted by the high quality digital printing to ensure a bolder impact and the all important finishing process."

He also added that, "all satin products are non-iron finished as standard."

Mr Ergül Künar

Founded in 1983, the company initially specialised in spinning, weaving, printing and dyeing. Massive investments throughout the 90's in new technology including finishing equipment, saw a major increase in production.

The company also produces a wide range of duvet cover sets, bed sheets and table clothes. It has a production capacity of 28 million bed sets a year.

KÜÇÜKERLER TEKSTIL

Furniture fabrics from **Turkey**

Recognised as one of Turkey's leading international upholstery manufacturers, **Küçükerler Tekstil** specialises in quality chenille, fancy yarns, polyester, viscose, cotton and silk.

Its dyeing department produces plain dyeing and package dyeing and finishing with great care using the most advanced technologies.

The company which currently exports 90% of its products worldwide, highlighted its latest collection at Heimtextil.

LUCKY TEXTILE MILLS

Supporting the backbone of **Pakistan**

Quality control has always been a top priority for Pakistan's **Lucky Textile Mills.**

"The textile industry is the backbone of Pakistan and I am proud that Lucky Textiles has been a fundamental contributor to this sector," says joint CEO, Imran Yunus Tabba.

"Our products are created under stringent quality control to ensure we meet international standards and remain above the competition. And we don't shy away from using the best and latest technology available."

The Lucky Textile Mills dyeing and finishing plant has an annual capacity of 12 million metres of dyed fabrics and a similar amount of printed textiles.

The centre pieces of its plant are two Montex stenters in widths of 3.2 and 3.4m.

Lucky also has a 3.2m wide mercerizing line with a daily capacity of 30,000 m of 100% cotton and cotton blended fabrics, which is fitted with the EcoControl system.

YUNUS TEXTILE MILLS

Getting down to **zero** at Yunus

The mission of **Yunus Textile Mills** is not only to be the leading manufacturer of home textiles in Pakistan, but also the most environmentally responsible.

"Improving the environmental and social sustainability of our product life cycle has been a major part of our work and will remain so," said Ali Tahir Belgaumi, the company's General Manager of Quality Assurance and Sustainability.

"In the future, being at the forefront of sustainability will mean being both carbon footprint neutral and producing zero waste. That has to be our ultimate aim."

In a major step towards realising this ambition, Yunus is currently completing the construction of a state-of-the-art effluent treatment and recycling plant at its integrated textile production base in Karachi.

Capable of treating some 1.2 million gallons a day, it will allow 94% of the water that is employed in production to be re-used.

This is no mean avchievement when considering the company dyes, prints and finishes around 100 million metres of fabric each year.

Equipment supplied to Yunus by Monforts over the years includes both dyeing and fabric finishing units.

An infrared Montex stenter in place for the processing, capable of carrying out reactive, disperse, disperse/reactive, vat and pigment dyeing.

The finishing section now houses no less than seven Montex stenters, along with a s sanforizing unit for adding dimensional stability to the company's ranges of cotton and polycottons, polyester and microfibre fabrics.

Conquering the **world** from **Anjar**

It's now a decade since Welspun was established, bringing much needed employment and opportunity to the sleepy town of Anjar in the Kutch district of Gujarat.

While the company has subsequently expanded to other regions, Anjar remains the main manufacturing base for **Welspun**, which has recently been ranked the number one supplier of home textiles to the USA.

The company has continuously invested in new technology and in December 2014 opened an expansion to the spinning plant at Anjar – the largest in India – doubling capacity to over three million spindles in order to fulfil almost 70% of its internal yarn needs and paving the way for improvements in its supply chain by reducing dependency on external sourcing.

"This expansion represents our long-term commitment to the Indian economy and the government's 'Make In India' vision," said company chairman Balkrishna Goenka.

Welspun now has the capacity to manufacture 40,000 tons of towels and 45 million metres of flat sheeting fabric which it plans to grow to 60,000 tons and 72 million metres respectively in the next three years.

Welspun's aim is now to achieve sales of $2 billion in 2020, and become the Number One globally in home textiles.

"Most of the $700 million turnover that the company currently achieves in textiles comes from the home textiles segment," said Managing Director Rajesh R. Mandawewala.

"We will invest over $400 million in the next three years to further increase capacity across the entire manufacturing chain – from spinning to finishing."

"In the early '90s, most of the big businesses in the developed economies failed to see that the world was ready to offshore the manufacturing of textiles to the east, particularly to the Asian countries."

"At that time, we could not find anyone to partner us in our decision to expand our business. This is when our chairman decided to set up our own plant at Vapi in Gujarat in 1993. Due to the efforts of my colleagues, who have been in the organisation since its inception, we are now the largest producer and seller of towels in the world today." Confirmed Rajesh.

From a sultan to a **queen**

Christy, the UK's leading towel brand, is now part of Welspun Global Brands and boasts a heritage stretching back over 150 years.

The company was established in 1850, when Henry Christy visited the Palace of the Sultan in Constantinople. He brought back with him a sample of a hand made, loop pile fabric which was new to the western world.

His brother Richard analysed how to mechanically reproduce the loop pile, and patented a machine to produce terry towelling on a large scale.

The first Christy towels were shown in the Great Exhibition of 1851 at Crystal Palace, where a set was presented to Queen Victoria. She liked them so much she immediately ordered more.

CRESCENT TEXTILE MILLS

It's **24/7** at Crestex

With an annual output of 42 million sqm of finished fabric, **Crescent Textile Mills (Crestex),** relies on a Thermex Econtrol single-bath dyeing range with a working width of 3.2m at its plant in Lahore, Pakistan.

This unit is specially equipped with an infrared pre-dryer and an integrated drying and curing chamber for the continuous processing of polyester and cotton fabrics with selected reactive and dispersion dyestuffs.

Founded in 1950, Crestex processes 100% cotton local and imported short and dry staple fibres, along with polyester and blends of the two in counts of between Ne10 and Ne100.

Its spinning mill is capable of processing some 48 million kg of Ne20 yarns annually.

In addition it has a weaving capacity of 53 million sqm of fabric to meet its own needs, Crestex also outsources some 60 million metres of greige fabrics.

Meanwhile, around 42 million sqm of fabrics are handled annually for the quilted bed-in-bag items, bed and table linen and soft furnishing products manufactured by the Crestex made-up department.

TANRIVERDI MENSUCAT SAN

World **leader**

Among the world's leading integrated curtain manufacturer is Istanbul-headquartered **Tanriverdi Mensucat San** producing embroidered curtains, macrames, fancy voiles, jaquard voiles and deco fabrics, upholstery fabrics and readymade curtains.

Its first production facility was started in Çatalaca in 1986 with guipure, brocade and applique products.

Since then the company has opened 12 production facilities producing ready-made curtains exported to more than 80 countries worldwide.

Under the Verdi brand the company also supplies a wide range of home textiles decorative upholstery cushions, flame resistant fabrics, blackout fabrics, and plain-dyed or printed decoration fabrics.

Sapphire sets **new standards** in dyed yarns

Traditional African art fused with contemporary patterns and fabric constructions was one of the striking themes showcased by Sapphire Textiles.

Mr Khan

Sapphire's Makena collection, unveiled at the show, exploits the infinite possibilities of reactive digital printing on T-300 Sateen grade 100% cotton fabrics. The company also exploits digital print on T300 Percale fabrics in its Camellias and Mystique collections.

Floral patterns remain extremely popular in the home textiles sector and for the Camellias range, digital print brings out the very best in vivid colour palettes.

Mystique fabrics meanwhile have printed borders with a highly-engineered look and the main motifs are floral patterns overlaid with damasks to create highly unusual effects.

Jamaid Khan of Sapphire Textiles explained that the Lahore, Pakistan-based company has an annual turnover of $500 million with 14,000 employees; focused mainly on the supply of yarns and greige fabrics for many years before moving successfully into home textiles.

The most important component that determines the final quality of finished yarn, the company believes, is the cotton fibre itself, and Sapphire ensures its sourcing divisions procure only the highest standard quality cotton from the best crop areas internationally.

The company's product range consists of a variety of ring spun, compact spun, open end, dyed and bleached yarns in various counts. Along with basic cotton and polycotton yarns, Sapphire also offers a range of specialised yarns for niche markets including MVS, Coolmax, Fortrel, Tencel, Modal, mélange, slub and core spun Lycra yarns.

The versatility of its yarn dyeing operations meanwhile, extends to vat, reactive and disperse methods made possible by the Thermex continuous dyeing line equipped with state of the art electronic control systems and capable of processing 10,000kg yarn per day.

"Another of our specialities is in high temperature yarn dyeing for the institutional market where durability and extended wash cycles are required in order to deal with the demands of industrial laundries," Mr Khan explained.

Monforts lines at Sapphire include stenters, thermofixation units and sanforizing units for further finishing operations.

Further expansion

Having recently installed its own home textile processing operations, Sapphire is now looking to capture more of the printed fabric market. The company sees a bright future in home textiles and its exports to Europe currently account for $ 18 million annually and those to the USA $ 10-12 million.

Economical and **ecological** aspects of the finishing of **Terry cloth**

Ausrüsten von **Frottierware** unter **ökonomischen** und **ökologischen** Gesichtspunkten

By Dipl.-Ing. Kurt van Wersch, Senior Consultant, A. Monforts Textilmaschinen GmbH & Co. KG

Dipl.-Ing. Kurt van Wersch,

Well-finished terry cloth is characterised by a pleasant hand, high absorbency, outstanding skin friendliness and easy care. But a large number of process steps are required to achieve this.

The four main steps are: Weaving, pre-treatment, dyeing and finishing. Yarn-dyed and continuously dyed terry cloth is found on the market. A high water retention value (RTV) and hence high liquor absorption during the finishing processes also means high drying costs.

This article shows how terry cloth should be dyed from an economical and ecological point of view.

1. Special features of terry cloth

What do we find in production?
The following types of product have to be treated:

- Towelling in various sizes
- Flannels in various sizes
- Glove face cloths
- Bath towels in various sizes
- Bathroom mats in various sizes
- Open-width fabrics for bathrobes
- Open-width fabrics for bed linen, etc.

In order to dye all the above tone-in-tone, these articles run, for example, one after another during continuous dyeing and in individual batches during cold pad-batch dyeing.

- The weights per square metre differ (250 -1500g/rn).
- The material compositions differ (100% cotton, cotton with borders, 100% bamboo, blends of cotton with bamboo).
- The borders differ, in some cases viscose is also used to create effects.
- The absorbency differs and the residual moisture contents after washing differs.

All this demands a sophisticated measuring and control technology to achieve, for example, the required liquor application during the wet-in-wet process.

Gut ausgerüstete Frottierwaren zeichnen sich durch angenehmen Griff, hohe Saugfähigkeit, besondere Hautfreundlichkeit und Pflegeleichtigkeit aus.

Um aber dahin zu kommen, werden eine Vielzahl von Verfahrensschritten benötigt. Die 4 Hauptschritte sind: Weben, Vorbehandeln, Färben und Ausrüsten. Im Markt sind garngefärbte und kontinuierlich gefärbte Frottierwaren anzutreffen.

Ein hohes Wasserrückhaltevermögen und damit hohe Flottenaufnahmen bei den Ausrüstungsprozessen bedeuten auch hohe Trocknungskosten.

Es wird in diesem Artikel aufgezeigt, wie Frottierwaren unter ökonomischen und ökologischen Gesichtspunkten ausgerüstet werden sollten.

1. Besonderheiten bei Frottierware

Was kommt in der Produktion vor?
Zu behandeln sind unter anderem:

- *Handtuchware in verschiedenen Größen*
- *Waschlappen in verschiedenen Größen*
- *Waschhandschuhe*
- *Badetücher in verschiedenen Größen*
- *Badeteppiche in verschiedenen Größen*
- *Breitware für Bademäntel*
- *Breitware für Bettwäsche, u.s.w.*

Um all das vorher genannte Ton in Ton zu färben, laufen diese Artikel z.B. beim Kontinuefärben nacheinander und beim Cold-pad-batch Färben auf einzelnen Docken.

- *Die Quadratmetergewichte sind unterschiedlich (250-1500 g/m).*
- *Die Zusammensetzungen sind unterschiedlich (100 % Baumwolle, Baumwolle mit Bordüre, 100 % Bambus, Mischungen aus Baumwolle mit Bambus).*
- *Die Borden sind unterschiedlich, zum Teil ist Viskose eingearbeitet, um Effekte zu erzielen.*
- *Die Saugfähigkeit ist unterschiedlich und nach dem Waschen sind die Restfeuchten unterschiedlich.*

All das erfordert eine ausgetüftelte Mess- und Regeltechnik, z.B. beim Nass in Nass Prozess, um einen gezielten Flottenauftrag zu erreichen.

2 Description of the 'normal' and modified finishing process

After the pre-treatment, the terry cloth is dyed and washed. Before drying and finishing, hydrophilic and hand-enhancing products are applied.

This can be done 'dry-in-wet' or 'wet-in-wet'. The 'wet-in-wet' method is the more energy-efficient method, as a drying step can be completely eliminated. The 'wet-in-wet' method is also given preference in the further course of this article.

During the 'wet-in-wet' method with 2 padders, a high-performance squeezer is used in the first step (this can also be installed on the delivery side of the washing section). The finishing liquor is then applied in the following padder, i.e. approximately 20% liquor is added to the still damp fabric.

Note that after squeezing, not only liquor but also liquor mixed with water runs back into the vat where the liquor is diluted. Liquor monitoring and concentration adjustment is therefore essential to ensure a constant fabric finish.

Example 1

illustrates this method with drying on a 10 field stenter.

Objective: Softening of terry cloth

Material: 100% Co terry cloth 450 g/m , W = 2.10 m v = 21 m/min., production 4400 h/year

I. 'Existing' method

a) Dyeing and washing, then high-efficiency dewatering f_1 = 84%

b) Liquor application on padder: f_1 = 103%, i.e. 19% liquor

c) Drying on the stenter

G_{Fabric} = 0.450 kg/m *2.10 m *21 m/min*60 min/h = 1,190.7 kgFabric/h

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G_{bath} = 1,190.7 kgWare/h*0.19 = 226.2 kgBath/h

$G_{softner}$ (150 g/l) = 226.2 l Bath/h*0.150 kg/l = 33.93 kgSoftner/h

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II. 'Modified' Method

a) Dyeing and washing, then high-efficiency dewatering f_1 = 84%

b) Liquor application on Matex Eco applicator 2 x 3% = 90% (i.e. 6% liquor application)

c) Drying on the stenter

Gf_{abric} =0.450 kg/m *2.10 m *23 m/min *60 m/h = 1,304.1 kgFabric/h

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G_{bath} = 1,304.1 kgFabric/h*0.06 = 78.25 kgBath/h

Gs_{oftner} (150 g/l) = 78.25 l Bath/h*0.150 kg/l = 11.73 kgSoftner/h

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Savings/h = 33.93 kg softener – 11.73 kg softener = 22.20 kg softener

Savings/year = 22.20 kg softener/h *4,400 h = 97,680 kg softener/year.

With € 1.50/kg softener ≙ € 146,520/year + higher production speed.

2. Beschreibung des „üblichen" und geänderten Prozessablaufs

Nach der Vorbehandlung wird die Frottierware gefärbt und gewaschen. Vor der Trocknung und Fertigstellung wird sie mit hydrophilen, griffgebenden Produkten ausgerüstet.

Das kann „Trocken in Nass" oder „Nass in Nass" erfolgen. Die Nass in Nass Methode ist die energiesparsamere Methode, da ein Trockenschritt komplett eingespart wird. Die Nass in Nass Methode soll auch in den weiteren Ausführungen Vorrang haben.

Bei der Nass in Nass Fahrweise mit 2 Foulards wird im ersten Fall eine Hochleistungsquetsche eingesetzt (diese kann auch im Auslauf des letzten Waschabteils installiert sein). Im darauf folgenden Foulard wird dann die Flotte aufgetragen, die zur Ausrüstung dienen soll, d.h. auf die feuchte Ware werden ca. 20 % Flottenaufnahme zuaddiert. Hierbei ist zu beachten, dass nach der Abquetschung nicht nur Flotte, sondern auch Flotte vermischt mit Wasser in den Trog zurück läuft und die Flotte dort verdünnt. Eine Flottenkontrolle und Nachdosierung ist unerlässlich, um einen konstanten Warenausfall zu gewährleisten.

Beispiel 1

zeigt diese Vorgehensweise mit Trocknung auf einem 10 Felder Spannrahmen.

Ziel: Frottierware weich machen

Material: 100 % Co-Frottierware 450 g/m , B = 2,10 m v = 21 m/min., Produktion 4400 h/Jahr

I. Fahrweise „vorgefunden"

a) Färben und Waschen, dann Hochentwässerung: f1 = 84 %

b) Flottenauftrag Foulard: f1 = 103 %, d.h. 19 % Flotte

c) Trocknung auf dem Spannrahmen

G_{Ware} = 0.450 kg/m *2.10 m *21 m/min*60 min/h = 1,190.7 kgWare/h

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G_{Flotte} = 1,190.7 kgWare/h*0.19 = 226.2 kgFlotte/h

$G_{Weichmacher}$ (150 g/l) = 226.2 l Bath/h*0.150 kg/l = 33.93 kgWeichmacher/h

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II. Fahrweise „geändert"

a) Färben u. Waschen, dann Hochentwässerung: f1 = 84 %

b) Flottenauftrag Matex Eco Applicator 2 x 3 % = 90 % (d.h. 6 % Flottenauftrag)

c) Trocknung auf dem Spannrahmen

G_{Ware} =0.450 kg/m *2.10 m *23 m/min *60 m/h = 1,304.1 kgWare/h

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G_{Flotte} = 1,304.1 kgWare/h*0.06 = 78.25 kgFlotte/h

$G_{Weichmacher}$ (150 g/l) = 78.25 l Flotte/h*0.150 kg/l = 11.73 kgWeichmacher/h

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Ersparnis/h = 33,93 kg Weichmacher - 11,73 kg Weichmacher = 22,20 kg Weichmacher

*Ersparnis/Jahr = 22,20 kg Weichmacher/h * 4.400 h = 97.680 kg Weichmacher/Jahr*

Bei 1,50 EUR/kg Weichmacher ≙146.520 EUR/Jahr + höhere Produktionsgeschwindigkeit.

Tab. 1 shows this result in summary:

Advantages:

a) 13% less water evaporated.

b) No addition of softener concentrate, as no dilution of the liquor occurs.

c) The softener is applied to the surface of the terry cloth where it is felt.

d) Product savings, as less softener is applied, but more selectively.

Some operators use a slightly further modified finishing method.

They operate with a higher production speed and later divide the fabric between different dryers. Coming from the liquor application and an air passage, the fabric is then squeezed again in order to save energy for the subsequent drying, i.e. a large proportion of the finishing liquor is lost with the waste water. The fabric is split and divided between different tumble dryers.

Tab. 1

Comparison padder application to Matex Eco applicator	Padder	Matex Eco applicator
Vergleich Foulardauftrag zu Matex Eco Applicator	*Foulard*	*Matex Eco applicator*
1 High-efficiency dewatering RM [%]	84	84
1 Hochentwässerung RF [%]	*84*	*84*
2 Liquor application [%]	19	(2x3) 6
2 Flottenauftrag [%]	*19*	*(2x3) 6*
3 Total moisture content [%]	103	90
3 Gesamtfeuchte [%]	*103*	*90*
Softener consumption [kg/h]	33.93	11.73
Verbrauch Weichmacher [kg/h]	*33.93*	*11.73*
Softener savings [kg/h]	-	22.0
Ersparnis Weichmacher [kg/h]	*-*	*22.0*
Softener savings [kg/year]	-	97,680
Ersparnis Weichmacher [kg/year]	*-*	*97,680*
Softener savings [€/year]	-	146,520
Ersparnis Weichmacher [/year]	*-*	*146,520*
Production speed [m/min]	21	23
Produktionsgeschwindigkeit [m/min]	*21*	*23*

Example 2 shows this method.

Objective: Softening of terry cloth, 2.4% application on the fabric,

Material: application on the fabric 100% Co terry cloth 450 g/m , W = 2.10 m v = 35 m/min., Production 4400 h/year

I. 'Existing' Method

a) Dyeing and washing, then high-efficiency dewatering f_1 = 84%

b) Liquor application: f_1 = 103%, i.e. 19% liquor

c) Air passage with subsequent high-efficiency dewatering f_1 = 81%

d) Folding and splitting between tumble dryers

G_{fabric} = 0.450 kg/m *2.10 m*35 m/min*60 min/h = 1,985 kgFabric/h

Tab.1 zeigt das zusammenfassend im Überblick:

Vorteile:

a) 3% weniger Wasser verdampfen

b) Keine Nachdosierung nötig, da keine Verwässerung der Flotte stattfindet

c) Der Weichmacher sitzt an der Oberfläche der Frottierware und zwar dort, wo man ihn fühlt

d) Produkteinsparung, da weniger Weichmacher, dafür aber gezielter aufgebracht

Einige Anwender fahren einen noch etwas geänderten Ausrüstungsweg.

Sie fahren eine höhere Produktionsgeschwindigkeit und verteilen später die Ware auf verschiedene Trockner. Vom Flottenauftrag kommend wird nach einer Luftgangpassage die Ware dann wieder abgequetscht, um bei der nachfolgenden Trocknung Energie zu sparen, d.h. ein Großteil der Ausrüstungsflotte geht so ins Abwasser. Die Ware wird aufgeteilt und auf verschiedene Tumble-Trockner verteilt.

Beispiel 2 zeigt diese Vorgehensweise.

Ziel: *Frottierware weich machen, 2,4 % Auftrag auf die Ware,*

Material: *100 % Co-Frottierware 450 g/m , B = 2,10 m v = 35 m/min., Produktion 4400 h/Jahr*

I. Fahrweise „vorgefunden"

a) Färben und Waschen, dann Hochentwässerung: f_1 = 84 %

b) Flottenauftrag: f_1 = 103 %, d.h. 19 % Flotte

c) Luftgang mit anschließender Hochentwässerung f_1 = 81 %

d) Abtafeln und auf Trocken-Tumbler verteilen

G_{Ware} = 0.450 kg/m *2.10 m*35 m/min*60 min/h = 1,985 kgWare/h

Bei 4 % Weichmachauftrag ≙ 1985 kg/h x 0,04 = 79,40 kg/h, da nochmals abgequetscht wird, verbleiben auf der Ware noch 2,4 % Weichmacher ≙ 47,64 kg/h, d.h. es entsteht ein Verlust an Weichmacher von 1,6 % auf der Ware ≙31,76 kg/h

Verlust pro Jahr: 31,76 kg/h x 4400 h/Jahr = 139.744 kg/Jahr = ca. 140 t/Jahr bei 1,50 €/kg Weichmacher ≙ 210.000 € /Jahr.

Diese Menge Weichmacher geht in das Abwasser und muss kostenaufwändigbehandelt werden.

II. Beschreibung des geänderten Prozessablaufes

Fahrweise geändert (ohne 2. Abquetschung), Ziel 2,4 % Weichmacher auf Ware

a) Färben und Waschen, dann Hochentwässerung auf 84 %

b) Flottenauftrag mit Matex Eco Applicator
2 x 3 % Flotte = 6 % Flottenauftrag = 119 l Flotte bei 400 g/l ≙ 47,6 kg Weichmacher
d.h. wie gewünscht 2,4 % Weichmacher auf der Ware,das heißt aber auch, es muss jetzt im Vergleich zu Fahrweise I etwas mehr Wasser getrocknet werden.

With 4% softener application ≙ 1985 kg/h x 0.04 = 79.40 kg/h. As the fabric is squeezed again, 2.4% softener ≙ 47.64 kg/h then remains on the fabric, i.e. there is a loss of softener on the fabric of 1.6% ≙ 31.76 kg/h.

Loss per year: 31.76 kg/h x 4400 h/year
= 139,744 kg/year = approx 140 t/year with
€ 1.50/kg softener ≙ € 210,000/year.

This amount of softener is lost to the waste water which has to be treated at great expense.

II. Description of the modified process

'Modified' method (without 2nd squeezing), objective 2.4% softener on the fabric.

a) Dyeing and washing, then high-efficiency dewatering to 84%.

b). Liquor application with Matex Eco Applicator 2 x 3% liquor = 6% liquor application = 119 l liquor with 400 g/l ≙ 47.6 kg softener i.e. as required 2.4% softener on the fabric, but this also means that compared with method I, slightly more water has to be dried.

9% more water (3% from better squeezing plus 6% liquor application). This 9% more water means higher drying costs of approximately € 44.000/year. Using this method, savings can be achieved of:

210,000 € savings in softener
- 44,000 € additional costs for drying
166,000 € saving.

Tab. 2 shows these savings in summary.

Terry cloth finishing:

Objective = softening comparison with 'wet-in-wet' method: Padder with Matex Eco Applicator

Material: 100% cotton, 450 g/m, width 2.10m

Production: V = 35 m/min, 4,400 h/year
≙ 1.985 kg fabric/h

Advantages: a) Savings in softener
b) No dilution of the liquor
c) No addition of liquor concentrate necessary
d) No softener in the waste water

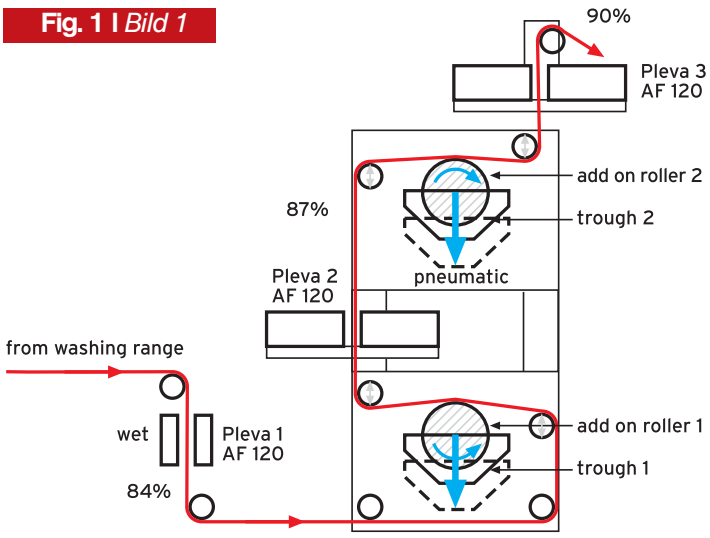
3. Description of the Matex Eco Applicator

[Fig. 1] shows the principle of the range for minimum application to wet terry cloth.

The fabric comes from the high-efficiency dewatering unit installed downline of the washing machine. The fabric moisture content is calculated according to the weight per square metre by the first microwave measuring unit (Pleva 1), for example, 84% fabric moisture. The function of the second measuring unit (Pleva 2) is to measure a moisture application of 3% and hence control add-on roller 1.

With a moisture content of, for example, 87%, the fabric then arrives with the other side of the fabric facing add-on roller 2 where a further 3% liquor is applied to the fabric; the measuring head (Pleva 3) ensures the exact measurement and control.

Fig. 1 I *Bild 1*



9 % mehr Wasser (3 % aus besserer Abquetschung plus 6 % Flottenauftrag). Diese 9 % mehr Wasser bedeuten einen höheren Trocknungsaufwand von ca. 44.000 €/Jahr, d.h. nach dieser Fahrweise ist eine Einsparung zu erzielen von:

210.000 € Weichmachereinsparung
- 44.000 € Mehrkosten Trocknung
166.000 € Einsparung.

Tab. 2 *zeigt diese Einsparung im Überblick.*

Frottierwaren-Ausrüstung:

Ziel = weichmachen Vergleich beim „Nass-in-Nass"-Verfahren: Foulard mit Matex Eco Applicator

Material: *100 % Baumwolle, 450 g/m , Breite 2,10 m*

Produktion: *V = 35 m/min, 4.400 h/Jahr ≙ 1,985 kg Ware/h*

Vorteile:
a) Einsparung an Weichmacher
b) Keine Verwässerung der Flotte
c) Keine Nachdosierung nötig
d) Kein Weichmacher im Abwasser

3. Beschreibung des Matex Eco Applicators

[Bild 1] *zeigt das Prinzip der Anlage für den Minimalauftrag auf nasser Frottierware. Die Ware kommt vom nachgeschalteten Hochentwässerungswerk der Waschmaschine.*

Die Warenfeuchte wird dem Quadratmetergewicht der Ware entsprechend mit dem ersten Mikrowellenmessgerät (Pleva 1) erfasst (z.B. 84 % Warenfeuchte). Das Messgerät (Pleva 2) hat die Aufgabe, einen Feuchteauftrag von 3 % zu messen und somit die Antragswalze (add-on roller 1) zu regeln.

Mit z.B. 87 % Warenfeuchte kommt dann die Ware mit der anderen Warenseite zum add-on roller 2 und wird hier mit weiteren 3 % Flottenaufnahme versehen, für die exakte Messung und Regelung sorgt der Messkopf (Pleva 3).

Mit 90 % Warenfeuchte geht die Ware dann zum Trockner. Die beiden Antragswalzen des Matex Eco Applicators sind in ihrem Verhältnis zur Warengeschwindigkeit variierbar und somit an jede Produktionsgeschwindigkeit und jedes Quadratmetergewicht der Frottierware anpassbar.

Tab. 2

Comparison *Vergleich*	Padder *Foulard*	Matex Eco applicator *Matex Eco applicator*
1Dyeing and washing | *Färben und Waschen*	+	+
2 High-efficiency dewatering 1 RM [%] | *Hochentwässerung 1 RF [%]*	84	84
3 Liquor application [%] | *Flottenauftrag [%]* 4% softener on padder (19%) | *4% Weichmacher Foulard (19%)* 2.4% softener on Matex Eco applicator (2 x 3 %) | *2.4% Weichmacher Matex Eco Applicator (2 x 3 %)*	103	90
4 Air passage | *Luftgang*	+	-
5 High-efficiency dewatering 2 RM [%] | *Hochentwässerung 2 RM [%]*	81	-
6 Drying/tumbling | *Trocknen/Tumbeln*	+	+
Summary | *Resumée*		
Softener consumption [kg/h] | *Verbrauch Weichmacher [kg/h]*	79.4	47.64
Softener loss [kg/h] | *Verlust Weichmacher [kg/h]*	31.76	-
Softener loss [t/year] | *Verlust Weichmacher [t/Jahr]*	approx. 140	-
Softener loss [EUR/year] | *Verlust Weichmacher [EUR/Jahr]*	approx. 210,000	+ 210,000
Additional drying costs [EUR/year] | *Mehrkosten TRO [EUR/Jahr]*	-	-44,000
Savings [EUR/year] | *Ersparnis [EUR/Jahr]*	-	+166,000

With 90% moisture content, the fabric then goes to the dryer. The two add-on rollers of the Matex Eco Applicator can be varied in their relationship to the fabric speed, and can be adapted to any production speed and any weight per square metre of the terry cloth.

[Fig. 2] shows an original range.

4. Advantages of the Matex Eco Applicator

The main objective is to save energy. A further objective is to cut product costs – and all this with simple operation of the range.

During 'wet-in-wet' processes on the padder, the liquor to be applied is constantly diluted, as water is squeezed out of the fabric together with the removed product. Constant liquor monitoring is necessary here, and correction of the liquor concentration essential.

With the Matex Eco Applicator, the wet fabric only comes into contact with the add-on rollers, so that no dilution of the liquor can occur, i.e. uniform finishing with low product consumption from the start to the finish of the batch.

The Matex Eco Applicator can be used to:

a) Apply 1 liquor to one side or
b) Apply 1 liquor to both sides or
c) Apply 2 liquors to both sides at the same time
d) Apply 2 liquors to one side at the same time.

It can be employed for the processes: 'dry-in-wet' application and 'wet-in-wet' application.

[Bild 2] zeigt eine Original-Anlage.

4. Vorteile des Matex Eco Applicators

Das Hauptziel ist, Energie einzusparen. Ein weiteres Ziel ist, Produkte einzusparen und das Ganze bei einer einfachen Handhabung der Anlage.

Bei Nass in Nass Prozessen auf dem Foulard wird die aufzubringende Flotte ständig verwässert, denn mit dem abgequetschten Produkt wird auch Wasser abgequetscht. Hier ist eine ständige Flottenkontrolle vonnöten und ein „Nachsetzen" unerlässlich.

Beim Matex Eco Applicator kommt die nasse Ware nur mit den Antragswalzen in Berührung, ein Verwässern der Flotte kann nicht erfolgen, d.h. von Anfang bis Ende der Partie eine gleichmäßige Ausrüstung mit geringerem Produktverbrauch.

Mit dem Matex Eco Applicator lassen sich

a) 1 Flotte einseitig auftragen oder
b) 1Flotte beidseitig auftragen oder
c) 2 Flotten beidseitig gleichzeitig auftragen
d) 2 Flotten einseitig gleichzeitig auftragen.

Die Einsetzbarkeit ist möglich für die Prozesse Trocken in Nass Auftrag sowie Nass in Nass Auftrag.

Fig. 2 I Bild 2

5 Final considerations

From the point of view of economy and ecology, the Matex Eco Applicator is the ideal liquor application unit for applying water-based liquors.

The application of lower moisture contents allows drying costs to be reduced. During 'wet-in-wet' processes, complete drying steps can be eliminated, liquor concentration monitoring is no longer necessary and product costs can be reduced.

The finishing of, for example' terry cloths with the Matex Eco Applicator is one of the right steps for reconciling economy and ecology.

5. Schlussbetrachtung

Unter ökonomischen und ökologischen Gesichtspunkten gesehen, ist der Matex Eco Applicator das ideale Flottenauftragsaggregat zum Auftragen von wässrigen Flotten.

Durch den Auftrag geringer Feuchten lassen sich Trocknungskosten senken. Bei Nass in Nass Prozessen lassen sich ganze Trockenschritte einsparen, Flottenkonzentrationskontrollen sind nicht mehr nötig und Produkte können eingespart werden.

Das Ausrüsten von z.B. Frottierwaren mit dem Matex Eco Applicator ist einer der richtigen Schritte, Ökonomie und Ökologie in Einklang zu bringen.

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