



# world of textiles Europe



# Competence in Technical Textiles



AHEAD OF PROGRESS



## Our Product Range

- Stretching Ranges
- Flow Through Dryers
- Belt Dryers
- High Temperature Stenters
- Vertical Dryers
- Finishing Ranges
- Universal Dryers
- TwinTherm Dryers
- Thermobonding Ranges
- Coating Lines

## Suitable for

- Glas Fibre Fabrics
- Light Protection
- Tarpaulins
- Billboards
- Artificial Leather
- Floor Coverings
- Artificial Grass
- Nonwovens
- Spacers
- Membranes

A. Monforts Textilmaschinen GmbH & Co. KG  
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**4.0 READY**

GERMAN   
Technology



# Retaining a lead in Europe

In this special publication for ITMA 2019 in Barcelona, we are celebrating the achievements of Monforts customers here in our European markets.

In attempting to convey the importance of the European textiles and clothing industry to its overall economy, Lutz Walter, director of innovation and skills at Euratex – the European Textile and Apparel Council – notes that the list price of a new Airbus A350-900 wide-body jet airliner is around €275 million.

This means that EU exports of textiles and clothing outside the block alone are the annual equivalent of purchasing over 350 of these latest Airbus planes, so there is no need to be modest about the achievements of our customers.

Euratex puts the overall annual value of EU textiles and clothing at €181 billion, without including the contribution of key countries such as Switzerland and Turkey. The industry has certainly rallied since the recession of 2009, when it hit a low of €150 billion, but at the same time, has become more diversified over the years since then.

Of this €181 billion value, 33% is achieved by clothing, 17% by conventional trading in fabrics, 15% by home textiles and 17% by industrial and technical textiles.

All these market segments are served by Monforts products, and at ITMA 2019 you'll find innovations built on Industry 4.0 possibilities and our long history of accumulated expertise across all clusters of the textile chain.

Virtual and remote control of our plant technologies, including digital twinning and complete automation, are just a few of the concepts you can find out about for our advanced textile finishing and coating systems, by visiting us at ITMA 2019 in Barcelona, in Hall 2, at stand D101.

And it's only the start of what we intend to achieve in the next years for the continued success of our valued customers in Europe – and globally.

**Stefan Flöth**  
*Managing Director*



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Cover : The Monforts "Digital Twin" with Smart Services and Smart Controls for the highest productivity and availability.

## **Monforts customers featured in this issue:**

Arta, ATB, Bethge, Boyahanesi, BWF, Hugotag, GTA, Mariani, Riopelle, Schoeller, Tapetex, Tinfer, Van Clewe, Vaz da Costa.



# IOT Industry 4.0 Innovations are here

**Monforts technology is providing the full flexibility in coating and finishing that advanced European textile manufacturers now need to successfully negotiate the diverse markets they serve, writes the company's Head of Technical Textiles, Jürgen Hanel.**

The instant connectivity and easy distribution of know-how is changing the face of industrial manufacturing, making the operation of complex machinery much simpler and cutting down the required training periods, while at the same time, reducing the chance of human error.

At ITMA 2019 in Barcelona, Monforts will demonstrate a range of new advances made possible by Industry 4.0 techniques,

including 'digital twin' capability for all of its machine systems.

By exploiting the latest advanced sensor technology, 100% comprehensive technical machine data is now virtually mapped in the cloud in real time.

This digital mirror can be easily consulted using the new Monforts Smart Support and Smart Check apps for an instantaneous status overview.

All specifications relating to machine performance and the production process can be mapped, to enable vastly simplified and targeted analysis for controlled planning and production. Insights harnessed from such analysis can be used to optimise the actual production process.

At the same time, potential sources of error can be anticipated and eliminated,

'Digital Twinning' is the latest Industry 4.0 concept from Monforts.



enabling improved machine availability while considerably minimising downtime.

## Virtual monitoring

On request, Monforts can also virtually monitor machine performance and pro-actively alert customers to the need for preventative action. In such cases, however, data is only ever called from the cloud by Monforts when customers have given their full consent, in the interests of data security.

Data from Smart Check, for example, can even be used to analyse a system's energy requirements, allowing machine operation to be optimised by tailoring production runs to the peaks and troughs of electricity costs.

The Monforts digital twin system and apps, along with our Qualitex control system, are being made available for all of our machine ranges going forward, including Montex stenters, Thermex and E-Control continuous dyeing ranges, Monfortex and Toptex shrinking



A modern coating range with an integrated Monforts texCoat unit installed in Germany.

systems and Eco Applicator, texCoat and Allround coating units.

## Coating advances

Since we acquired the coating technology that our texCoat and Allround systems are based on in 2015, Monforts has also made a lot of refinements resulting in higher coating accuracy and the resulting quality of the treated fabrics, especially for manufacturers of technical textiles.

Technical textiles are extremely diverse in their end-use applications and manufacturers can be called upon to quickly produce a succession of materials with widely differing properties and performance applications – often within a single shift.

For customers of Monforts, these range from substrates for digitally-printed soft signage to carbon fabrics for today's high-performance composites, and from filter media which must perform in extreme temperatures to flame retardant barrier fabrics.

Then there are the heavy duty membranes which are employed in the collection and storage of methane in biogas plants, as well as materials equipped with sensors and electrical conductors which are now used as base liners in DSC solar cells, to name just a few examples.

These very different materials, however, have one thing in common – they all require expert coating and finishing for maximum efficiency and the technology to allow for ultimate flexibility and the ability to switch quickly from one fabric formula to the next, without compromising on the economical use of energy or raw materials.

## Modules

The introduction of the latest Monforts multi-functional coating heads for the company's industrial texCoat and Allround coating units offer an unprecedented range of options, with modules available for:

- Screen printing.
- Magnetic roller coating.
- Knife coating (two versions for differing applications).

Monforts is also now offering the coating roller for the texCoat and Allround coating units as an optional carbon fibre version, in order to meet even the highest level of coating accuracy that is being demanded by the most exacting customers today.

The carbon rollers provide the extreme stiffness necessary to deal with the winding tension required in the processing of materials such as prepreps for composites and other heavyweight fabrics, but at the same time, a significant





improvement in coating accuracy is achieved, even for very lightweight flexible materials. In addition, the surfaces of the rollers are protected against both abrasion and damage from aggressive chemicals by a special ceramic coating. A further benefit is that the rollers are much easier to clean.

Nowadays we are the only manufacturer which can offer completely integrated coating lines from a single source and the coating machine is tailored to the subsequent Monforts drying technology – with all the benefits resulting from a fully integrated plc control.

Our system has the shortest fabric path from the coating unit into the stenter and we have all variations of coating application systems too – and all of these options are available in wider widths, with the engineering and

manufacturing from a single source here in Europe.

### Quick changes

On the Allround, the modular coating heads can be quickly and easily changed via a specially-designed undercarriage from the side of the unit, allowing it to be readily adapted for different applications.

The Montex Allround consists of a load cell, a spreading unit and a pulling device along with the selected coating head. It allows for the tension-free coating of the substrate along a greatly-reduced web path and a very short period of 'open' coating prior to it entering the dryer, to ensure significantly less chance of contamination. The shortest possible distance between the coating head and the stenter infeed ensures the highest quality coating results.

### Organic solvents

There has been a wariness about handling organic solvents, but in the end, they're not as difficult to coat on textile substrates as they are on plastic films where they're already widely used, and they offer a lot of possibilities for companies to explore and develop entirely new products – especially in fields such as medical and filtration.

Nevertheless, they do require a highly-controlled and contained environment, and this was a key consideration when constructing the technical textiles line that is available for trials at the Advanced Technology Centre (ATC) at our headquarters in Mönchengladbach, Germany.

This incorporates a Montex four-chamber, horizontal chain stenter and is fitted with an explosion-proof coating application chamber.

Every single component within the chamber has to meet the standards of the European Union's ATEX directives for working in an explosive atmosphere. A range of sensors linked to alarms operate at various levels within the chamber to ensure the specified lower explosion limit (LOL) is never exceeded and the ventilation adapts accordingly.

Special features on the finishing line relate to a further advanced function – the ability to treat materials not only at temperatures of up to 320°C, but also to be able to treat the top and bottom faces of certain materials at different temperatures within a single pass through the machine.

To achieve this, the first two chambers of the stenter are fitted with special, heavy duty TwinAir ventilation motors and separate burners for individual top/bottom temperature. A temperature differential of up to 60°C can be achieved between the upper and lower nozzles within the chamber.

There are many applications where employing two separate temperature treatments is beneficial, such as floorcoverings –



The latest Qualitex control system makes the operation of Monforts machines much simpler.



The Web-UI app enables the process monitoring of machine parameters on handheld devices.

where the textile face fabric is treated at one temperature and the rubber backing at another – as well as PVC flooring employing chemical foams or for materials like black-out roller blinds with heavy backings.

At the same time, in the pharmaceutical industry there is a wide range of different applications for organic solvents such as anti-septic treatments which have to be treated very carefully and applied at very specific temperatures in order not to destroy their efficacy."

Other materials, such as PTFE-coated filter materials are also applied and then cured at separate temperatures.

## Stretching

Another key feature of the technical textiles line at our ATC is the special stretching device which is capable of pulling ten tons in length and ten tons in width – a huge amount per square metre of fabric and necessary in the production of materials such

as woven or 3D knits for high temperature filter media.

## Eco Applicator

For conventional woven and knitted fabrics, the Monforts Eco Applicator as an alternative to the traditional on-wet padder has been highly successful since its introduction in 2011, both integrated into new finishing lines and retro-fitted to existing ones.

In many textile mills globally, the cost of running integrated manufacturing lines – especially those for fabric finishing that can involve numerous sequences of heating and subsequent drying – is now eclipsing the cost of paying people to operate them.

The ability of the Eco Applicator to significantly reduce energy costs is the key reason for its rapid acceptance on the market.

The soft coating unit in many cases eliminates the need for a padder, instead employing trough and roller techniques to apply the required amount of liquid/coating to the fabric.

The unit itself does not actually save the energy, but by applying only the precise amount of functional finish, ensures the subsequent drying time is shorter – in some cases dramatically so.

Some Monforts customers have reported success stories of cycles which previously took an average around 160 minutes being reduced to just 40 minutes. Obviously, if you're reducing the full processing time to a quarter of what it was, it has a significant impact on the electricity, steam and gas that is being used.

While being widely market-proven on woven and denim fabrics, major knitting manufacturers are now also reaping the benefits the Eco Applicator provides.

Knitted fabrics must never be stretched and need to be treated in a relaxed state. This is why, for example, the Montex stenter dryer with vertical chain return incorporates a TwinAir nozzle system that ensures the relaxed fabric is kept at a suitable height in between the upper and lower nozzle system, allowing for the fabric's 'bowing', since it can't be stretched.

Similarly, the Eco Applicator for knits is fitted with an advanced guidance system specially-adapted to the needs of delicate treatments and eliminating any possible 'curling' of the fabric edges prior to entering the stenter.

Compared with a padder system, where the initial moisture content of the fabric entering the stenter is 60%, with the Eco Applicator it is reduced to 40% and the system also has the shortest fabric path from the coating unit into the stenter.

The Eco Applicator's versatility also allows mills to apply finishes to just one side of the fabric, or both, and even to apply separate finishes to each side, or to specific areas of a fabric, for endless possibilities, whether treating wovens, denim or delicate knits. ●

# Absolute print quality guaranteed

**Having installed its first Monforts Montex stenter just two years ago, during 2019 Germany's GtA has installed two more – as it runs 24 hours a day to meet unprecedented demand from the digital printing market.**

A new standard in pure white, 100% clean and fault-free textile substrates has been demanded in recent years by the rapid growth in digitally-printed banners and hoardings – often referred to as 'soft signage'.

## **Purpose built**

In response to this demand, GtA (Gesellschaft für textile Ausrüstung) formed in 2016 and erected a purpose-built plant on a greenfield site in Neresheim, Germany.

The plant was first equipped with a fully-automated 72 metre long installation comprising a washing machine integrated

with a 3.6 metre wide, seven-chamber Monforts Montex stenter, purpose-built at Montex GmbH in Austria.

Building on the success of this installation, the company has this year installed two more Montex lines – both with an expanded working width of 5.6 metres – a six-chamber unit for further washing processes and a five-chamber line for coating.

GtA is run by a seasoned team of textile professionals led by Managing Director Andreas Niess, with the backing of Georg and Otto Friedrich – one of the largest manufacturers of warp knitted textiles in Europe.

With two production plants in Germany and headquartered at Gross-Zimmern, close to Frankfurt, Georg and Otto Friedrich has a monthly production of more than 450 tons of warp knits – the equivalent of around six million metres – for a range of end-use applications, including garments, automotive interiors and technical textiles, in addition to digital printing substrates.

It is for digital printing, however, in addition to certain interior fabrics, which are washed and treated at the Neresheim plant, that GtA was established.

"I have worked with other stenter manufacturers in the past,



GtA managing director Andrew Niess (left), and production and quality control manager Zeki Yagizi.



but we opted for Monforts technology and the company's excellent service we have received," says Andreas Niess.

Zeki Yagiz, Production and Quality Control Manager agrees. "We are fully in control of all production and quality parameters with these lines," he says.

The substrates of choice for digital printing are 100% polyester warp knits which have extremely smooth surfaces. This is becoming increasingly critical due to the general move away from PVC coatings which were the standard in the past.

In addition, they are resilient and allow excellent take-up of inks, and vibrant colours and clear and precise images to be achieved with digital printing techniques. The knitted construction also has the advantage of elasticity, which is a plus in terms of flexibility for installers.

The raw fabrics being finished and coated are supplied by Georg and Otto Friedrich to GtA in weights of 50-350gsm, in rolls of up to 600 kg or 1,800 metres. Depending on the fabric weight, GtA is running the initial stenter at speeds of between 20-50 metres an hour at an average temperature of 200°C.

### Quality Inspection

The first entire finishing line is controlled by an EVA quality inspection and control system which analyses every square metre of fabric to ensure completely uniform and blemish-free production.

Another distinctive feature of the line is the proprietary addition to the Monforts air-to-air heat recovery system which is now standard with Montex stenters. The first GtA line is also configured for air-to-water heating to save considerable energy in washing operations.

The complete demand for hot water is generated by the heat exchanger which also ensures surplus water for heating the building and the roof.



The first 72 metre long installation comprising a washing machine integrated with a 3.6 metre wide, seven-chamber Monforts Montex stenter at GtA.



The new Monforts Montex coating line installed and awaiting commissioning earlier in 2019.

In addition, GtA has purpose-designed the automatic chemical mixing and dosing system that feeds to the paddler for the seven key treatments that are carried out on the fabrics through the stenter.

"Here too, we have an extraordinary precise quality control and usability," explains Andreas Niess. "Our daily philosophy is zero mistakes enforced throughout the company."

Also fully automatic, are the roll inspection tables after the winder and a robotised cutting and packaging system which converts the master rolls down to 75,100, 200 or 300 metre packages to be despatched back to Georg and

Otto Friedrich and its many distributors and partners ready to be printed.

The finished rolls are automatically glued with RFID labels and embedded in to the company's own system.

GtA started production in February 2016 and for the first five months ran a single eight-hour shift. In July 2016 this was increased to two eight-hour shifts daily and since January 2017, the company has been operating a three-shift system 24 hours a day.

Now it will have greatly expanded capacity, such is the demand for its fabrics. ●



ATB holds some 10,000 fabric samples in stock, and its library is constantly growing.

# Ten thousand samples for 52 seasons...

**As the specialist in the supply of finished fabrics for Europe's leading fast fashion retailers, Portugal's ATB knows it can completely rely on its Monforts technology.**

Not so long ago there were just two fashion seasons per year, but with the advent of 'just in time' manufacturing and the optimisation of supply chains, the timescale in the latest designs moving from the catwalks to the high street stores has been drastically shortened. Internet retailing has only accelerated expectations and with the advent of digitisation, the era of 52 micro-seasons per year is very much upon us.

One company that was quick to recognise and respond to the emergence of fast fashion is ATB – Acabamentos Têxteis de Barcelos – established in 1985 in Barcelos in northern Portugal.

The company is dyeing and finishing between 36-40 tons of fabric on a daily basis for key customers including Benetton, Esprit, Mango, and also Inditex – the textile logistics chain behind the hugely successful Zara brand which is synonymous

with the rise of fast fashion.

These customers are, says company founder Mário Mano, extremely demanding in terms of quick turnaround.

"The deadline is always yesterday," he jokes, "but the key to staying successful is in new technology investment and at the same time new fabric developments."

At the time of *WOET*'s visit, the company was keeping busy with a huge €1.5 million order from



Inditex for a total of around 600 tons of processed knitwear. ATB is one of the few companies with the capacity to deal with such an order, which in any case, is pretty unique these days.

### Quick turnaround

"Orders are usually for smaller quantities where the turnaround times can be as little as a week from the start of the knitting order to final delivery of the fully-finished fabrics, depending on the quantity of course," Mr Mano says. "We've even received orders on a Thursday afternoon and had them with the customer by the following Monday morning."

Knitting is carried out at ATB's sister company Etevimol, also in Barcelos, with 87 employees running some 160 knitting machines supplied by the leading European manufacturers.

The ATB dyeing and finishing plant meanwhile has 187 employees and investment in the latest technology is ongoing. In addition to the knitted fabrics from Etevimol, it also finishes woven fabrics on a commission basis.

The company installed its first Monforts Montex stenter frame in 1990 and has subsequently ordered four more over the years. All are 2.4 metres wide and use heat recovery units for increased energy efficiency and also the latest control equipment, to grant the highest possible process quality/reproducibility.

Mário and Ricardo Mano.



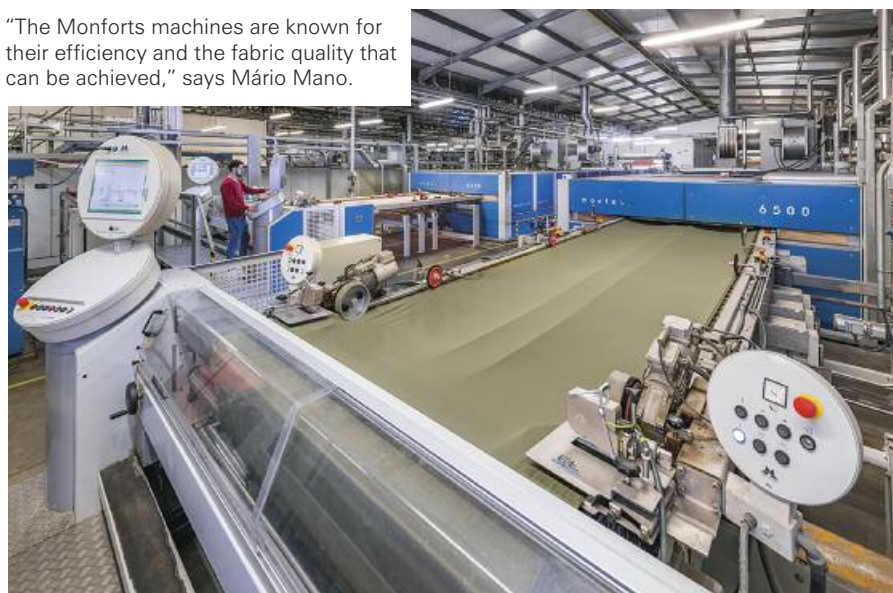
In addition, the ATB plant is equipped with three Monforts Dynair relaxation dryers, with the latest being installed in a new building which is also presently used for warehousing but will eventually be used for additional manufacturing lines.

The ATB finishing plant is operating over three shifts, for 24 hours a day, and often at weekends too, Mr Mano says.

### Samples and prototypes

ATB also holds some 10,000 fabric samples in stock, and its library is constantly growing.

"The Monforts machines are known for their efficiency and the fabric quality that can be achieved," says Mário Mano.



The Monforts Montex stenters at ATB are all 2.4 metres wide and use the latest control equipment to grant the highest possible process quality/reproducibility.

"Our customers will ask for initial fabric samples and then very quickly need five metres of the fabric for prototyping, so we have to be very organised in this respect," says Mario's son Ricardo, who now works with his father managing the plant. "We also do a lot of shopping to equip our showroom, in order to investigate how our fabrics turn out in finished garments, and to let our visiting customers know that we are anticipating all of their needs – with the help, of course, of our leading technology suppliers like Monforts." ●



# Weathering the storm

**Three new Monforts finishing ranges were installed in record time for a Swiss mill to mark its 185th anniversary.**

Switzerland's long hot summer of 2017 – the hottest for over a century, with temperatures soaring as high as 34°C throughout May and June – was violently interrupted in the first weekend of July when heavy storms finally broke.

Particularly badly affected was the town of Zofingen in the canton of Aargau, where Bethge AG Textilveredlung has operated as a commission fabric finisher since 1834.

## Hail

"It started with the hail," recalls the company's plant manager Frank Katzenstein, "the most fierce hail storm I've ever seen, with stones as long as four centimetres. This was enough to close all of the local roads and then the rain started and just didn't stop – and the flooding and landslides began."

Nestled in the foothills above Zofingen, the Bethge plant was in the direct line of a 1.6-metre-high wave which thundered down onto the town when a dam above it finally burst its banks.

"It was unbelievable in its ferocity," said Mr Katzenstein. "It crashed right through the steel doors of the plant and completely engulfed our machines. Almost everything was destroyed."

## Chaos

More than 450 rescue workers were mobilised to deal with the chaos in Zofingen, with the electricity down, the railway station underwater and the motorway around the town closed in both directions for many hours. Miraculously, although a number of people were taken to hospital, nobody was killed, but the freak storm had caused millions of francs

worth of damage, with the Bethge plant taking the brunt of it.

## Crisis meeting

The following week a crisis meeting was held by the directors of the family-owned company and it became clear that its finishing lines – including the existing Monforts stenter and shrinkage range – would have to be completely replaced.

"It really looked like the business was finished unless we could resume operations in a very limited amount of time," Mr Katzenstein said. "For many years we have specialised in the finishing of woven textiles for third party brands and distributors, primarily based on cotton and linen, as well as some polyester and polyamide. These are destined for the home and hotel tableware and bedding markets in Switzerland, Austria and Germany.



One of the two Montex stenters installed at the Bethge plant is equipped with the latest Monforts texCoat system, as an extension of Bethge services to its customers.





Bethge's plant manager Frank Katzenstein.

"Hospital linen is another key end-use sector for our fabrics, and as one of the few remaining textile finishing operations in Switzerland – where both costs and environmental standards are extremely high – our just-in-time delivery and quality guarantees have been crucial.

"Thankfully, Thomas Päßgen, Monforts' area sales manager, and the company's manufacturing and installation teams, were able to pull out all the stops for us."

Bethge opted to order two new energy-saving six-chamber Montex stenters, as well as a Monfortex compressive shrinkage range which is characterised by a larger shrink cylinder allowing for longer processing paths to achieve enhanced shrinkage values.

## Record time

The first stenter was manufactured at the Montex plant in Austria and was delivered, installed and commissioned in a record time of less than four months.

"We were able to salvage our existing air cleaning system and after the first of the new stenters was up and running we were able to resume operations and build up back to where we were, month by month," Mr Katzenstein said.

All of the Monforts lines have working widths of 3.4 metres and benefit from the latest Qualitex 800 control system. This has all of the familiar features of touchscreen smart phones and



BETHGE

Bethge's new Monfortex compressive shrinkage range has a larger shrink cylinder for enhanced shrinkage values in fabrics.



Intuitive automation and surveillance of the machines is via the Monforts Qualitex control system.

tablets, making navigation extremely easy and cutting down the time required for becoming familiar with the system.

Operation is via touchscreen and wheel-effect selection and the dashboard can be individually configured to meet the exact needs of an operator's tasks.

## texCoat

The second Montex stenter that has been installed at the Zofingen plant is equipped with the latest Monforts texCoat system, as an extension of Bethge services to its customers. As the only manufacturer which is able to offer completely integrated coating lines from a single source, the latest Monforts coating heads are tailored to the company's

drying technology for maximum benefits. Monforts offers multi-functional coating heads for its texCoat units, with modules that can be integrated into new lines or retrofitted into existing ones.

In addition to its main markets, Bethge also manufactures certain technical textiles, as well as Damast fabrics and voiles destined for Africa's apparel markets. The company is now back to full production, finishing some three million metres of fabric annually.

"Ongoing service from Monforts continues to be excellent," Mr Katzenstein concluded. "We have had a long-standing relationship for many years, but were really impressed with the service they provided this time." ●

# Zero defects 'a la lyonnaise'

**Monforts technology is providing major benefits for the French luxury brands fabric supplier renowned for its know-how in silk finishing.**

Quality is the number one requirement for Hugotag, a specialist French finisher of silk fabrics to many of the world's most prestigious luxury brands.

Now a member of the Chanel Group, the company in its present form represents the merging five years ago of two former silk businesses – Tag, founded in 1974 in Fourneaux, close to Lyon, and Hugo Soie, a St Etienne-based company with a 200-year history.

## Consolidation

Investment in new equipment has followed the merger and consolidation of the companies at the Fourneaux site, including advanced digital printing machines, as well as the installation of a finishing line centred on the latest Monforts Montex 8500 stenter and a Matex padder.

The five-chamber Montex 8500 machine at the Fourneaux plant is equipped with newly-developed 24-inch visualisation monitors, providing total, intuitive automation and surveillance via the Monforts Qualitex 800 system.

## Precision

"It's an excellent machine," says Hugotag Director General Philippe Magat. "The key parameters for us include homogenous drying over the length and width of the machine and precise control of the tension of the fabric, because the silk has a natural elasticity, even without the addition of elastane. The Monforts stenter allows us to completely control the tension from the fabric entry right through to the winding machines – and we have special units for winding onto small rolls too."

"The fabrics are very delicate and require a sensitive treatment when being pinned into the stentering chain, as well as very gentle drying – without the fabrics ever touching the nozzles and with absolutely no air turbulence in the dryer."

"The humidity of the air inside the stenter is crucial for ensuring a perfect quality fabric feel," adds French representative for Monforts, Christophe Monel, of Monel Industrie Services.

## Fine silks

Hugotag is finishing some very fine silk fabrics indeed – sheer muslins that can be as light as 14 gsm, along with chiffons, and heavier satins and twills. The weights of the more delicate fabrics are usually between 20-50 gsm, and produced in average widths of 90 centimetres to a maximum of 1.9 metres on the 3.2-metre wide Monforts finishing



Hugotag Director General Philippe Magat.



Intuitive automation and surveillance are provided via the Monforts Qualitex system.



range. In haute couture fine fashion, of course, they command very high prices.

As a result of the extremely specialist nature of handling such delicate fabrics, the Monforts line has been equipped with a number of additional features, including special needle chain devices for dealing with knitted silk fabrics, a steamer unit, a computerised weft-straightening device and associated controls, and a horizontal combined chain.

The stentering chain is completely sealed – to avoid any grease or oil coming into contact with the fabrics at any time – and fitted with long-lasting lubricated bearings.

Special attention has also been paid to energy recovery, with low energy consumption IE3 motors and the integration of a full heat recovery system into the line.

Philippe Magat confirms that this is now providing Hugotag with significant energy savings.

### Historic legacy

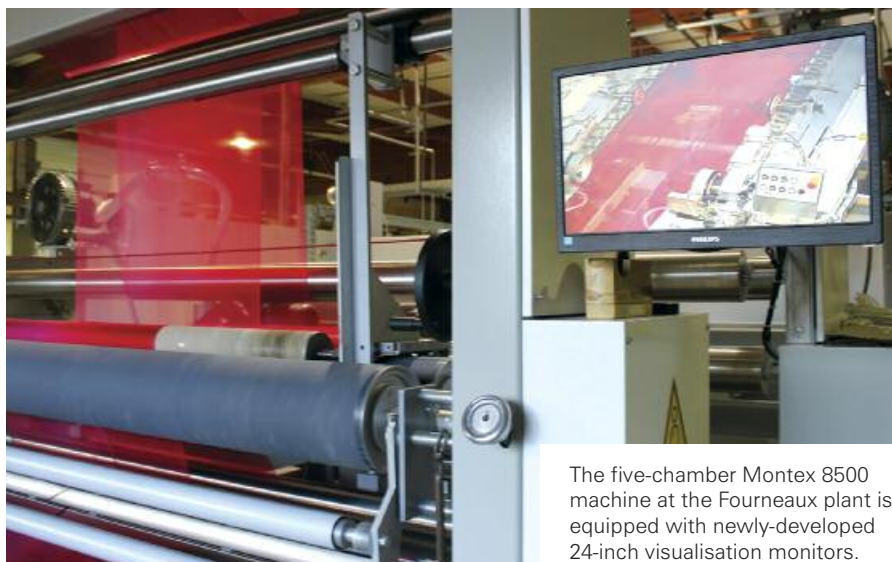
Like its equally famous counterpart in Italy – Como – Lyon has historically been associated with silk fabric production, and all of Hugotag's fabrics are still woven locally. Piece-dyeing was introduced in Lyon and became an industrial process in the mid-18th century and for a long time remained a speciality of the region. Screen-printing is meanwhile sometimes known as 'à la lyonnaise' because Lyon is acknowledged as the first region to industrialise the process during this same period.

And although there still remain other silk finishers in France, Hugotag is one of only two to carry out the 'degumming' of the silk fabrics using 'Marseilles Soap' – a chemical-free formulation based on 100% olive oil, developed long before the concept of sustainability was even known.

"It's a very specific treatment and because the fabric is so very delicate it's very difficult to do on an industrial machine, but we



As a result of the extremely specialist nature of handling such delicate fabrics, the Monforts line has been equipped with a number of additional features.



The five-chamber Montex 8500 machine at the Fourneaux plant is equipped with newly-developed 24-inch visualisation monitors.

can now do it successfully," says Philippe Magat. "More than anything, however, zero defects are our objective, and this is something the new highly-automated and computerised Monforts line is allowing us to achieve.

"We don't need to run at high speeds, and average 15-20 metres per minute, because the priority is perfection. Our customers are very discerning and even the smallest of defects can result in returns, which we simply can't afford to allow to damage our reputation."

### The human touch

It is reassuring to know, however, that there are still some things that highly-automated and

computer-controlled machines like the Montex 8500 still can't do – and perhaps never will.

Hugotag still relies on the keen eyes of its specialist quality fabric control inspectors who have many years of experience, rather than digital optical inspection systems that are readily-available on the market.

"At this level of quality, it's a skill machines are simply unable to replace," Philippe Magat concludes. "Through many years of experience I am able to spot even the smallest detail that the average eye simply can't see – and so can the specialist team working here. Our exclusive customers would expect nothing less." ●

# Trusted quality from Catalonia

**Spain's circular knits finishing specialist has recently taken delivery of a new Montex stenter at its Barcelona plant.**

In opting to partner with Monforts for the supply of its third fabric stenter, commission dyer and finisher Tinfer put service – along with the proven reliability of advanced Montex stenters – at the top of its list of priorities.

Founded in 1973, originally as Tintes Fernández, in Arenys de Munt, the company shortened its name, expanded and relocated to its present plant in Pineda de Mar just down the coast from Barcelona at the beginning of the 1980s.

## Specialist

Tinfer has adapted over the years from being a supplier of commodity textiles to establishing a reputation as Spain's specialist in swimwear and sportswear – and especially in the dyeing and finishing of circular knits with a high degree of stretch, based on elastanes with polyesters, polyamides, cottons and their blends.

While 90% of its customers are third party distributors in Catalonia, the fabrics Tinfer treats

are subsequently supplied to garment makers for the global brands and retailers and the company is a firm believer in thinking global while acting local.

"The emphasis can only be on constant high quality, which our customers expect as standard," says General Manager Xavier Alabau Basart, who is the son in law of the company's founder Juan Fernández. "This in turn relies on both our own high standards and working with trusted suppliers. We needed to



View from the operation deck.



The stenter is one of the first in Europe to benefit from the integration of the self-cleaning Monforts Eco Booster heat recovery unit.



invest in a third stenter to increase our capacity in response to higher demand from our major customers, and this time decided to opt for the Monforts system."

### Know-how

The agent for Monforts in Barcelona, Aguilar and Pineda, benefits directly from the technical know-how of its Technical Director Karl Sonnleitner. He was previously a Senior Engineer for Monforts at its Mönchengladbach HQ, so Tinfer couldn't be in more experienced hands at a local level.

"Not surprisingly, Karl's an expert in this field and located just 30 kilometres from our factory," says Mr Alabau. "There are always teething problems with any new line but the response from both Aguilar and Pineda and Monforts has been tremendous."

The new six-chamber Montex stenter which was commissioned at the Pineda de Mar plant has a working width of 2.2 metres. It is one of the first in Europe to



Tinfer General Manager  
Xavier Alabau Basart.

benefit from the integration of the self-cleaning Monforts Eco Booster heat recovery unit.

The Eco Booster is equipped with an electric drive for computer-controlled optimisation of the heat exchanger's performance to the prevailing exhaust air streams – something that is not possible with purely static heat exchanger modules.

"The Monforts Eco Booster heat recovery unit puts an end to maintenance downtime as a result of its automatic cleaning control,

which means the machine doesn't have to be stopped at all," says Aguilar and Pineda Sales Engineer Oriol Canet. "In addition, the degree of soiling of the rotating heat exchanger wheel is monitored automatically, deciding when cleaning is required and to what degree, so the mill no longer has to rely on the operator."

The new line is fully automatic, with all the intuitive features operators will be familiar with from touchscreen smart phones and tablets provided by the Monforts Qualitex 800 control system.

This makes navigation extremely easy and has considerably cut down the time required for Tinfer's operatives to become familiar with the system.

"In my opinion the latest Monforts Montex is without doubt the best horizontal chain stenter on the market," Mr Alabau concludes. "We are now building on the additional capacity it has provided us with and we expect it to be fully booked out very shortly." ●

# Two-way trust

**Having only recently invested in what is now the largest Monforts Montex stenter installation in Europe, Portugal's Riopelle has placed a new order for a further machine of similar dimensions to become operational during 2019.**

As the owner and third-generation chairman of Riopelle – a company established by his grandfather with just two water looms in 1927 – José Alexandre Oliveira has adopted a successful strategy of forming much stronger ties with both customers and suppliers in recent years.

Riopelle's customers, it should be emphasised, are some of the biggest high-end and luxury brands in the world, including Armani, Hugo Boss, Burberry, Calvin Klein, Karl Lagerfeld, Massimo Dutti, Paul Smith, Versace, Max Mara, Victoria Beckham, Sandro and Maje.

## Mutual success

"We now have a closeness with these customers that would have been inconceivable six or seven years ago, and it's based on how the industry has changed over that

period, and the two-way trust that is necessary today, to ensure our mutual success," says Mr Oliveira. "We endeavour to be ahead of the field, and key drivers for us are currently the new possibilities offered by Industry 4.0 and digitisation, in addition to the push towards a circular economy."

It's certainly a strategy that is paying off – between 2012 and

2016 the company, with 1,025 employees, achieved an average annual turnover of €71 million with an EBITDA margin of 8.5%.

In 2017, Riopelle enjoyed its best year to date, with sales climbing to €74 million and an EBITDA of 15%. The headcount at the plant in Pousada de Saramagos near Porto has meanwhile increased to 1,069 people.



Riopelle chairman José Alexandre Oliveira.



Riopelle's four-hub Pousada de Saramagos plant extends over an area of 140,000 square metres.

Dominating the Riopelle finishing department is the latest Montex stenter.





## Vertical

Entirely vertically integrated, from raw material to finished fabric, Riopelle has a monthly output of around 700,000 metres of fabrics based on synthetic, natural and recycled fibres, with a specialisation in polyester, viscose and elastane blends. Production is 24 hours a day, over three shifts and the company's key fabric brands are Çeramica, Çeramica Clean, Tecnosilk and Tenowa.

Riopelle's strategy of close partnerships also extends to its technology suppliers. Over an area of 140,000 square metres, the four-hub Pousada de Saramagos plant is equipped with some 30,000 spindles, ten winding machines and over 60 twisting machines, as well as 204 weaving machines.

The company's finishing operations are divided into three stages – preparation, dyeing and finishing – with a wide variety of processes enabling the fine tuning of colour, touch, gloss, look, function and fluidity.

## Partnership

As long-standing partner with Monforts, Riopelle has a variety of the German machine builder's equipment, and dominating the finishing department is the latest Montex stenter, with 12 chambers and a full installation length of some 70-metres. The line was installed as part of a €14 million investment programme between 2014-16.

"This stenter combines production efficiency with excellent energy efficiency, ensuring a continuous production flow with a positive impact in terms of delivery time," notes Fernando Araújo, of Maquicontrolo, the Monforts agent for Portugal. "Monforts worked closely with Riopelle's technicians on the special design, which has a number of unique features designed according to their specifications. These include, for example, special J-boxes at



The 12-chamber Montex stenter has a full installation length of some 70-metres.



Special J-boxes at the Montex stenter's inlet and outlet allow for the gentle storage of a high volume of material.

the stenter's inlet and outlet, for the gentle storage of a high volume of material. The special heat recovery system was also tailored specifically to the company's needs, based on detailed calculations."

The next ten-chamber Monforts Montex stenter which is currently being built will be operational this year, as part of a new €10 million investment plan.

"We need close relationships with the suppliers of our equipment, who we know to be the best in the world," says Mr Oliveira. "When partners like Monforts develop something new, we trust them to tell us about it straight away so we can incorporate it into our forward planning.

## Technology and people

"It's no longer like in the past, when you would wait until the next ITMA to discover what they were unveiling. This is just the same as the expectation from the

brands – they can no longer show garments that will be available in six months' or a year's time, because consumers are now geared to having things they want immediately. These expectations have totally changed how everyone operates along the entire supply chain.

"Our ongoing investment in technology is critical to keeping ahead in the market, but just as critical is our investment in our people," he adds. "Building on our know-how of 91 years and passing it on to the coming generation is of extreme importance. This is being achieved through our internship programme, research and development programmes with research centres and universities, and special initiatives such as an open space R&D hub, bringing together our research, development and product engineering teams.

"All of this equips us for future success," Mr Oliveira concludes. ●

# First at the finishing line for 150 years

**Swiss fabric innovator Schoeller Textil has taken the finishing of two-layer laminates for protective clothing and outdoor and active sportswear to a new level of production efficiency with the installation of a Monforts Eco Applicator unit.**

The innovations over the decades from Schoeller – which celebrated its 150th anniversary in 2018 – are too numerous to mention.

They include the introduction of the first elastic ski apparel at the start of the 1960s, the integration of Kevlar into motorcycle jackets

in the early 1980s and the first temperature regulating fabrics over twenty years ago.

From its base in the beautiful village of Sevelen, at the foot of a scenic stretch of the Swiss Alps close to the border with Austria, Schoeller has been responsible for a succession of award-winning and exclusive new fabric finishes, many of which are now licensed to third party mills.

These include coldblack® for UV protection, energear™, which exploits the beneficial properties of far infrared from the body, NanoSphere®, for water, oil and dirt repellency, along with highly wash and abrasion resistance, 3XDRY®, for moisture management, and the latest environmentally-sensitive Schoeller treatments, ecorepel® and ecodry.

Having led the field in stretch woven fabrics for many years, Schoeller considerably expanded its range of knitted fabrics through the acquisition of fellow Swiss manufacturer Eschler Group in 2012.

## Standards

Manufacturing in Switzerland, of course, comes with environmental responsibility – the country has consistently ranked Number One worldwide in the Environmental Performance Index (EPI) and as a consequence, Schoeller has had to meet standards even



Schoeller's Sevelen plant in Switzerland.

The new Monforts Eco Applicator at the Schoeller plant.





higher than in surrounding European companies.

Everything a manufacturing plant does is strictly regulated, including the land, water and air that is used, but Schoeller was an early responder in this respect, having become the first textile company in the world to receive bluesign® certification back in 2001 – indeed, the company was instrumental in establishing this highly-successful system.

It excludes all environmentally harmful substances from the manufacturing process, sets guidelines and monitors their observance for environmentally friendly and reliable production.

Further, the company has a close cooperation with the environmental authorities in Switzerland and has also gone to great lengths to ensure no emissions or noise come from the Sevelen plant – which is in both a rural and residential area – and that it blends naturally into its immediate environment.

### Natural fit

The advantages that can be provided by the Monforts Eco Applicator for water, energy and raw material savings were a natural fit for the company's plant.

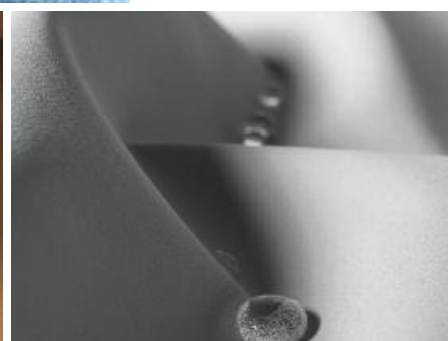
It has been designed to provide significant energy savings with reduced liquor application, eliminating the need for a conventional wet-on-wet padder and employing trough and roller techniques to apply just the required amount of liquid/coating to fabrics via contact with the roller.

As a long-standing Monforts customer, Schoeller already operates two 2.4-metre-wide Montex stenters, the most recent being a 60-metre long, ten-chamber unit.

This has a very long feed-in area, since for some laminated materials it is necessary to use two A frames for feeding in the different materials, as well as accommodating padding and laminating/coating and bonding machines.



Schoeller two-layer membranes.



Both stenters are connected to a heat exchange system. On the latest stenter, the waste air also goes through the heat exchanger to heat up the fresh air, providing two sources of recycled energy – both air and water. Half of the energy used for warm water at the plant is gained through heat recovery. The energy is harvested from the waste air of the steam boilers as well as the stenters, and the residual heat of the recovered steam condensation.

The Eco Applicator has been integrated at the start of the second Montex line at the Sevelen plant and its prime function is to make substrates for Schoeller's membranes hydrophilic on their inner side and hydrophobic on the outer side in a single pass – although a further 20-25 different finishing treatments are also carried out on the line.

### Minimal application

"It's not possible to finish the layers individually, prior to hot melt laminating so the fabrics and membrane films are dyed separately prior to being laminated, and then finished

together by the Eco Applicator before going to the stenter," explains Michael Killisperger, manager of Schoeller's finishing and coating department. "The Eco Applicator is designed for minimal application, and we can measure the moisture humidity at the entrance of the unit and then after both the first and second passes through it.

"Ideally we're looking for 20% residual content – 10% on each side. Most of these membranes are highly elastic so high control of the fabric tension is also required to prevent the creation of stripes. This can also be controlled at various points within the unit."

The installation is part of an on-going programme that has seen over 25 million Swiss francs invested in new technology at the Schoeller plant over the past decade and has led to further new product developments such as the introduction of upcycled Econyl® yarns (by Aquafil SpA) and the PFC-free ecorepel® Bio technology, based on renewable raw materials, as new components for the company's industry-leading membranes. ●

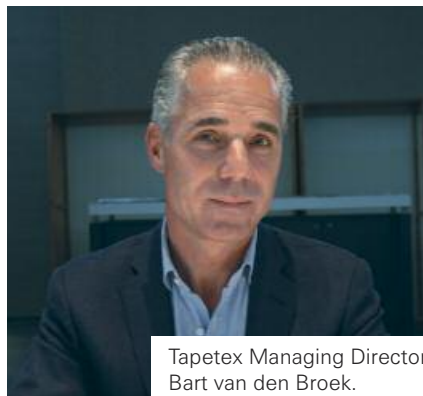
# Inspection boards for textile excellence

**The exclusive wallcovering collections of Tapetex are to be found in the very best guest rooms of the world's finest hotels, in executive boardrooms and offices and in top-of-the-range luxury new housing developments across the world.**

As family-owned company with a 50-strong workforce at the plant in Helmond, The Netherlands, Tapetex takes the finest fabrics of Europe's most advanced weaving mills – pure silks, linens, jacquards, wools and suede – and turns them into unique collections via a combination of in-house design know-how and advanced finishing techniques.

Since 1975 Tapetex has been considered the master in the field of textile wallcoverings, with sustainability and quality as its main focus. All products are made from natural and renewable fibres such as linen, silk, cotton, viscose and only in exceptional cases are man-made fibres used, if there is not yet a sustainable alternative. The company runs a 100% water-based production facility in which PVC, solvents, plasticizers etc., are banned.

"Our aim is to always come up with materials that other companies simply can't make," said Managing Director Bart van den Broek, whose father founded the company in 1975 as a trading operation, before deciding to bring full finishing processes in-house a decade later, in order to be completely in control of quality and the just-in-time distribution network.



Tapetex Managing Director Bart van den Broek.

## Specialisation

"We opted from the start to concentrate solely on wallcoverings and our collections are now well known to architects and specifiers worldwide. Manufacturers for other markets attempt to enter the field quite often, but find it harder than they anticipated because it's a complex market. They come and go."

The Tapetex plant is equipped with all of the latest technology for laminating and embossing, dyeing, double-sided coating and heatsetting, crushing, flocking, laser engraving and digital and conventional printing, including a Monforts Thermex dyeing line for both wovens and nonwovens.

The company's latest digital printing line is capable of simultaneously printing three different designs on 110 cm diameter jumbo rolls.

Recently, a 2.2-metre-wide, six chamber Monforts Montex stenter has been installed in a new 4,000 square metre expansion at the Helmond site.

"An older stenter is still being used for more limited runs," said Mr Van den Broek, "but with the new Montex line we can do much more. It has allowed us to introduce a number of new processes that were previously not possible.

"We can run coating and finishing processes that need better temperature, moisture, and

Operator view of the stenter.







The 2.2 metre wide, six chamber Monforts Montex stenter has been installed in a new 4,000 square metre expansion at the Helmond site.

air speed parameters in a much more controlled way.”

### Reliability and repeatability

It is one of the most meticulously clean plants in the world, and as an extra measure, all fabrics are brushed as an initial step in eliminating dust and potential contaminants prior the start of the finishing and converting steps.

“We need to be sure every metre of fabric is perfect from the first to the very last of a production run,” said Mr van den Broek. “It’s about reliability and repeatability.

“The Montex 6500 stenter has been running very well and gives us complete computerised control of all parameters such as temperature, moisture and setting times.

### Proprietary recipes

“We make all our own finishing recipes and dyes in-house and try to do as much as possible ourselves. We deal with a lot of expensive woven materials and quality has to be guaranteed – especially if an order is being shipped to the other side of the world from here.

“With these kinds of fabrics, even the smallest of mistakes can be very expensive. There can be anywhere up to fifteen separate stages to the finishing of some of

these fabrics, so we rely on the best computerised technology.”

The Tapetex collections are generally subtle and subdued, with an understated appearance often belying the sophisticated techniques behind their creation.

A material like Belle Epoque, for example, is a tri-dimensional suede wallcovering which has intricate laser cut patterns revealing the nonwoven base fabric and with silver and gold touches imprinted around its 3D crenulations.

Tech Inspirations, meanwhile, is a linen which has been cleverly embossed in variated grid lines, its design trialled on a lead template, so that its shimmers as the eye moves across it and the viewer moves across a room.

Shambala Silk, a 100% handwoven silk, radiates luxury with its natural sheen and very subtle gold 3D print on top.

These are just three examples of the close to 400 fabrics in widths of 110 or 137cm rolls that Tapetex keeps in stock and currently sells to over 70 countries worldwide via its sales offices and agents.

### Last minute

“Our customers generally like to order at the very last minute that a job is specified and appreciate the ready availability of what they want, which can be shipped

anywhere in the world in a matter of days,” said Mr van den Broek.

“We have established a very good logistics network worldwide.”

The company’s latest collection is based on both wetlaid and spunbonded nonwovens.

“Again, many of these products are supplied in several laminated layers with several coatings and usually double-calendered to provide the perfect finish we need,” Mr van den Broek explained.

“Our nonwovens collections are not cheap, but the materials fall between the general market for vinyl wallcoverings and our high-end wovens. Their big advantage compared to vinyl is that they are made from sustainable raw materials and furthermore allow the walls to breathe – in some parts of the world mildew is an issue due to humidity but with textile and nonwoven wallcoverings there is no danger.

“The walls on which our materials are eventually hung are essentially inspection boards. With other textiles in bigger production runs there are small mistakes that can be worked with, but in what we do there’s absolutely no margin for even the smallest error.

“The new Montex is helping us achieve this very high quality standard.” ●

# Only the best for Italian luxury goods

**Tessitura Oreste Mariani Spa is operating Italy's first Montex texCoat coating unit at its plant in Gissano, just outside Milan.**

The extremely flexible texCoat unit is allowing the company to carry out both knife over air and knife over roller coating based on simple and user-friendly PLC techniques, with on-screen visualisation for all operating modes and recipe management for many different coating processes; all integrated in to the proven Qualitex control system of the Montex stenter.

## Third generation

Tessitura Oreste Mariani Spa, founded in 1937, is now run by Andrea and Gaia Mariani and their cousin Edoardo Mariani – as third generation members of the founder's family. Today it specialises in high-end linings for luxury handbags and shoes, as well as continuing to also make the umbrella fabrics which for many years were the company's sole stock-in-trade.

"The company was founded by my grandfather and initially was just a weaving operation, making



Andrea and Gaia Mariani.

apparel fabrics, before the advent of synthetics, notably nylon, opened up a huge niche market for woven umbrella fabrics at the end of the 1950s in Italy," explains Andrea Mariani.

"The company, like a number of others, then devoted itself 100 % to nylon umbrella fabrics and it was a strong business for many decades. Then very quickly, Chinese companies were able to supply a fully-made umbrella for

the comparative cost of an Italian fabric for one.

"Fifteen years ago, there were suddenly 20 million Chinese-made umbrellas in Italy, accounting for 99% of the market and many of the local manufacturers and their suppliers were forced to close down."

## Diversification

Tessitura Oreste Mariani's response was to diversify, initially into sun umbrellas and garden furniture, but eventually its fabrics for luxury leather goods came more to the fore, built on firm relationships with the brands, and today represent 85% of business, with the remaining 15% being umbrella fabrics.

"This shift demanded significant investments to broaden our dyeing and finishing operations and become more vertically integrated," said Andrea.

The company now operates 24 doubled width weaving looms, 19



Mariani's latest finishing line is some 43 metres long.



of which are equipped with Jacquard harnesses, a range of regular and high temperature dyeing systems and two finishing and coating lines. It also has fully equipped units for cylinder, screen and transfer printing along with a dedicated inspection department and a fully-equipped textile testing laboratory.

## Residential

Due to the plant's residential location, it also benefits from advanced water, air and heat recycling and purification equipment.

"This change in response to the market was something of a revolution for the company," says Gaia, "because until then we had been making standard fabrics based mainly on one fibre – nylon – and producing bulk orders.

"In moving successfully into the luxury brands market we had to review our entire operation and focus on many different types of fabric construction and designs, while at the same time shortening our production cycles and enhancing our packaging and distribution operations.

"We now work with many of the famous luxury brands and 90% of our manufacturing is personalised for them, based on discussions with their designers about how to best adapt the fabrics in our regular collections for their specific leather goods.

"We are now very flexible in terms of colours, constructions and designs in striving to innovate with them."

"The readiness of some of these brands to explore the reshoring of their supply chains to local producers has also been helpful in recent years," she adds, "although at the same time, the business remains highly cost competitive."

Mariani's latest finishing line certainly further strengthens the company's position.

It is some 43 metres long and at its heart is the six-chamber Monforts Montex stenter and texCoat coating unit.



With the Qualitex visualisation software, 'finger tip' control features ensure smarter operating procedures.

The Montex 8500 stenter is distinguished by several new features, including a newly designed operator's platform with improved access, a new and improved visualisation with modern 'slider effect' on bigger 24 inch screen monitors and the Eco Booster heat recovery module.

With the Qualitex visualisation software, 'finger tip' control features offer smart phone-type techniques for the machine operators and ensure smarter operating procedures.

Additional benefits allow the operator to compose and pre-programme the 'dashboard' of the monitor to personal requirements and preferences.

## Full control

Mariani is still working to further exploit the maximum benefits from the new line.

"In many ways, it's a lot simpler for the operators because everything is electronically controlled," says Andrea Mariani. "One major benefit with the new stenter, for example, is complete electronic control of the tension at all times, and the same applies to temperature.

"We use a range of temperatures for our different finishing steps and each chamber of the stenter can be individually optimised. But, in a way, it's a little like changing from an old-fashioned desk phone to an iPhone for us – although relatively easy, it takes time to familiarise

yourself with everything that's actually possible.

"The machine is longer than our other working four-chamber stenter, and the older one it has replaced, and by comparison, operating speeds are 30-40% higher.

"On average, we are running each fabric four times through the stenter, to thermo-fix before dyeing, for drying after dyeing, for waterproofing and then for coating. With the texCoat, the application of coating chemicals is very precisely measured and applied."

Mariani's fabric constructions for umbrellas are generally nylon warp yarns with polyester weft yarns, but for luxury goods, combinations of many different yarns are employed, including wool and cotton and those based on luxury fibres.

The weight range too is different, averaging around 50-60gsm for umbrella fabrics and up to 500-600gsm for luxury materials. A range of heavy duty double-faced Jacquards is also produced.

"Because the new Monforts technology is completely electronic, the adjustments for differing weights and fabric constructions are immediate and instantly compensated for, in terms of tension control, humidity, machine speed and all other parameters," Andrea Mariani concludes. "We are learning to totally trust this technology." ●

# Complete Econtrol

**Through investment in new Monforts technology, Istanbul Boyahanesi is planning to increase its capacity for the commission dyeing and finishing of woven goods to a monthly 2.5 million square metres during 2019.**



Istanbul Boyahanesi plant manager Hakan Kaplan (left) and co-founder and director Kemal Taşkın.

The company is surely also the only dyehouse in Turkey to date with its own proprietary software for virtual control of all operations via smartphone or TV from the boardroom.

The special app-based programme has been developed by co-founder and director Kemal Taşkın, who has a background in software engineering, and it provides real-time information on all machine parameters and operator activity.

"I am now developing it further and in the near-future it will also be able to provide financial forecasting for us right down to individual batch level," he says.

This development has much in common with the advances Monforts is making itself in the field of Industry 4.0 and automation, such as the latest Qualitex control system and the Web-UI app for remote visualisation of Monforts technologies via smart phones and tablet devices.

## **Thermex Econtrol**

Based in the key Turkish textile centre of Çerkezköy, Istanbul Boyahanesi was only founded in 2017, on the site of an older existing dyehouse. It is a joint venture between two of Turkey's leading textile wholesalers, Yılmaz Kumaşçılık, which specialises in fabrics for casual and outerwear, and shirtings and suitings textiles operation Erika Kumaşçılık.

Immediately on its formation, the first move of the new company was to order a new



The Monforts Thermex Econtrol continuous dyeing line at Istanbul Boyahanesi.





Dahboard of Istanbul Boyahanesi's proprietary app-based plant control programme developed by co-founder and director Kemal Taşkın.

Istanbul Boyahanesi plant.



Monforts Thermex Econtrol continuous dyeing line.

"The existing equipment we inherited, which includes a 23-year-old Monforts Montex stenter, is only suitable for producing heavy weight fabrics with weights of 300gsm and above," Mr Taşkın explains. "The new Thermex allows us to get down to fabric weights of 80gsm. The old pad dyeing system we have is also very time-consuming and the Thermex has allowed us to considerably shorten processing times for the heavier fabrics, while at the same time considerably expanding our product offering. It's an extremely versatile range, allowing us to instantly see the results and to easily move between reactive and disperse dyeing, for example."

## Savings

"Of course, there is no comparison in terms of chemicals and energy usage and with the Thermex the savings are considerable," adds plant manager Hakan Kaplan. "It is also allowing us to make much longer batches of fabrics."

The Thermex Econtrol range has a working width of 1.8 metres and allows the single-bath continuous dyeing of cotton and polyester fabrics with selected reactive and dispersion dyestuffs, as well as cotton-polyester blends to be processed without reductive intermediate cleaning, eliminating the need for a steamer.

Other processes, such as the use of indanthren vat dyes for enhanced wash and boil fastness, or the over-dyeing on reactive-dyed cotton fabrics to achieve an extremely broad range of colour effects, are also carried out on the range.

The range was installed and commissioned in a very tight space within the existing factory by Istanbul-based Monforts partner Neotek Tekstil, which is also a new company, formed in February 2016 to assume responsibility for Monforts dyeing and finishing technology throughout Turkey.

In the short period since its inception, Neotek has already installed and commissioned over 50 full Monforts ranges throughout the country.

## Continuous quality

"The Monforts Montex stenter is of course, our key product and its advantages are well established," says Neotek founder Ahmet Kiliç. "It allows our customers to achieve high quality continuously, with the trusted electronic drive technology of Monforts. With the energy savings that are achieved they also save money and being robust, Monforts stenters also require fewer spare parts and less maintenance, with remote assistance in any case always available."

"All of the components in Monforts machines are the best available and the majority of the companies in Turkey either already have experience with them and trust the brand, or see the benchmarks being set by their competitors, making Monforts technology the natural choice," he adds.

"We have been very happy with the service we have received to date from Monforts and Neotek, and will continue to trust their technology going forward as we expand our business," Mr Taşkın concludes. ●

# One step ahead

**Portugal's leading commission finisher has recently installed a new Montex stenter – despite some limitations on space for expansion at its Guimeraes plant.**

In the commission finishing business, finding the time to make necessary new investments in the latest technology can be difficult. Services can't just stop and orders be delayed when an old machine needs to be dismantled and a new one installed.

For Vaz da Costa, which was founded in 1960 on the edge of the historic centre of Guimaraes in Northern Portugal, there's also the question of space. The town centre of Guimaraes has been listed as a UNESCO World Heritage site since 2001, yet its suburbs have expanded significantly in the past half century and now the Vaz da Costa plant is surrounded by residential buildings, making further outward expansion near-to impossible.

Nevertheless, the site is currently dyeing and finishing around 100,000 metres of fabric daily, and has expanded its commissioning services to customers in France, Spain,

Belgium and Germany in recent years. These exports now account for around 20% of total commission finishing business. A second business involving the making-up, embroidery and packaging of high-end bed and table linen under the well-known Bovi brand also operates from the site, with a total combined workforce of around 180 people. Around 80% of these products are for export markets. Separate entrance and exit points for the two businesses have recently eased logistics.

## Investments

"We are currently in the middle of what is our biggest ever investment programme, although it's pretty much an ongoing process," says Amélia Marques, who joined the company, which was founded by her father, fresh from obtaining her economics degree in the late 1970s. This was at a time when the company was

struggling, as Portugal adjusted to democracy in the years following its Carnation Revolution of 1974.

"You can imagine, it was not easy for a young woman to be introduced to the management of such a traditional company in Portugal back then, and my father had his own way of doing things, so there was some resistance to my ideas," she says. Amelia was soon joined by her brother Francisco and her sister Isabel, however, and together the trio have successfully steered Vaz da Costa's progression ever since. Today, Amelia's son and daughter are also part of the management team as it moves to third generation family ownership.

Vaz da Costa has recently successfully installed and commissioned a new Monforts Montex stenter, having previously opted for a machine from a rival supplier which proved problematic on its installation in 2012, as well as in subsequent day-to-day operation.

There have been no such problems with the new Monforts eight chamber machine, which has a working width of 3.6 metres and as such is one of the largest in Europe, operating continuously at speeds of above 100 metres a minute. It is equipped with a Mahlo weft straightening unit and a Benninger padder, in addition to a Monforts Ecobooster hear recovery system.

## Fine tuning

"There are always many adjustments to be made in fine-tuning such a machine," says Fernando Araújo, of



Vaz da Costa's plant is on the outskirts of Guimaraes in Northern Portugal. The town's centre has been listed as a UNESCO World Heritage site since 2001.





With eight chambers and a working width of 3.6 metres, Vaz da Costa's new Montex stenter is one of the largest in Europe.

Maquicontrol, the Monforts representative for Portugal. "It's not just like buying a new car. There are so many challenges arising on a day-to-day basis."

"The automation features on the latest Monforts machine certainly help to eliminate any chance of human error," adds Amélia Marques, "but there are so many parameters involved. The heating distribution, for example, is always challenging. Maintaining a consistent level can be difficult for so many reasons. It can be a question of the temperature in the plant changing rapidly, or the difference between how the machine has been cleaned from one shift to the next. There are lots of things you can't see immediately and sometimes you only detect things after a problem has occurred. For this reason I don't think you'll ever be able to fully automate a finishing line."

The company is primarily finishing 100% cotton fabrics in wide widths, in the weight range of 130-200gsm, with very even conditions required for the squeezing.

### Quality control

"Because we are in constant production, the emphasis is increasingly on quality control at

The 'disc-o-clean' unit on the new stenter carries out the automatic sieving and collection of dust from production.



the laboratory stage and we now have two fully equipped labs, where personnel has increased from a single person to eight people," says Mrs Marques.

Following the installation of the new Montex stenter, Vaz da Costa is this year planning a further €5 million investment programme which will see a new warehouse building, away from the main site, but closer to the main motorway link. New bleaching and singeing units and a drum dryer are also to be installed and these will be built up at the former warehouse in order to minimise the time required for installation and commissioning.

"We can't afford to stop production for the usual timescale involved so this will ease the pressure and keep things flowing," Mrs Marques said. "It's a question of organising it all when and how we can, and when it will cause the least disruption, but we expect to have it all completed shortly. We are also currently exploring the potential of digital pigment printing for our bed linen business, and also looking at new embroidery machines and a new calendar. Investment is ongoing, because only the strongest players who keep up with the latest technology survive." ●

# Just in time reaction and action

**Hans Wroblowski, Area Sales Director and Head of Product Management for Denim at Monforts, proposes some positive measures for keeping a step ahead in textile manufacturing with Industry 4.0.**



Hans Wroblowski.

We are currently facing the biggest challenge of our times – what is now being referred to as the 4th Industrial Revolution.

A. Monforts was founded in the year 1884 and our evolution in textile engineering and machine building has progressed from mechanical, steam and water-powered technologies to the first mass production lines, electronic drives and highly modular machines such as our stenters. The move towards the current state of the art has involved firstly data transfer and storage via internet/intranet, along with teleservice solutions, followed by full automation concepts.

Now we are truly in the digital age, surrounded by smart technologies and permanent online solutions.

With online finance and shopping, expert systems have been developed for optimizing internationally-linked businesses, along with business models for global production planning, in order to achieve the shortest possible supply and delivery times.

## Challenges

How should textile manufacturers respond to this situation?

At Monforts, we have a clear mission and are committed to investing in the digitization of our

technology in order to help our customers respond to the fundamental challenges facing the textile industry today. These can constitute something of a vicious circle of demands and expectations as a result of:

- Fragmented process chains.
- Different time and production scales.
- Missing standards of communication interfaces.
- Small profit margins.

The reality of low margins and low profits means that textile manufacturers are ultimately fighting for every production cent which can be saved. This can result in a reluctance to invest in new textile machinery, but manufacturers really need to explore what additional value the latest technologies can deliver. The era of digitization is demanding new structures and new ways of thinking, in order to assume digital leadership.

The key benefits the latest technologies can provide include:

- A reduction in the cost of energy sources.
- A reduction in machinery production costs.
- The sharing of process operators.

The four Industrial Revolutions.



### Industrial Revolution 17th-18th Century

First mechanical raising and shearing finishing lines with steam and water power



### 2nd Industrial Revolution 19th Century

Mass production / manufacturing with the help of electrification within the textile industry



### 3rd Industrial Revolution 20th Century

Operation and IT solutions for automation, production and manufacturing



### 4rd Industrial Revolution 21st Century

Digital age (Clouds etc.)  
Cyber physical systems  
Smart technology



- A reduction in machine downtime.
- Optimised production planning.

The objectives, which will result in a rapid return on investment are:

- Higher productivity.
- Higher machine availability.
- Increased efficiency.

The expectation of the industry is 'just in time reaction and action' and time is the most valuable asset within our industry.

The latest tools which can ensure this include:

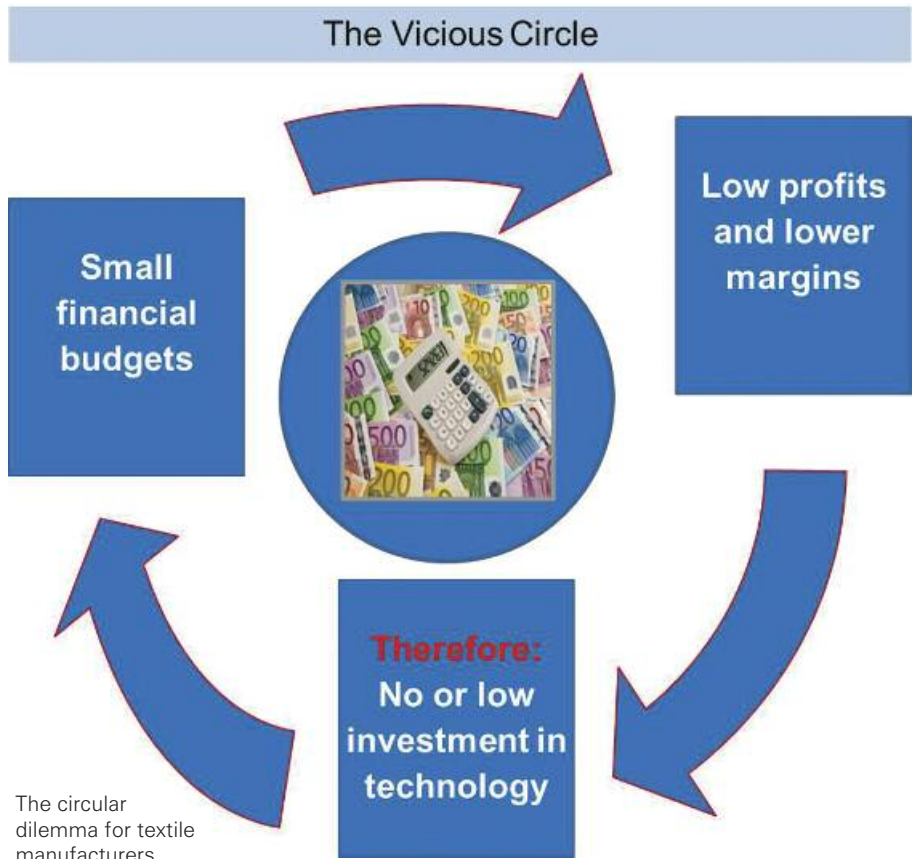
- Remote service, with easy and secure connection to the machines.
- Maintenance and servicing management.
- Spare parts support and a shop system directly at the machine.
- Advanced monitoring and visualization of machine conditions.

## Energy and resource savings

The textile industry consumes huge amounts of energy and resources at virtually all stages of production, but especially during finishing, where large volumes of water, chemicals and thermal energy are required. A significant portion of these resources, however, can be wasted without precise feeding, monitoring and control.

The optimized handling of thermal energy in particular, is currently a hot topic in the textile industry and one which offers a great deal of potential.

The latest Monforts technologies for enabling resource savings include:



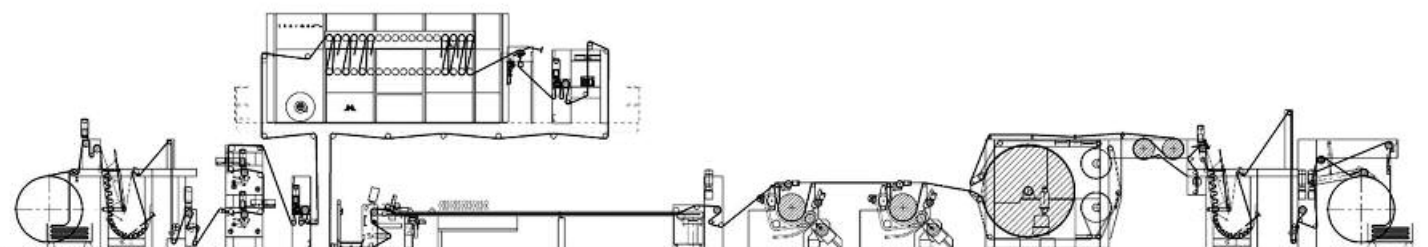
- The Matex Eco Applicator, as an alternative to padding, for minimum liquor application, especially for wet-in-wet solutions. The guiding concept of this unit is "not more than necessary and result-oriented application" for liquid and energy savings of up to 40%.
- The Monfortex Eco Line shrinkage solution provides similar energy savings of up to 40% in comparison to traditional padder/cylinder dryer solutions.
- A basic solution for the introduction of two-way super stretch into denim carried out in a single processing step.

## Steps to successful digitization

Companies who choose to follow a Textile 4.0 strategy can set out their path to digitization and the application of digital concepts by following these three pragmatic steps:

- **Give all things a name.** For all products, sets and production materials a clear ID has to be defined, for example, with a bar code and thus a unique name. Further, digitizing and connecting products and the value chain can only be made possible on the basis of clear identification.
- **Measure, registration, measure.** Measure all process relevant

Line configuration of the advanced solution for the introduction of two-way super stretch into denim carried out in a single processing step.



information by the use of sensors. Install sensors at multiple measuring points along the production line. The availability of measuring data allows companies to improve processing time and machine ability.

- **Analyze Data.** Connect the clearly identified products with their digital specification, their production materials as well their manufacturing related process data. Further, connect the different sources of data-machines within the production chain. Create the required communication and IT infrastructures in order to achieve connectivity and to be able to combine and analyse data with an expert system and a pre-adjustable recipe data information system.

## New Horizons with Qualitex

The consolidation of the Monforts Qualitex digital solutions with the latest mechanical solution such as the Eco Applicator or Eco Line can be the basis for the efficient implementation of a range providing higher productivity and efficiency.

The Qualitex offers the operator more reliability, quicker access and therefore more benefit. The easy operation by use of the latest slider and dashboard functions with individual adaption to the operating states assures faster

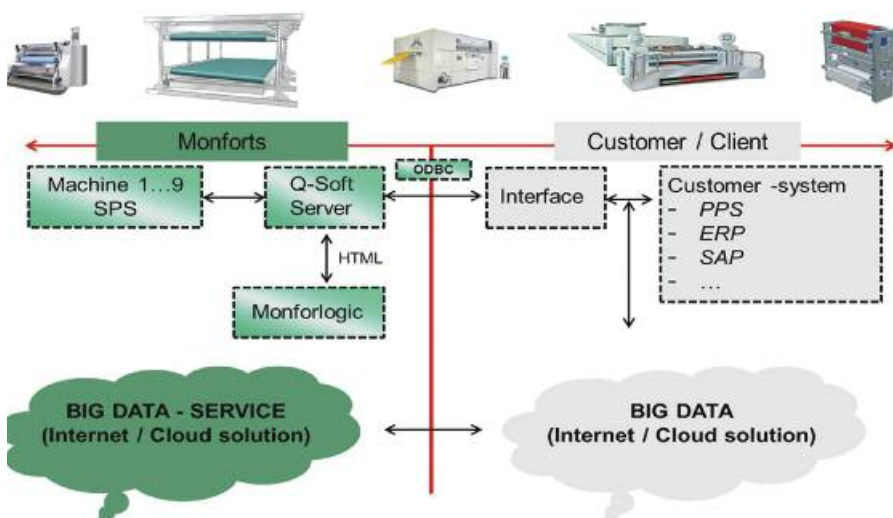
The Matex Eco Applicator, as an alternative to padding, for minimum liquor application, especially for wet-in-wet solutions.



The Qualitex offers the operator more reliability and quicker access.



Through its target-oriented and integrated digital intranet/internet-based Cloud solution, the Qualitex achieves just in time reaction and action.



access to comprehensive recipe data and therefore enhanced machine ability.

Through its target-oriented and integrated digital intranet/internet-based Cloud solution, the aforementioned just-in-time reaction and action can be achieved to ensure that supplier and customer will be always benefit from a retrievable online information service.

## Summary

The significant opportunities arising from Textile 4.0 and the Internet of Things require elevated investments, with intranet and internet being the most important tools in the future of efficient corporate management.

We should not, however, underestimate the numerous challenges that this transition entails.

The main sources of the benefits in respect of productivity, efficiency and availability have yet to be defined between supplier and producer.

Of course, there are already extremely optimized textile processes in use which are executed serially in a well-defined sequence. These will be further optimized in the future and open the route to the introduction of new production approaches. ●



# Winning combinations for Arta

**As an accredited supplier to leading European retail brands, Turkey's Arta Tekstil is seeing a programme of continuous investment over the past three years now paying solid dividends.**

With a monthly production capacity of around 4 million metres of finished woven fabrics per month, Arta employs 3,000 workers over three shifts daily, with 50% of its output exported to key retail customers and the other half produced on a commission basis.

The company is situated in Çorlu, some 70km west of Istanbul – a city which has boomed over the past 30 years, with its population having risen from barely 20,000 to over 270,000 people. This has largely been due to a welcoming immigration policy and the new textile mills which have emerged in the past few decades.

Of the 350 textile companies in Çorlu, however, around 250 are estimated to be dyeing and finishing operations, so how, you may ask, does a company like Arta distinguish itself?

The answer is through clever combinations of processes exploiting its comprehensive dyeing, finishing, coating and digital and rotary printing technologies to the full.

In addition to other technologies, the company's recent investment programme

has seen the installation of a new European-built Monforts Thermex Econtrol dyeing system as well as two ten-chamber Monfongs Montex stenters and a Monfongs sanforising unit, all of which have been installed and commissioned by Istanbul-based Neotek.

## Wider range

"In combination with the new Monforts Thermex system, this provides us with a far wider range of fabric finishes and surface effects that we can achieve compared to our competitors," says Arta plant manager Mehmet Kalipçioğlu. "Our dyeing methods include reactive, sulphur, indanthrene, indigo, pigment and disperse dyed fabrics, along with specially-developed in-house techniques and special glitter, PU, pearl and other blade coatings. Through combinations of all of these techniques, we are able to provide our customers with highly-differentiated fabrics."

Added to these winning combinations can be a variety of finish effects such as silicone, wrinkle-free, paper-touch, water repellent, stain repellent, anti-bacterial, fire-retardancy etc.



Arta plant manager  
Mehmet Kalipçioğlu



## Single process

One special development Arta has been involved with in a joint project for TÜBİTAK – The Scientific and Technological Research Council of Turkey – has resulted in a fast and economical method for applying both reactive dye and a version of pigment dye in a single process.

"Since the washing effects of reactive and pigment dyes are far different, there are some colours you can only get with either, but our customers can now achieve outstanding new colour shades after garment washing with this process, and different shades or contrast colours can be combined," Mr Kalipçioğlu explains.

The latest Monforts and Monfongs installations, he adds, have resulted in a production increase of over 50%, with a marked improvement in quality and reproducibility. ●

# Passing on the know-how

**As the key site for the construction of Monforts finishing machines, *Montex Maschinenfabrik* in Austria is currently working flat out to meet a very busy new order schedule and plays a key role in finalising the new machines for ITMA exhibitions.**

"We have been working very closely with the Monforts research and development team in Mönchengladbach, Germany, to take the latest new ideas through testing and prototyping, in readiness for ITMA 2019 and for future series production," says Montex plant manager Gert Hanzl. "We are fully exploiting the many new possibilities being offered by Industry 4.0 in the continuous development of design and manufacturing methods."

Located in St. Stefan, in the

centre of Austria's Lavant Valley, Montex Maschinenfabrik was founded by Monforts in 1982 as an advanced manufacturing hub.

"Our area is known as the 'paradise of Carinthia' due to its favourable climate," says Gert. "Lignite was mined up to a depth of 600 metres here until 1968. From the outset of Montex in 1982, we have specialised in all aspects of machine production, including high-precision sheet metal working, laser cutting and welding, the assembly of

components, painting and shipping, along with a well-organised spare parts service."

The Montex machine shop is equipped with advanced Trumpf laser and CNC cutting machines and presses, with the powder coating of exterior panels also carried out for rapid turnaround.

"The respective electrical switch cabinets for the machines are delivered just-in-time from Monforts in Germany according to our production schedules," says Gert.

The Montex Maschinenfabrik production site in St. Stefan, near Klagenfurt in Austria.







Loading of a wide width machine for a new Monforts reference customer.

## Special machines

While there is standardisation in series-produced Monforts machines, Montex is increasingly called upon to construct tailor made machines with unique designs, according to the special needs of the customers.

"We aim for the best combination of already-proven components and carefully-tested special constructions," says Gert. "We are able to handle extremely large projects, having recently shipped a complete finishing line to one customer within eight weeks, and we were particularly pleased with our proven design of a challenging stenter frame with a 320-degree temperature chamber. We are currently manufacturing machines with working widths of 5.6 metres and we can produce those with widths of up to seven metres, if requested."

The core Monforts machine range, including the industry standard Montex stenters, along with relaxation dryers, Thermex dyeing ranges and Monfortex/Toptex compressive shrinking ranges as well as Matex padders and Eco Applicator minimal coating units, has been significantly expanded with the acquisition of Timatec in 2015, to



Montex Maschinenfabrik plant manager Gert Hanzl.

include a complete portfolio of coating units for virtually all applications in textiles. These have been further developed and been adapted to Monforts electrical plc-control standards and are now available as the Monforts texCoat and Allround units.

"The business is currently running very well and with ITMA 2019 approaching we are ready to meet a special challenge," Gert says, emphasising that the loyalty and satisfaction of the Montex workforce is of paramount importance.

## Advanced training

"We have employees who have worked at this site since the foundation of Montex Austria, but

it's very important that we train apprentices at the same time, in order to pass on our know-how and ensure the high standard that customers expect from Monforts systems is maintained going forward," he says. "One of the key advantages of being here in the heart of Europe is the Trial Training System – one of the best training systems in the world. It combines theoretical instruction in a vocational school with practical training both within the company and in training workshops.

"Established staff also train regularly to develop new skills and everyone is involved at all stages of production and trained to multi-task. This gives us flexibility and strength." ●

# Ready for your future success



AHEAD OF PROGRESS

## Montex stenters

Leading High Tech features for permanently achieving best finishing results.

The built-in quality control is always visible with Qualitex 800 PLC control.

And with Web-UI\* on your mobile devices.

Ask for details.

We will be pleased to inform you further.



\*option

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## 4.0 READY



GERMAN  
Technology