



Functionalized Denim 4.0 by Monforts

world of denim

MONFORTS REFERENCE CUSTOMERS
INCLUDING TECHNICAL ESSAY



Positive trends in denim

It will be very evident to readers of this latest issue of World of Denim just how committed the industry has become to resource efficiency and sustainable production.

At the latest Denim Première Vision in Barcelona, a survey of companies revealed that 90% of denim manufacturers now have specific policies in place for reducing their use of chemicals.

And new technologies, such as waterless dyeing and laser treatments for surface effects, are playing their part in allowing more to be achieved with less.

Monforts is very proud to be a part of this positive trend as we continue to refine our industry-leading finishing technologies to meet the demands of an increasingly exacting market.

Indeed, sustainable production has been the beating heart of our development work over many years.

A handwritten signature in blue ink that reads "R. Hampel".

Roland Hampel,
Managing Director

A. Monforts Textilmaschinen GmbH & Co. KG

Postfach 10 17 01

D-41017 Mönchengladbach

Blumenberger Strasse 143-145

D-41061 Mönchengladbach

Telefon: +49 - (0) - 21 61-401-0

Telefax: +49 - (0) - 21 61-401-498

Internet: www.monforts.de

eMail: info@monforts.de

PUBLISHED BY MONFORTS MARKETING GROUP





Photoshop and shape

'Beautifying the Performance' was the title of a seminar presented by Hamit Yenici, Çalık Denim's General Manager, in cooperation with Invista.

"New technologies bring new problems to solve, and today's fabrics are no different to mobile phones in this respect," he said. "They need to be constantly updated."

"All of the problems that have had to be overcome have been the result of new progress in comfort and shape for the wearer."

"Shaping your body is becoming like photo shopping your image for Facebook or Instagram - getting the best angle and most flattering appearance - that's what we're doing for the silhouette - adding something extra with a moulding effect."

He identified the key combinations of properties required for selective consumers of high-end jeans in 2016 as:

- High stretch performance
- Low shrinkage
- Low 'growth', as in no sagging
- Perfect recovery and good holding power
- No puckering
- A soft-hand feel

"All of these properties can be achieved with today's highly-engineered constructions based on the latest Lycra stretch yarn technologies," said Yenici.



Getting the message to 'Generation Z'

The two key themes currently preoccupying the denim industry - namely sustainability and stretch - were explored at seminars held during PV Denim in Barcelona.

Première Vision's latest industry survey has revealed manufacturers are making impressive gains in respect of resource efficiency and clean manufacturing, with 90% of companies surveyed, for example, now having specific policies in place to reduce their use of chemicals.

"It's all about trust, transparency and environmental betterment," said Giusy Bettoni, PV consultant, in sustainable innovation for textiles, fashion and design.

Responsible innovation

But Trevor Harrison Head of Design at Pepe Jeans London, suggested the industry should no longer talk about 'sustainability', and instead refer to 'responsible innovation'.

"Sustainability has become an industry-standard cliché and consumers don't understand it or care," he said.

"In the past two years there has been a big change with the introduction of ozone and laser treatments at various production stages in denim manufacturing and we have jumped on that."

"It's very new and it's starting to clean up the industry, but in setting a precedent, we have had to go to market with the resulting products and that was a big change."

He added that the Pepe TruBlu range employed zero chemicals and less than five litres of water in the production of each pair of jeans and achieved the best sell-through rates ever.

"We communicated it through all channels, but it wasn't sold on any sustainability message," he said. "It sold because it was a beautiful product. The consumer doesn't care in the slightest about sustainability and that's something we have to be aware of, but this message somehow came across."

"When you look at what's been achieved in respect of 150,000 pairs of jeans it was terrific."

"Sustainability is out and responsible action is in," agreed Ebru Ozaydun, Head of Sales and Marketing for leading Turkish denim producer Çaik.

"It's simply about doing our work in a better way and the social mission aspect is just the icing on the cake," she said. "It's about how to clean-up our processes and save resources but also how we can spread the message and help other players along the supply chain which we are in the middle."

"Before us are the chemicals and dyestuff manufacturers and fibre producers - and even the farmers. At the other side it's the garment manufacturers, the brands and the end-consumers and they're who we have to help."

"Communication," she added, "is vitally important."





“We have to develop a collaborative mind-set because we are a big tribe. It’s certainly not just about a hang-tag. The language needs to be changed around how we communicate these

messages to the consumer. We need to tell a different story to the next, so-called ‘Generation Z’ that is coming up now.”

“If we don’t do it, who’s going to?” Trevor Harrison asked. “Once the

industry starts to get the knowledge it’s very easy to start developing products in that direction, and we’ll all be amazed at what’s possible. But sustainability as a term just isn’t sexy.”

Denim producers participating at the show enjoying the benefits of Monforts finishing lines included:

Artistic Denim Mill
 Artistic Fabric &
 Garment Industries
 Artistic Milliners
 Albiate
 Ariteks

Arvind
 Bossa
 Çalık Denim
 Cone Denim
 DNM
 Kipaş

Kilim Denim
 Matesa
 Mou Fung
 Naveena Denim
 Orta Anadolu

Soorty Denim
 Tavex Europe
 Textil Santanderina
 UCO Raymond
 US Denim Mills



Original heritage

When it comes to vintage denim, it doesn't get more authentic than the White Oak manufacturing plant of Cone Denim in Greensboro, North Carolina.



THE PROGRESSIVE FARMER
FEBRUARY 1951



Famously, this plant was granted the US rights to manufacture all of the shrink-to-fit selvedge denim for authentic Levi 501s over a century ago. Heritage products continue to be made today in this special mill which is equipped with lovingly restored and maintained 1940's Draper shuttle looms.

“They are installed on the original wooden floor which is very necessary for absorbing their vibrations,” explained Kara Nicholas, Cone's Vice President of Product Design and Marketing.

“We have to make some of our loom parts in-house and hunt around for others, but we've actually managed to expand production and added new looms we've acquired,” she said. “The character really does come out in the fabrics produced.”

Cone Denim celebrated its 125th anniversary in 2016 but is far from being stuck in the past. As part of the huge International Textiles Group, the company has vast R&D resources at its disposal; including those of sister company Burlington, which specialises in performance fabrics.

“Together we've developed advanced processes based on moisture management fibres such as Dri-release, Coolmax and Transdry,” said Kara.

“We're also incorporating Dyneema high strength fibres into certain ranges. In fact, our performance collection is now bigger than ever.”



In other projects, Cone is working with Stoney Creek Colors on the Natural Indigo collection, incorporating dyes based on indigo grown in Tennessee.

“We started with selvedge denims and are now expanding to wide widths with our natural indigo collection which has involved working with a dedicated sustainable supply chain going right back to the farmers,” said Kara. “The Cone e-shop is also now online (www.whiteoakshop.com), and aimed at upcoming artisan designers.”

Elastic physics stretch

Circular, knitted and seamless! US Denim Mills is expanding its True Flex athleisure collections with knitted fabrics.



“These True Flex creations are all part of the general ‘athleisure’ trend and an alternative to woven materials,” said Shahid Majeed, General Manager of the Lahore, Pakistan-based group.

We are achieving tremendous designs, not just with laser finishing but especially with these seamless knit structures themselves,” he said.

“They are one-piece seamless designs and we are now looking to invest further in circular knitting in order to bring these new products to market. Obviously, finishing is challenging so we rely on the best technology available.”

Rinze Koopmans, who represents US Denim Mills in Europe, said that the company is now producing some three million square metres of denim a month in all styles.

“We have good customers in Europe and Turkey, as well as the



“ A flexible alternative to woven denim. ”

Shahid Majeed,
General Manager

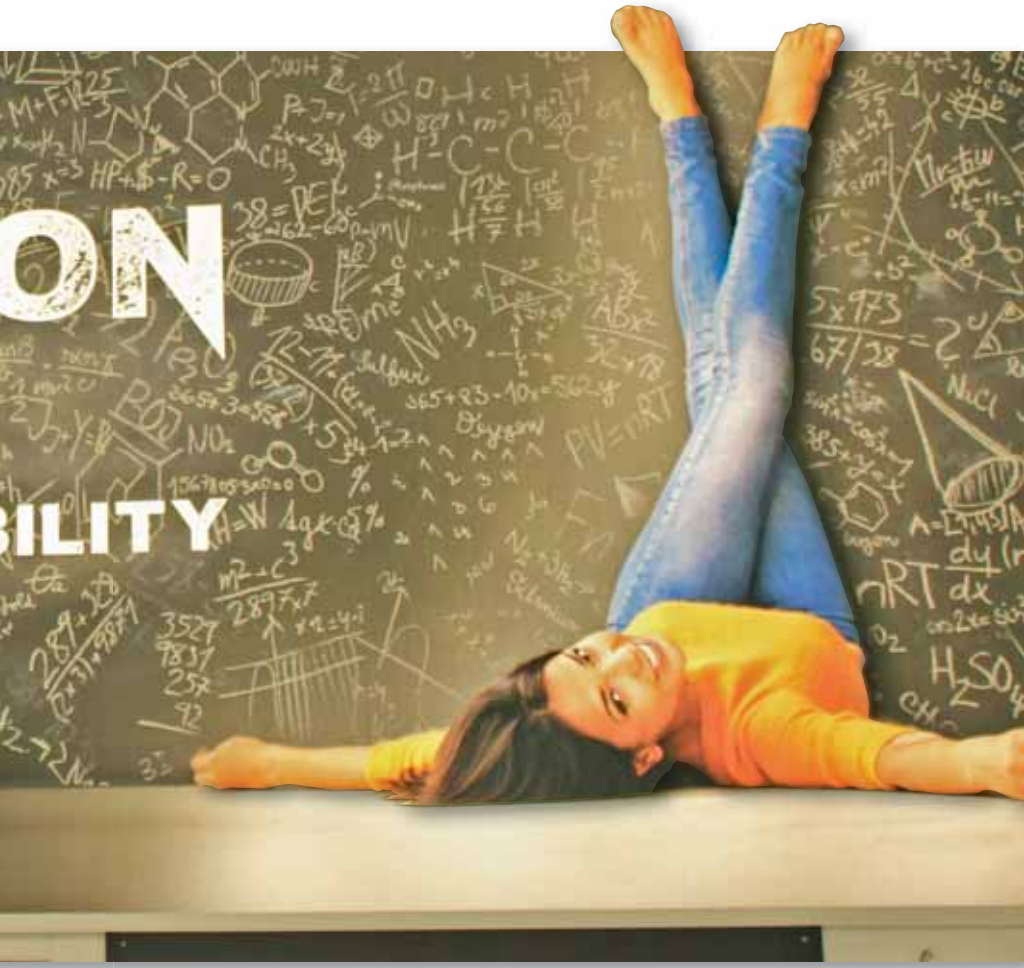
USA, and “They’ll be the first to see the amazing suppleness woven denim allows.”

He said that a key is the Monforts Sanforizing system combining the firm’s strengths in finishing both standard denim and knitted fabric.

Among other key new concepts being introduced to the denim market by the company are:

- ExZika - an anti-mosquito denim which is long-lasting, organic and safe for skin. The company has woven in a non-carcinogenic organic compound that disturbs the physiology of insect nerves and paralyzes mosquitos. It meets World Health Organization hygienic requirements and lasts up to 20 home launderings.

True Flex



Mad science and spider's webs

'The Mad Science of True Denim' was a US Denim Mills special display in Barcelona, highlighting new concepts and also drawing attention to the strange strengths of spider silk.

Spider silk is incredibly strong, as will be known by anyone who's observed the delicate strands of a web holding large leaves and then standing up to a breeze.

Its threads are almost-invisibly thin, yet as firm as high-grade steel, while being less brittle - and at a fraction of the weight. US Denim is now exploring their ability to add softness to denim.

"It is literally, gossamer," the company explained. "You can feel the vintage touch it brings, but the other properties those clever spiders build into their fibres include antiseptic, anti-microbial and anti-fungal properties - otherwise, we wouldn't see old cobwebs, only fat microbes and mushrooms.

That's why spider silk has been used - by both peasants and physicians - to heal wounds by keeping infection away and adding its vitamin K to help in clotting.

US Denim now has the expertise to include the strange strengths of spider silk in jeans - that's the kind of fashion challenge we enjoy."



Rinze Koopmans

- A far-infrared polyester yarn that conserves body heat by two-to-four degrees more than normal denim fabric. It works by absorbing body heat and not letting it dissipate which promotes circulation and gives additional protection from harsh weather. It's also anti-bacterial.
- Mouline - a mélange yarn with different types of fibres giving it the impression of wool-blended fabric without actually containing wool. The result is light-weight and stretchy and after dyeing, the Siro Mouline warp with 30% polyester remains partially un-tinted and gives a woollen look in indigo, while the black spun polyester weft adds overall shade depth and aesthetics.

Serving Spain's manufacturers for 140 years

Barcelona-headquartered machinery agency Aguilar & Pineda Asociados celebrates its 140th anniversary in 2016 and has represented Monforts in the country since 1971.



“For denim, Monforts is unbeatable in shrinking and stretching and relaxation technology.”

Carlos Aguilar Peyra

“For denim, Monforts is unbeatable in shrinking and stretching and relaxation technology, which means that overall, it really has no serious competition in this market,” said the agency’s fourth-generation owner Carlos Aguilar Peyra.

“Monforts is also the best in woven and knitting high technology products and, in general, high speed lines and high accuracy are what the company’s technologies excel.

We have recently sold the first Eco-Applicator system to a Spanish company and also a new curing range for technical fabrics.”

Historically, the Spanish textile market had a lot of players but many have now closed down and the industry has become much more streamlined.

“If you don’t have a special niche you can’t survive as a textile manufacturer on the Spanish domestic market alone,” Aguilar observed. “Only companies with very good organisation and good machinery survive, and by exporting much of what they make.”

“Nevertheless, Spain has a number of extremely strong international denim manufacturers, including

Tejidos Royo, Textil Santanderina and Tavex, which now has its manufacturing outside Spain, but remains headquartered in Madrid. Smaller companies tend to just export their fabrics within Europe.”

Oscillation

“In the textile industry there is an oscillation between good years and bad years so you need to take a long term approach and be very flexible,” said Aguilar.

“Luckily our customers understand the need for investing in the latest technologies which provide them with a competitive edge.”

“The price of oil is low at the moment, but it won’t last forever and when it starts to climb again Spanish, and European companies in general, will be extremely well placed to profit from the next wave, as a result both of the increase in transportation costs (making it more competitive in close proximity markets) and their highly-efficient operations.”

“Many brands require short delivery times so a lot of business will not go to Far East Asia countries. Unlike in the garment industry, there is equilibrium between textile imports and exports in Spain and also in yarns, operating in the world market.”

DNM

Quality on the doorstep



DNM, which made its debut at PV Denim this year, was founded by Turkish investors in 2011 in the Mediterranean port city of Damietta in Egypt.

The vertically-integrated denim fabric production plant produces

50 tons of yarn on a daily basis and has the best raw materials literally on its doorstep - Egypt’s prized Giza cotton.

There is evidence to suggest that cotton was first cultivated on the Nile Delta as long ago as 500 BC and it’s

the perfect place to grow it. The soil is naturally rich and fertile and the waters of the Nile provide essential irrigation and keep the soil’s moisture content at an optimum level.

Harvesting is carried out by hand to both preserve the quality and allow the maturity of the plants to be assessed before picking.

Egyptian cotton comes in a variety of grades, the finest being Giza 45, which is widely used in some of the most luxurious shirting fabrics all over the world.

“This is too fine for denim fabrics so we have selected Giza 86 for use in our Egyptian Cotton denim collection,” said a company spokesman.

“It provides just the right combination of staple length and lustre to give strength and soft touch to the fabrics,” he added.

From two to 700 for Mou Fung

With two Montex stenters and two sanforizers at its plant in Zhuhai, China, Hong Kong-headquartered Mou Fung has been successfully producing high quality denim since 1970.



“We’re currently in trials with Monforts for our next special finishing installation,” said Mou Fung’s Roy Kim. “This is great technology with the best reputation in the industry.”

For many years Mou Fung manufactured just two highly

successful denim fabrics known as types MF8 and MF168.

Today, however, the company’s range includes more than 700 different denim fabric types, reflecting the sheer diversity and expansion of today’s market.

With this has come expansion and the company’s plant is now equipped with some 135 double-width computerized weaving looms as well as its advanced finishing department.

In keeping up with the latest fashion and process technologies, Mou Fung’s R&D department strives constantly to be at the forefront of the latest trends.

In addition to traditional basic denim, its current fabric library includes a wide range of surface-finished denims, stretch denims and weaves including 3/1 and fine weaves, chambrays, oxfords, broken twills, canvas, sateens and herringbones.

Mou Fung’s customer base includes garment manufacturers from all over the world.

“We produce denim fabric for the basic casual wear labels as well as the latest high-end designer wear labels.

“Visitors to Premiere Vision Denim have been impressed with our latest Spinsoft denim range, as well as the soft touch NSquare core indigos,” said Kim.

“Rip-stop indigo at around 6.5oz per square yard also continues to be a best seller for us with the major US and European brands and highly saturated looks are currently extremely popular.”



“Monforts provide great technology with the best reputation in the industry.”

Roy Kim

Santanderina's soft options

Textil Santanderina, headquartered in Cantabria, Spain, is known for a commitment to sustainable manufacturing and specifically for exploiting the distinctive attributes of Tencel cellulosic fibres



“Offering countless benefits in appearance, a high degree of comfort and complete freedom of movement.”

Jordi Ballas, Marketing Manager



“We have a strong partnership with the fibre maker Lenzing and softness has been our focus,” says Marketing Manager, Jordi Ballas.

Indeed, many Santanderina denims are composed of 100% Tencel and the company's Fastcel Finish fabrics

are based on an exclusive spinning process which avoids fibrillation of the fabric.

Once woven, the Tencel denims are enzyme washed in a chemical-free process taking only between 20-30 minutes.

appearance, a high degree of comfort and complete freedom of movement.”

Santanderina has also recently introduced new spinning yarns based on wool and Tencel, as well as natural indigo-dyed yarns.

“If you employ a sustainable fibre like Tencel and then put pigment dyes on the fabrics it negates the entire benefit,” said Ballas.

“We are very strong on ecological finishing concepts and our high capacity production system is both versatile and self-sufficient. Our four plants are equipped with state-of-the-art textile machinery, including finishing lines supplied by Monforts,” he concluded.



Fastcel High Light denims - again produced by a special series of processes developed in-house - are under 80gsm in weight and characterised by a high resistance to washing and enhanced colour fastness.

Enriched transparency effects and light and shading techniques give a special fluidity and drop to these fabrics.

Santanderina's Dinamic Comfort range of denims are meanwhile characterised by 50% elasticity in both warp and weft and a 100% formaldehyde-free finish.

“These multi-directional stretch fabrics have zero residual stretch and are the result of a complex spinning and weaving process,” said Ballas. “Cotton-Lycra or Tencel-Lycra fabrics offer countless benefits in



Beyond vertical for Artistic

Karachi-headquartered Artistic Fabric & Garment Industries (AFGI) is now equipped with a highly efficient waste recycling machine supplied by one of the leading European suppliers of the technology.



“The in-house shredding equipment is certified under the Global Recycle Standard (GRS) to help process post-consumer waste jeans into new products,” said AFGI’s Director of Product Development and Marketing, Henry Wong.

“This is enabling the company to transform discarded jeans into new yarns, fabrics and garments. With this significant investment we are aiming to give new meaning to the term ‘fully vertical’ and play our part in moving the denim industry into a new era of sustainability.”

In Barcelona AFGI unveiled its new Shapeform fabrics collection for Spring/Summer ‘17 jeans designed

to sculpt the body by employing fabric stretch and compression technologies found in pro performance athletic apparel.

The Shapeform fabrics are available in all denim shades featuring indigo, black and grey, while some of the options encompass Lycra Beauty and Lenzing Tencel fibres.

AFGI has one of the widest ranges of denim in the world, including many that don’t feel or look at all like denim for the fitness and Athleisure markets.

One striking construction displayed was a grooved spun polyester that had been randomly tumbled to provide a 1980s denim look.

“A major customer has already taken a significant amount of this material that has the appearance of denim but certainly doesn’t feel like it when you’re wearing the jeans,” Wong said.

Another fabric construction contained 21% cotton, 26.5% Modal, 26.5% Tencel, 23% Coolmax and 3% Elastane.

“Highly engineered fabric constructions and looks are something of a speciality of ours and the finishing, naturally plays an important role,” he confirmed.

AFGI has also recently teamed up with iconic US designer Roy Slaper - best known by denim aficionados for his meticulously crafted jeans made with vintage sewing machines - who after a recent trip to Pakistan opted to collaborate with the company to develop a series of not-for-sale

denim pieces called the Roy X AFGI Collection.

“Roy’s new collection is a playful tribute to the potential that Artistic has to offer,” said Wong. “He worked with denims that have authentic character and finishes, in both stretch and non-stretch, as well as fashion super-stretches that are suitable for activewear styles and skinnier silhouettes.”



“He has even produced an indigo Judo uniform to pay respect to the martial arts.”

“We have always respected Roy’s work and are really excited to share what we have made with the world.”

Artistic Fabric Mills has two manufacturing plants producing 50 million meters of denim per year. Its garment unit consumes half of the fabric produced and the rest is exported to the international denim markets.

AFGI has recently installed a new Monforts sanforizing unit and also employs a Montex stenter in its finishing department.



“We are aiming to give new meaning to the term ‘fully vertical.’”

Henry Wong,
Director of Product Development
and Marketing

UCO RAYMOND

Positive steps for UCO Raymond

Under its Low Waste programme, UCO Raymond is seeking to considerably lower its carbon footprint.



“We use recycled cotton from post-consumer waste with plant indigo dyes,” said General Manager of Operations, GK Padhi.

“We have also taken positive steps to reduce our water consumption and waste generation in order to produce responsible and sustainable denims.”

“Our advanced denim ranges are now using a new dye formulation that considerably minimizes the use of both water and waste.”

With its Neopast series, the company is introducing premium wool into denims with a special coating to give the fabrics a luxurious feel with a clean and solid look, even after laundering.

UCO Raymond Denim was created in 2006 following the merger between Raymond Denim of India and UCO of Belgium.

With a combined annual capacity of 47 million metres, the company has manufacturing plants in Giurgiu, Romania, and Yavatmal, India, with the optimised and flexible service to meet the global requirements of large international brands.

The company produced differentiated ring spun denim, speciality denim and other niche products for the global fashion market, based on a global production and local service strategy.

It makes a large collection of lightweight fabrics, chambray constructions, luxury indigo fashion fabrics and clean casual citywear qualities.

Over 80% of its collection consists of stretch qualities and the company has also been a pioneer and trendsetter in pigment and leather coating on indigo and colour denim, creating 3D effects or clean gummy and glitter looks.



“Using a new dye formulation that considerably minimizes the use of both water and waste.”

GK Padhi,
General Manager of Operations

A come-back for cords

India's denim leader Arvind believes the time is right for corduroy to make a big comeback, based on the latest techniques that have been pioneered by the industry.

"With our new Neo Corduroys range, we're bringing cord fabrics closer to denim," explained Saurabh Samnol, the company's Head of Export Marketing.

"We're employing a clean reactive dyeing method to achieve effects which are closer to washed down denim than the look you'd generally expect from corduroy. There are a lot of new possibilities still to be explored."

Meanwhile, the company has taken vigorous steps to reduce the carbon footprint of its operations.

"We've made a huge investment in dealing with the recycling of post-consumer textile waste and now have the infrastructure to be able to reprocess more and more," said Samnol.

"One aspect of this is involvement in the garment collection programme



“We're bringing cord fabrics closer to denim.”

Saurabh Samnol, Head of Export Marketing

of leading global brand H&M, while another is the Renaissance collection which is made from Better Cotton Initiative cotton and Tencel and dyed with natural indigo."

"We have also invested in waterless dyeing technology and introduced the Neo Dyeing programme.

The three core areas of our focus are design, innovation and sustainability." Stretch continues to be very much in demand, he added, and Arvind's bi-stretch jeans

provide 360 degrees movement, while warp stretch fabrics are very much on trend.

"We call it Boomerang denim because it always comes back and it's very much part of the athleisure trend for providing enhanced comfort while maintaining an authentic denim appearance."

Arvind has one of the largest denim capacities in the world, with a current capacity of 140 million metres of denim per annum.



Knitted denim - passing fad or the future?

Durable knitted fabrics that have the softness and easy wear properties of leisurewear garments - not to mention vastly expanded design possibilities - are currently being proposed as the next stage in the so-called 'Athleisure' market for denims.



“Knit denim, while growing, is still at the early stages of development, and it's important to understand best practices for wet and dry processing.”

Izzet Sayiner,
Marketing Manager

Adriano Goldschmied, the so-called 'Godfather of Denim', who has been responsible over the years for building winning brands - including his own AG Adriano Goldschmied, in addition to Diesel, Replay, Citizens of Humanity and Goldsign - is a current and influential champion of knitted denim. His latest venture is Acynetic, featuring 100% circular knitted and largely seamless creations.

„The future is about knit denim,” he said. “It has the look of denim but the performance of sport fabric. Acynetic is a denim collection that doesn't have one single denim in the line - it is only knits.”

“The idea of comfort is going in a radical direction and it's going to be a tremendous change in the industry.”

Lycra manufacturer Invista has meanwhile teamed up with Italy's Garmon SpA to debut a collection of knit denim concept garments integrating fabrics made with Lycra Hybrid technology and Garmon's latest finishing techniques.

The intention is to create denim fabrics that combine the comfort and flexibility of a knit with the authentic aesthetics and performance typically found in woven denim.



“Knit denim, while growing, is still at the early stages of development, and it's important to understand best practices for wet and dry processing,” said Jean Hegedus, Global Segment Director for Denim at Invista.

One company with a perfect grasp of the finishing techniques involved in treating knitted denim is Turkey's Ariteks, which introduced its warp knitted and indigo-dyed fabrics under the Knindigo brand around 18 months ago.

“Knitting manufacturers for the conventional fabric markets don't understand the finishing processes involved with denim,” said Marketing Manager Izzet Sayiner.

“We have been manufacturing both knitted fabrics and denim for many years and have been successfully combining the two for some time. This is a unique advantage.”

Aritek's ranges on display at Denim PV demonstrated the wide variety of looks and styles that is possible with warp knits treated like denim.

The fully-integrated company is dedicated to warp knitting and employs a number of Monforts finishing technologies, including two Montex stenters and a DynAir 5000 relaxation line.

Denims in distress

By International Textile Journalist, Adrian Wilson

While today's finishing technology allows the production of perfect denim via efficient and eco-friendly production processes, often consumers don't want their denims to look brand new, but prefer them to look 'lived in', frayed at the edges, extensively faded or even full of holes.



In the past - and in a bid to soften the rigid and stiff denims that were once the only option - this led to the rise of stonewashing, in which jeans would be placed in huge washing machines filled with pumice stones to pound and pummel them as the cylinder rotated.

It was hardly good for the machine and not good for operators who had to breathe in the dust either. A further damaging trend was acid washing,

which added chlorine to the mix.

Thankfully there are many ecologically-preferable routes to achieving distressed looks today, while modern fibre technology and finishing ensures denim can be as soft as any other fabric.

Enzymes treatments are already widely used in conventional processing to achieve a stonewashed effect and computer-controlled laser technology can now not only make jeans look well worn, but also precisely add 'whiskers' and intricate lacelike patterns without the use of water, chemicals or stones.

"This has allowed designers to invent intricate and highly-accurate new motifs, since the technology actually engraves or bites accurately into the material's surface without affecting the bulk properties of the fabric," says renowned denim designer François Girbaud.

Ozone technology meanwhile harnesses the natural bleaching capabilities of ozone gas to provide a range of speciality bleach effects - depending on the concentration and exposure time, with substantially reduced



environmental impact, by reducing the consumption of water, as well as energy and chemicals and eliminating the need for stones.

Ozone finishing reduces energy consumption by reducing the amount of water that must be heated for

wet finishing, and the temperature required.

Furthermore, replacing some traditional finishing with ozone reduces effluent, including the sludge pumice stones create.

Ozone also bleaches more quickly than chemicals and stonewashing.

François Girbaud was a pioneer of the sandblasted and acid washed processes thirty years ago but today is actively promoting the use of ozone and laser finishing treatments.

"In the past I made mistakes with promoting chemical treatments, acid washing and

stonewashing which generated water waste and pollution," he said.

"Many people copied me, but they were wrong to do so. We all didn't know any better back then. Now I really hope they will copy me again, in order to put things right."



Resource-optimised shrink for basic and sensitive den



*Hans Gerhard Wroblowski,
Area Sales Director
South East Asia and
Head of Denim Technology*

For example the shrinkage finishing process particularly requires large volumes of moist chemical apply and thermal energy - but a significant part of these resources is wasted. Energy is lost via hot exhaust gases, effluent and hot waste air (cylinder dryer) in particular. The handling of thermal energy as well as raw materials in an efficient and sustainable way is therefore currently a hot topic in the textile industry.

Sustainability - Targets of textile machinery suppliers

- Save electrical energy, oil, gas, compressed air, chemicals
- Reduce specific energy demand
- Save valuable raw material
- Reduce life cycle cost
- Reduce emission load in atmosphere

Over the years A. Monforts Textilmaschinen has been concentrating its intensive R&D activities on developing energy-

The textile industry consumes huge amounts of energy and resources in all the textile manufacturing stages.

saving machine concepts and systems, focusing on efficient water and chemical apply units - so called ECO - Application units.

One of the most recent pioneering innovations to emerge is the development of the Eco Applicator with its controlled kiss roll (tangential application) technology.

This innovative system comprises a new application technique and a highly efficient adjustable moistening system that enables - in combination with the latest developed efficient Thermo-Stretch unit (skewing, stretching and drying) - thermal energy and resources to be utilised in a target manner.

Thermo stretch unit

An innovative combination of 3 processes (skewing/weft straightening, stretching and drying) within one:

- Stretching unit with more cloth content (softstretch) with width control
- Skewing/straightening and stretching under warm and moist condition (soft skew)
- Skewing/stretching with up to 10 times less tension
- Pick counting and control before shrinking
- No crease marks during the stretching and skewing process
- Drying: automatic residual fabric moisture control before shrinkage

Eco Line system

The Eco Line system reduces energy losses and energy use, increases thermal transfer and keeps the drying energy on the textile material longer, i.e. so that it can be used very efficiently.

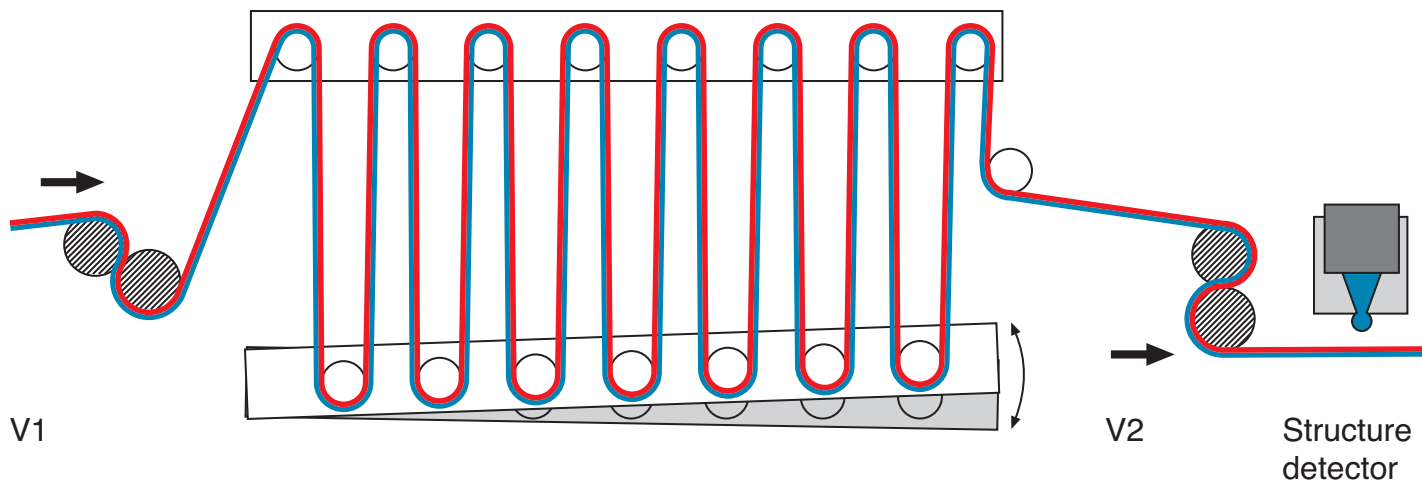
As a result energy savings of up to 50% can be achieved.

Exhaust air energy can also be reduced to a minimum, which has a positive effect on the emission load in to the atmosphere.

The main advantages of Eco Line, respectively the Eco Applicator, is its potential to optimise the liquor applied, which is the result of using an individual use of two tangential application units in one.



age technology im fabrics



A decisive factor for using this technique is a factor which represents a milestone in the ecologically sound use of chemicals whilst achieving the best minimized chemical or water application result.

The quality of the tangential process can also be optimised by applying a specific moistening film - Softener or product to increase dye fastness of the dyed denim.

The Monfortex Eco Line with its tangential Eco Applicator technology offers a real potential for reducing processing time and costs, thereby recouping the investment outlay of the innovative system very quickly.



Setting future standards at Çalık

Istanbul-headquartered Çalık Denim has introduced a number of key themes for its latest denim collections, all based around its partnership with stretch fibre specialist Lycra.

“The varied aims are to provide high stretch performance, low shrinkage, no sagging, perfect recovery, good holding power and no puckering - and all of these properties in engineered constructions with a soft-hand feel,” said Head of Sales and Marketing, Ebru Ozaydin.

“Bi-stretch is not a new idea, but Lycra Dual FX in both the warp and weft in the company’s Circular Elastech denims is one of the latest developments,” she added.

“We are achieving an average of 60-80% stretch with 6-7% shrinkage and not sacrificing the premium look of the denims,” she said.

“The biggest problem with these products is high shrinkage and bagging-out of the fabric around the waist and perfect shape requires perfect shrinkage values. These latest fabrics fit all body shapes and flatter them.”

Curve denims have the right amount of stretch to optimise the holding power of high elasticity jeans and support a slender figure with no sign of puckering lengthwise along the inseam. They also have very limited stretch in the weft, but high stretch in the warp direction.

“These denims provide rigid compression in the horizontal and 50-60% elasticity in the weft, so



“Achieving an average of 60-80% stretch with 6-7% shrinkage without sacrificing the premium look of the denim.”

Ebru Ozaydin,
Head of Sales
and Marketing

when you bend down, it compresses, but allows free movement.”

In addition, Çalık T-Power technology is designed to eliminate elastane yarn slippage in the seams, fly and pockets.

“This is an elastic fabric disease,” said Hamit Yenici, adding “we have overcome this problem. There is now no slippage with this technology and is setting the standard for the future.”

Responsible innovation and resource efficiency is equally important to the company, which four years ago made a significant investment in new technology, including Monforts finishing equipment.

Çalık’s latest Eco-Save processes built into its latest lines have been calculated to have saved an annual 65% of the water previously employed, with a 70% reduction of waste.

Key brand customers include Arcadia, Boden, Burberry, MIH, Oasis and Tesco and the company currently exports around 60% of production, mainly to Italy, Portugal, Germany, Tunisia and the USA.



ÇALIK DENIM

Re-Set to the future

Turkey's Bossa had two separate exhibition areas at Denim PV. The first focused on its latest conventional ranges and the second highlighting the company's commitment to the natural raw materials and processes which are employed in its Re-Set collection.



“Organic cotton, ecological chemicals and dyestuffs have been taken to the next level.”

Birim Atagan,
Advertising and PR Manager



“We first launched the Re-Set concept in 2006 and since then, have expanded it with new technologies and systems for eco-friendly manufacturing,” said Birim Atagan, Bossa's Advertising and PR Manager.

“Today, the use of organic cotton and of ecological chemicals and dyestuffs has been taken to the next level in Re-Set.”

New introductions include rigid selvedge denims dyed with natural

indigo and lighter shades coloured with pomegranate waste.

Other denims in the collection are based on recycled PET and linen.

Treatments include natural thermal and moisture management additives, antimicrobial silver and even an anti-odour ingredient called S.Café which is very fast drying and made from recycled coffee grounds.

“With these products we are demonstrating that environment-

friendly products don't mean any reduction in performance or added value,” said Atagan.

“We are applying a combination of technique, knowledge and engineering to offer real alternatives to the denim market.”

KIPAŞ

Striking an eco-balance

Turkey's Kipaş showed a collection in classic denim colours - dark blue, deep indigo and all shades of black and grey - with the key priority in its assembly being striking the right balance between fashion, performance and sustainability.

New in the collection is Peta denim fabric manufactured with Q-Nova, a polyamide 6.6 microfibre made from 99% regenerated raw materials by Fulgar in Italy.

Q-Nova is entirely sustainable in both its composition and processing and its entire lifecycle is subject to strict quality control and traceability procedures.



Reduced CO₂ emissions, water consumption and lower energy requirements all result from the use of this fibre.

Peta as a denim fabric is extremely soft, light and comfortable against the skin.

A second new Fulgar fibre being employed by Kipaş in its Lana jeans is Evo, derived from castor oil seeds that grow in arid areas not given over to agriculture.

It has a very low eco footprint and provides denim fabrics with outstanding breathability and wick-away moisture control for denim garments that can be worn every day and as Athleisure items.

Both new denims are offered in 10-12oz weight for women and 11-13 oz for men.

Kipaş has been producing denim since 2002 and is a vertically-integrated operation with an annual output of 25 million metres sold to customers in over 35 countries.

Orta goes post-apocalypse

Orta Anadolu showcased the striking Future Hunter Gatherer collection which it has developed in a collaboration with The Vintage Showroom in London.



It imagines technologically-advanced denim-clad nomads and intergalactic tribes wandering through the galaxy, clinging to sensory remnants of a shared primitive past, reflected in their clothing.

The collection plays with various themes imagining how these future denim clad foragers with their post-apocalyptic style clothing would be perceived by ethnologists of their time and was designed by Douglas Gunn and Roy Lockett, who referenced an extensive available archive at The Vintage Showroom.

Rare utilitarian and military garments were reinterpreted using Orta fabrics in Istanbul.

Meanwhile, Orta is committed to envisioning a sustainable, technological future that is driven by the human desire for connection and energetic exchange.

Their commitment for Autumn/Winter 2018 is to raise denim's social currency and expanding the perception and taking denim to the next level.

It called the AW17/18 Collection Hitch hiker of the solar system; representing a collective mind-set that recognizes every radical idea that will

take place in the next 15-30 years, as already in motion.

The highlight for this season is REVERB container that presents modern vintage cotton with warp or weft stretch. It takes the ingenuity of real authentic denim and remakes it for today's modernity with a handcrafted touch of the artisan.

Founded in 1953, Orta transformed itself from a spinning and weaving company into a denim manufacturer in 1985 and today, produces over 60 million metres of denim annually at its plants in Turkey and Bahrain.

The company is a frontrunner in incorporating emerging trends and fashion into its denim production and collaborates with many artists, designers, vintage dealers and trend-setters.

Every season, new Orta fabrics are accompanied by trend presentations, capsule packages and seasonal journals reflecting the constantly evolving world of denim.



The company is a valued Monforts customer and its main factory in Kayseri, in Anatolia, Turkey, is characterised by finishing processes that are among the most sustainable and technologically advanced in the world.





Tavex takes care of you

Tavex Europe, headquartered in Madrid, has introduced the new T-Wellness® aimed at making wearers of its denims feel extra special.



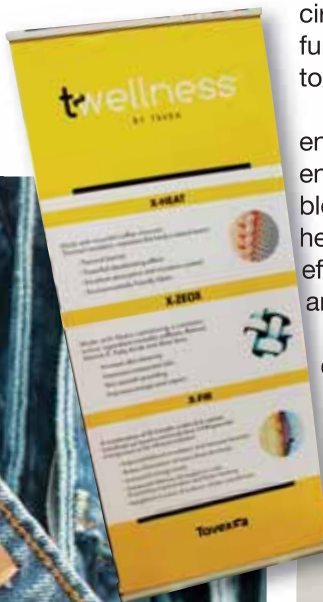
“An effective anti-bacterial property for a powerful deodorizing effect.”

David Bardin,
Sales and Marketing Director

T-Wellness® is based on three components, explained Sales and Marketing Director David Bardin.

“The first is X-Heat, which is an additive which provides thermal insulation and is made with recycled coffee charcoal,” he said.

“It has very effective anti-bacterial properties for a powerful deodorizing effect, as well as providing excellent absorption and moisture control.”



X-Zeox is a special fibre which contains active ingredients containing caffeine, Retinol, Vitamin E and Aloe Vera. This has been proven to increase skin elasticity and improve its compactness.

It is also smoothing and has a positive impact on ‘orange peel’ skin areas.

X-Fir meanwhile contains 30 metallic oxides which effectively capture rays from the sun and body heat, channelling them back to the body as extremely beneficial far infrared radiation.

“X-Fir assists in improving blood circulation and the body’s immune function, as well as helping to eliminate toxins from the body,” said David.

“Wearers really feel an increase in energy levels and as a result of the enhanced delivery of oxygen to the blood cells, regeneration and faster healing are also promoted. The overall effect is a heightened sense of balance and better equilibrium.”

All of these products maintain their characteristics over time, supporting different washing cycles. T-wellness® fabrics comply with the maximum guarantees and consist of a certificate of proven effectiveness.



Impeccable credentials at ADM

Artistic Denim Mill (ADM) - introduced its Recycled Denim collection alongside the currently market-leading Hyperstretch ranges and new SRT technology.



The company, which is headquartered in Karachi, Pakistan, has had the production processes for its Recycled Denim jeans - which are based on regenerated PET soft drinks bottles - certified by the Global Recycled Standard (GRS).

For companies making and/or selling products with recycled content,

GRS applies to the full supply chain and addresses traceability, environmental principles, social requirements and labelling.

It was specifically developed for the textile industry.

Also carrying hangtags attributing to their authenticity, are ADM's Organic Denim jeans which are made

with 100% organic cotton and free from chemical fertilizers, pesticides and insecticides.

Every step of the production of these denims follows detailed and accurate rules set down by GOTS (the Global Organic Textile Standard) and The Organic Exchange and certified by OneCert of the USA.

In addition to the cotton coming from organic cultivation, the spinning, dyeing and finishing of the fabrics are also monitored according to ecological procedures and Monforts sanforizing technology plays a crucial role in production.

Naturally, ADM is also offering stretch denims, with its extensive HyperStretch collection based on between 30-50% elasticity.

In a unique approach, the company is employing special yarns which consist of a core of polyester within a casing of cotton to provide an authentic denim look with enhanced performance features.

HyperStretch jeans have an extremely high degree of shape retention and do not sag, bag or lose shape even after repeated wear.

SRT - shape retention technology - is a further advancement achieved by the company recently to bring new sustainable production benefits to stretch denims.



Blurring the distinction

Albate 1830's Spring/Summer 2017 collection comprised three key themes - Denim, Jacquard and Sport - and in addition to actual denims, the company also showed its extensive shirting collection to complement them.



“Everybody just concentrates on denim at this show but we thought it was a better idea to bring our entire collection.”

Andrea di Gaetano, Albate

“Everybody just concentrates on denim at this show but we thought it was a better idea to bring our entire collection,” said the Italian company's Andrea di Gaetano.

“Everyone needs to wear other things with their denims and we're suggesting complete outfits.

“Having produced just denim for many years, we have now transferred a lot of our design and material methods across to our fast-growing shirtings business and we are blurring the distinction between the two.”

Within the Denim collection were striking floral designs created by a corroded print technique on linen, chambray or fabric jersey bases.

Japanese-inspired textures created by denim is woven on traditional shuttle looms operating at reduced speeds produce irregular but extremely sophisticated and sought-after fabrics.

Albate 1830 has selected some exclusive variants of selvage denim made in Japan to enrich some rather avant-garde fabrics.

The Jacquard collection was broken into three separate themes: Classic, comprising fabrics in linen and cotton intimate blends developed with large florals and leaf designs in light blue and red; Preppy, with colour derived in fil coupé on stripes and multi-colour check; and Vintage, consisting of fabrics in natural colours, beige and neutrals, with pastel blue and white on white.

The Sport collection is characterised by retro prints on 100% linen and chambray in the tones of white and navy or white and light blue, combined with brown and military green.



SOORTY DENIM

Soorty has it all covered



Soorty emphasised the sustainable aspects of its manufacturing while demonstrating a number of exclusive new ranges.

The company's Denim VIP collection features the super soft fabrics that result from the incorporation of premium fibres including Lenzing's Tencel and Modal, in addition to wool and linen.

Organic and Better Cotton Initiative (BCI) cottons, as well as recycled

cotton and polyester, were also heavily emphasised in Barcelona, with fabrics dyed with zero hazard chemicals and finished with the water and energy savings allowed by the latest Monforts EcoApplicator.

Finished garments are meanwhile washed with green screen chemicals and their surfaces modified with laser and ozone treatments to minimise impact on the environment.

Striking surface finishes included over-dyed effects, super soft peach skin feels, mock leather appearances and a unique 3D cracked ice finish.

Stretch denims were certainly not overlooked, with the company's four-way stretch technology more than meeting the consumer demand for second-skin jeans with 360-degree comfort.

Reduced shrinkage and better recovery enhances the silhouette without bagging and sagging and the four-way stretch materials are available in a wide range of colours and weights.



The company reported that the leading colours for stretch denim are currently dark indigos and purple hues, along with green and grey tint effects with coloured wefts and cotton-Lycra blends dominating traits. Not to neglect high performance, Soorty also introduced its Armadura denims reinforced with high-strength Dyneema yarns.

ARTISTIC MILLINERS

Back to the 90s

Finishing is the key to sustainable coating applications and greatly reducing water usage for Artistic Milliners, based in Karachi, Pakistan.

As one of the world's largest, vertically-integrated denim fabric and garment manufacturers, the company has been in business for over 40 years and is equipped with a complete denim finishing line from Monforts, as well as an additional Monforts sanforizing unit.

"We are showing a range of fabrics with super soft fibres, fantastic elasticity and revolutionary AM's technology for stretch recovery," said Baber Sultan, the company's General Manager of Research, Products and Trends.

"As far as aesthetics are concerned, what's really hot at the moment is the early 90's Open End looks but using today's modern technology for softness and functionality."

"Bleached down washed looks with chopped hems and rips are also popular, but of course using eco-friendly techniques these days."

"Body shaping properties also continue to be top runners."

"It's now about compression in the right places in combination with stretch where it's required," Sultan said.



Artistic Milliners is also a partner of Invista Cordura mill and made its debut of the Authentic Alchemie Collection of Cordura denims at the exhibition.

"The trick to future success in the textile industry is for manufacturers and mills to stick to what they do best," said Amy Leverton of Cordura Denim who collaborated with the company on the collection.

"Artistic Milliners has done just that with the Authentic Alchemie Collection - focusing on the fibre's durability but extending it to versatile, cross-functional denim innovations."



“We are showing a range of fabrics with super soft fibres, fantastic elasticity and revolutionary technology for stretch recovery.”

Baber Sultan, General Manager of Research, Products and Trends

Double first for Naveena

In a double premiere, Lahore, Pakistan-based, Naveena Denim Ltd (NDL) made its debut at PV Denim 2016 and also introduced the first fruits of its collaboration with renowned designer François Girbaud, who has provided exclusive styles for the company's 'No More Seasons' collection.

Naveena enjoys a reputation for high quality and is supplying some of the biggest brands in the market, including Levi's, M&S and Zara.

Eighteen months ago, the company commissioned two new Monfongs stenters and a Monforts 8000 Sanforizer.

"NDL is working with key performance fibres such as DSM's Dyneema for strength and durability," said the company's Luqman Arif, who demonstrated the tremendous light weight of a rope made with the fibre that is eight times stronger than a comparative steel cord.



Sven Oberstein

"We are also working with Miyabi, the very latest supersoft fibre developed by Japan's Mitsubishi Group."

Girbaud, meanwhile, has been a pioneer of new constructions and finishing techniques for denim, including the introduction of stretch.

"Stretch doesn't solve everything," he said in Barcelona. "We have reached an impasse in terms of the possibilities of making denim more like knitted sportswear."

"There has to be a further evolution of denim jeans and a return to advanced design and body shape. You cannot do that with leggings and making denim increasingly like them."

His NDL - Note de l'Auteur - collection centres on enhancing the body shape by eliminating stretch in the weft direction, but at the same time packing high stretch in the warp. This provides rigid compression horizontally, but when bending and turning, allows free movement.

Sven Oberstein of the True Indigo Agency based in Los Angeles was responsible for organising the double premiere in Barcelona and for getting Girbraud together with Naveena.

They were both extremely impressed with the forward-looking nature of NDL and its commitment to both innovation and sustainability.

"The company's latest No More Seasons collection is designed to send out the message that denim is for all-year round wear and that NDL has styles to suit every activity and whatever the weather."





INDIGO

Sustainable credentials for Soorty Denim and Monforts

Karachi-based Soorty Denim has introduced a raft of measures aimed at ensuring it is a world leader in eco-efficiency. This has included slashing a number of finishing-stage process costs with the latest Monforts EcoApplicator.



Soorty's bold decision to be the first company in Pakistan to install Eco-Applicator is paying major dividends.

This has already been proven in a special, in-depth sustainable production study carried out with Archroma, the Basel, Switzerland-headquartered multi-national organisation that was created from the textiles, paper and emulsions businesses of chemicals giant Clariant.

Alam Mazhari, General Manager



Denim leader

Soorty is a major producer of denim fabric and jeans, now employing some 22,000 people across its operations which are centred around Karachi in Pakistan, and with a new, award-winning garment making-up department and office in Bangladesh, as well as a design studio in Amsterdam.

Among Soorty's prestigious clients are C&A, Calvin Klein, Dorothy Perkins, Esprit, H&M, Lee, Mango, Tommy Hilfiger, Tom Tailor and Zara. This is a highly vertically-integrated business.

Its spinning operations are equipped with some 36,000 spindles producing around 48 tons of yarn daily, in counts of 6/1 to 24/1 and its denim weaving operations make over 3.5 million metres of fabric each month.



"Between 70 - 80 % of our manufactured denim is being converted into finished pairs of jeans," said General Manager Alam Mazhari.

This equates to over 2.4 million pairs of jeans a month, but it doesn't stop there - Soorty has big plans for the coming years.

The company's current spinning expansion will add a further 23,712 spindles and an additional 32 tons of yarn each day, while two new OE spinning lines will be producing nine tons a day.

A systematic expansion programme saw the installation of a Montex stenter along with a sanforizing range in 2006. A repeat order for both machines for a second finishing line was put in place in 2009.



Now Soorty is in the process of commissioning its third Montex stenter and sanforizing range.

Once these and other equipment are fully running, the company's finished woven denim capacity will be increased to a monthly 5.5 million metres.

All the Monforts installations have been arranged and overseen by local representative Al-Ameen Trading Corporation, with whom Soorty has had a long and fruitful relationship.

The company took some time, however, to opt to install its first Eco-Applicator unit, having been introduced to it at ITMA 2011 in Barcelona.

Eco-Applicator has been designed to enable the extremely precise application of functional finishes to fabrics and dry them in an extremely efficient and compact single-stage unit.

It offers significant energy savings with reduced liquor application. The



multi-functional and multi-purpose process ensures the lowest energy input for consecutive drying to its minimal liquor application.

It has been developed to apply a liquor to one side of the fabric; to both sides of the fabric; a different liquor to either side of the fabric; or to apply two different liquors consecutively to a single side of the fabric.

"The benefits of the Eco-Applicator were pretty clear from the start, but nobody wanted to be the pioneer in Pakistan until Mr Mazhari became totally convinced of the terrific savings that could be achieved and finally ordered a machine in late 2014," said KM Basit of Al-Ameen.

"In order to be most effective, the Eco-Applicator was installed at the end of the finishing line before the sanforizing unit," Mr Mazhari explained.

Monforized Award

Earlier this year, Soorty was presented with the Monforized Certificate at the Iगतex textile machinery show in Lahore, in recognition of its work in successfully integrating the Eco-Applicator into one of its existing finishing lines, and also carrying out an exhaustive study of its potential, including the One Way Programme with Archroma.

This is a three-step programme involving product selection based on eco-standards, process short-listing based on environmental focus, and a solution selection based on cost and eco-benefit calculations.

The installation of the Eco-Applicator - in combination with the latest high-efficiency Archroma eco-friendly finishing formulations - has made a miraculous difference.

The Eco-Applicator replaces four previous processes, significantly reducing the overall process time to just 40 minutes.

LEED certification

Soorty's sustainability credentials are truly immaculate.

Its jeans making-up plant in Bangladesh - with a capacity of one million pairs of jeans a month - has set an unprecedented benchmark in the country. As a result of its green construction and sustainable engineering, this plant has received the much-coveted LEED Gold Standard certification.

Compared to competing operations, the plant's energy requirement has been cut by 31% and its water consumption by 50%, while 95% of its production waste is being successfully diverted from landfill.

Meanwhile, the company's latest garment making-up plant in Karachi has gone one step further and been rated a LEED Platinum Standard facility.

In addition, the company's recycling plant, with a capacity of 2.5 tons a day, is GRS v 3.0 certified by Control Union for garments, fabrics and yarns. As such, it is suitable for handling all waste from the company's spinning, denim and garment making-up operations.



KILIM DENIM

From the era of Rocky and Guns'n'Roses...

Kilim Denim is marking the company's introduction of the first rope dyeing denim system to Turkey 30 years ago with its new 1986 Collection.



Quality denim was primarily imported to Turkey back in 1986. Kilim company founder Mehmet Kilimci made trips to factories in Europe and the United States - including a visit to Monforts in Germany - in order to examine how the latest advanced manufacturing process worked.



On returning to Turkey full of ideas he then invested in the necessary technology to realise them.

Soon, the company was introducing the first home-made quality jeans to the Turkish market. Today the company specialises purely in denim and exports it worldwide.

While designed to evoke the tastes of that era, however, Kilim has ensured its 1986 Collection benefits from all of the advanced technology and processes available in 2016 - with a focus on resource efficiency - for a range that features both heavy and medium weights and in rigid and stretch styles.



As a valued Monforts customer, Kilim places an extremely high emphasis on finishing, ensuring its treatments are formulated and their application highly controlled in order not to distort the purest and most natural state of the deep indigo shades it employs.

In a very 1986 touch - think Bruce Springsteen, Guns'n'Roses and Sylvester Stallone in the Rocky films - the company was promoting bandanas at Denim PV this Spring - as the perfect combination with modern denim for 2016.

MATESA

Consistent quality from Matesa



Since its foundation in 1989, Matesa Textiles has grown to be one of the largest textile operations in Turkey, with seven yarn spinning plants and extensive weaving, knitting and fabric finishing operations all located at its manufacturing hub in Kahramanmaraş.

The Istanbul-headquartered company added denim manufacturing to its range in 2006 and quickly gained a reputation for consistent high quality with the leading brands and ready-made garment retailers.

Matesa Denim now has a monthly denim output of 1.8 million metres and ISO 9001:2000, Oeko-Tex, Belcoro, and Santex certificates testify to the company's rigorous standards, with every step in production carried out in house.



Innovation in the Denim Market*

"Our customers live a very active life, so our denim has to work from the trail to the tavern. They hike, climb, bike, and play in our jeans."
-Rachel Lincoln, Manager of Design Services and Innovation, prAna

The old adage, "If you can't beat 'em, join 'em," may - to some extent - be surfacing in the denim world right now. We're talking about denim makers looking at the popularity of athleisure and figuring out how to make certain properties of the comfort category work for the jeanswear market.

"Our customers look for mobility, comfort, abrasion resistance, and longevity in their products and our denim is no exception," says Rachel Lincoln, Manager, Design Services and Innovation at prAna, a premium lifestyle apparel brand and retailer.

"Our customers live a very active life, so our denim has to work from the trail to the tavern. They hike, climb, bike, and play in our jeans."

Although active bottoms are the most popular type for hanging out at home (31%), jeans are the most popular for running errands (50%), work (32%), and going out to dinner (31%), according to the Cotton Incorporated Lifestyle Monitor™ Survey.

The NPD Group Inc.'s Consumer Tracking Service reports men's and women's U.S. denim jeans sales totaled \$13.1 billion in 2015.

That's a 2% decline from the prior year, but a deceleration in the fall off, which was 4% in 2014.

Meanwhile, the New York Times recently reported the athleisure market has reached \$97 billion - even though it's a relative newcomer to the fashion block.

In comparison, denim has been around since the country's gold rush days - or 1873, to be precise - when Levi Strauss and Jacob Davis got the U.S. patent for riveted denim work pants.

After all these years, Levi isn't about to cede the floor. Rather, it's embarking on innovative concepts like partnering with Google on the tech company's

new Project Jacquard, a program that 'weaves touch and gesture interactivity into any textile using standard industrial looms.'

Levi's and Google ATAP (Advanced Technology and Projects group) joined forces to create the Commuter Trucker Jacket. The jacket, which has Google's Jacquard technology woven in, will be available spring 2017.

The jacket was designed with urban cyclists in mind. Its interactive denim fibers allow wearers to leave their smartphone in the jacket pocket, while maintaining control of, say, their music, phone calls, and maps simply by tapping a smart tag on the jacket sleeve.

When the tag is removed, the jacket is completely washable and as durable as regular Levi's denim.

While Levi's regularly trades on its authenticity and heritage, Brand President, James Curleigh, likes to say that to be successful, "you need to protect your core and go for more."

Levi's is a top pick among consumers, giving the company leeway to experiment with out-of-the-box product offerings. Almost 1 in 4 consumers (22%) say they buy Levi's denim most often, followed by Wrangler (8%), Lee (6%), and American Eagle (3%), according to Monitor™ data.

While a hands-free mobile experience would likely be welcomed by an urban cyclist, consumers say they're also looking for multifunctional jeans (86%).

The Monitor™ research finds shoppers would like to see denim with thermal regulating properties (56%), odor resistance (44%), moisture wicking (36%), jeans that look like joggers or sweatpants (25%), and waterproofing (23%).

Lana Ober, Brand Relationship Manager at Denimology, the denim

news and trend resource, says people are now asking for more from their clothing - including denim.

"The denim industry continues to be wildly competitive and is so widespread with such strong roots that I don't believe it will ever be threatened by athleisure, wherever that trend may go," she says. "I often wonder though, how far the denim industry's answer to it will go, but it seems to still be rolling full speed ahead with no signs of slowing down. I enjoy seeing new brands come up with their own new fabric blends to stay competitive."

Ober points to shape retention and full-motion fabric as athleisure qualities that are being adopted by denim makers. This makes sense as the majority of consumers say fit (75%) and comfort (70%) are the top factors in the denim purchasing decision, according to the Monitor™ data.

These are followed by 'a flattering look' (65%), price (59%), quality (56%), and durability (53%).

"James Jeans came out with the Twiggy Dancer, Mavi with their FEATHER line, Diesel with Actyvista, AYR with their Flex Tech Jean, 7 For All Mankind with Slim Illusion Luxe, AG with the Contour 360, and J Brand with Hi Def Stretch. These are just a few examples," she says, ticking off a list of active-inspired offerings.

"The Diesel and AYR jeans are actually made to look like workout leggings."

prAna's Axiom jeans is a traditional 5-pocket model with a bit of stretch for mobility and a gusseted inseam for range of motion.

The company also has a companion jeans that offers abrasion resistance as well as freedom of movement.

"Our customer is fairly traditional, but loves that we here at prAna are researching cutting edge innovations and ensuring that we will introduce new ideas such as wearable technology in the right products at the right times," Lincoln says.

"Life is fast, and people need clothes that they can live life in without worrying if the product will function or be appropriate.

Our goal is to offer styles that work for them, wherever they are."

*Courtesy of Lifestyle Monitor of Cotton Incorporated

NOBLE EL
2014 FUTURE COLLECTION

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Monforts Denim Ranges

A Concept for Denim Finishing Possibilities

By Dipl. Ing. Kurt van Wersch, Senior Consultant

Part 4.: Denim - The latest finishing possibilities through functionalisation, printing and coating

The rapidly changing fashion trends constantly make new demands on textile finishers with ever newer specifications, particularly for the finishing of denim.

Finished denim fabric in wide-open form is a further opportunity for the finishers for the future.

With the latest process engineering and innovative machine technology, Monforts offers an economically and ecologically mature machine and process programme for denim finishing. Over-dyeing, effect dyeing, printing, special pretreatments, coating and functionalisation are currently determining the topics of the hour in the denim segment for weavers, finishers and designers. Coloured jeans are the trend, special effects are called for, functionalisation such as various hydrophobic or hydrophilic finishes, flameproofing, etc. are required. Wellness is the new catch word for special denim finishing.

Monforts will be reporting on these topics in future in the Monforts World of Denim. The following articles i.a. are planned:

- Part 1: Over-dyeing of denim grey fabric with reactive dyestuffs using the Econrol® process
- Part 2: Effect dyeing of denim wide-open fabric using the Eco Applicator
- Part 3: Denim - Pretreatment methods for creative fabric handles

Part 4: Denim - The latest finishing possibilities through functionalisation, printing and coating

- Part 5: Denim - Stretching, skewing and compressive shrinking

Monforts offers a wide variety of processes and ranges for the finishing of denim.

The finishing of denim grey fabric after cleaning and singeing, and for pretreated and prewashed open-wide fabric we offer e.g.: Padders, foam applicators, minimum-liquor applicators, numerous sizes and versions of stretchers and weft straighteners, dryers and compressive shrinkage ranges.

Processes and ranges are offered e.g. for desizing, mercerising, stripping, continuous dyeing, single-sided or two-sided effect dyeing, single-sided or two-sided effect finishing and various functionalisation and coating possibilities in order to create special effects.

General

This article deals with various finishing methods for denim open-wide fabric with the aim of functionalising denim and of changing it optically by printing and coating. Every denim collection today has a long creative process behind it that starts in the weaving shop (e.g. Odo denim with woven silver threads).

Today functionality and unusual looks such as shimmer and leather effect are called for. With "denim" you are never safe from surprises.

Keywords such as comfort and wellness, function / functionalisation, climate control, soft touch, odour manipulation, dirt repellency, individualisation and sustainability are frequently heard when it comes to the finishing wishes for denim.

Monforts offers the creative denim finisher processes and ranges for meeting these finishing wishes.

Monforts Denim-Anlagen

Ein Konzept für Denim-Veredlungsmöglichkeiten

von Dipl.- Ing. Kurt van Wersch, Senior Consultant

Teil 4: Denim - aktuelle Ausrüstungsmöglichkeiten durch Funktionalisierung, Druck und Beschichtung

Die schnell wechselnde Mode stellt ständig neue Anforderungen an die Textilveredler, dabei macht sie immer neue Vorgaben, besonders bei der Veredlung und Ausrüstung von Denim.

Veredelte Denimware in Breitform ist für die Ausrüster eine weitere Chance für die Zukunft.

Mit aktueller Verfahrenstechnik und innovativem Maschinenbau bietet Monforts ein ökonomisches und ökologisches ausgereiftes Maschinen- und Verfahrensprogramm zur Denim-Veredlung. Überfärben, Effektfärben, Drucken, spezielle Vorbehandlungen, Beschichtung und Funktionalisierung bestimmen zur Zeit im Denimbereich das Thema bei Webern, Ausrüstern und Designern. Coloured-Jeans liegen im Trend, spezielle Effekte sind erwünscht, Funktionalisierung wie z.B. verschiedene Hydrophobierungen, Hydrophilierungen und FlammSchutzausrüstungen sind erforderlich. Wellness ist das „ neue Zauberwort für spezielle Denim-Ausrüstungen.

Monforts wird zukünftig mit Beiträgen zu diesen Themen in Monforts World of Denim berichten. Folgende Beiträge sind unter anderem vorgesehen:

- Teil 1: Überfärben von Denim Rohware mit Reaktivfarbstoffen nach dem Econrol®-Verfahren
- Teil 2: Effektfärbungen auf Denim-Breitware mit dem Eco Applicator
- Teil 3: Denim - Warengriff kreativ gestalten durch Vorbehandlungsmethoden

Teil 4: Denim - aktuelle Möglichkeiten durch Funktionalisierung, Druck und Beschichtung

- Teil 5: Denim - Recken, Schrägstellen und kompressiv Krumpfen

Monforts bietet eine Vielzahl von Verfahren und Anlagen zur Veredlung von Denim an.

Für die Veredlung von Denim Rohware nach dem Putzen und Sengen, sowie für vorbehandelte und vorgewaschene Breitware werden z.B.: Foulards, Schaumauftragsanlagen, Minimalauftragsanlagen, Reck- und Schrägstellwerke in verschiedenen Größen und Ausführungen, Trockner und kompressive Krumpfanlagen angeboten. Zur Erzielung von Effekten werden Verfahren und Anlagen, zum Entschlichten, Mercerisieren, Abziehen, Kontinuefärben, einseitigem oder zweiseitigem Effektfärben, einseitigen oder zweiseitigen Effektausrüstungen und diverse Funktionalisierungs- und Beschichtungsmöglichkeiten angeboten.

Allgemein

Dieser Beitrag befasst sich mit diversen Ausrüstungsmethoden für Denim-Breitware mit dem Ziel, Denim zu funktionalisieren und durch Bedrucken und Beschichten optisch zu verändern.

In jeder Denim-Kollektion steckt heute ein langer, kreativer Prozess der schon in der Weberei beginnt (z.B. Odo Denim mit eingewebtem Silberfaden).

Heute sind Funktionalität und ausgefallene Optik wie Schimmer- und Ledereffekt gefragt. Bei „Denim“ ist man nie vor Überraschungen sicher.

Schlagworte wie: Komfort und Wellness, Funktion / Funktionalisierung, Klima Regulierung, Soft touch, Geruchsmanipulation, Schmutzabweisung, Individualisierung und Nachhaltigkeit tauchen bei den Ausrüstungswünschen von Denim immer wieder auf.

Monforts bietet dem kreativen Denimveredler Verfahren und Anlagen zur Erfüllung und Ausführung dieser Ausrüstungswünsche an.

Functionalisation of open-wide denim fabric

Example 1 Water/oil-repellent denim finishing

Water/oil-repellent denim fabric is a finished open-wide denim fabric with the function of being dirt and water repellent. Dirt and water repellency with very good effects can only be achieved with fluorinated products. Consideration should be given here to the changeover from C8 chemistry to

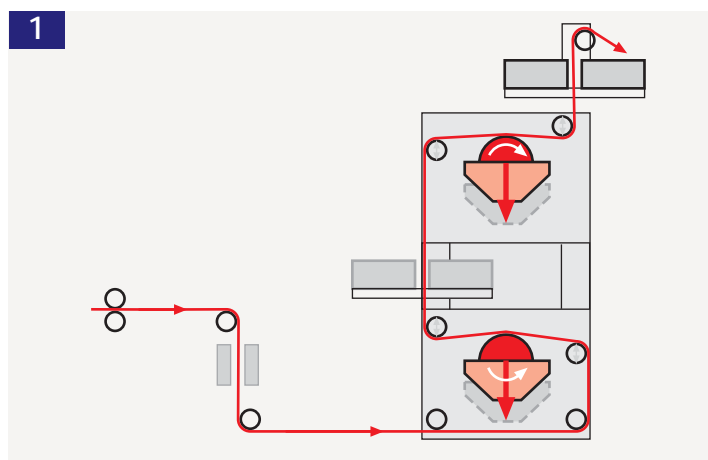
C6 chemistry. Where lower demands are made, e.g. for only a water repellent effect, alternative products can also be used.

In this field, single-sided or two-sided effects can be achieved using the Monforts Eco Applicator (see also Monforts Denim Ranges Part 2)

Frequently demanded effects today call for different finishes on the two side in one work process, such as hydrophilic / hydrophobic. The blue fabric side has a hydrophobic finish, while the white fabric side (skin side) has a hydrophilic finish and/or is coated with wellness products.

Fig. 1 shows the Eco Applicator in operation for the two-sided application.

Fig. 2 Blue side hydrophobic, white side hydrophilic



A common formulation for two-sided finishing is:

Blue side: 120 g/l Repellan TC-6
0.1 g/l Laviron MDF
0.06 g/l Breviol D 340

White side: 80 g/l Adasil Ultra Wet
Liquor pick-up: 20% blue side, 20% white side
Dry temperature: 130 °C
Curing temperature: 170 °C

(The products for the trials were provided by Pulcra.)

Example 2 Denim ceramic finishing

Some denim finishers already use ceramic finishing for open-wide denim fabric under the motto "The healthy denim option" (source: Tavex)

Ceramic coating of denim fabric has been known for a long time, but now it is coming more into the focus. FIR (far infrared radiation) is the catchword.

This finishing method of coating the open-wide denim fabric provides coolness, is revitalising, reflects IR radiation and the denim fabric has a cool handle.

One exemplary formulation is: EVO-XEN915 parts
EVO-Soft SXN20 parts
Sero-Foam HTS5 parts
Lutexal Thickener10 parts

Viscosity: 70 poise, (products: DyStar / BASF)

Fig. 3a and 3b shows the Monforts coating ranges Montex Allround and the Timatec system.

Montex Allround is a coating unit with the possibility of quick and easy changing to different coating systems. The modules can be selected for practically all coating methods, such as roller knife, air knife, rotary screen, slot nozzle, powder spreader, etc. Further possibilities are offered by the Monforts Timatec system coating module, for example magnetic doctor blade, knife coating and rotary screen printing, also for the retrofitting of existing stenters.

Funktionalisierung von Denim-Breitware

Beispiel 1 Wasser/ Öl – abweisende Denim-Ausrüstung

Wasser/Öl- abweisende Denimware, ist eine veredelte Denim-Breitware mit der Funktion schmutz- und wasserabweisend zu sein. Schmutz- und Wasserabweisung mit sehr guten Effekten lassen sich nur mit fluorierten Produkten erreichen. Auf die Umstellung von C8-Chemie auf

C6-Chemie sollte dabei geachtet werden. Bei geringeren Anforderungen z.B. bei nur Hydrophobwirkung lassen sich auch alternative Produkte einsetzen.

Mit dem Monforts Eco Applicator lassen sich in diesem Bereich einseitige und zweiseitige Effekte erzielen. (siehe auch Monforts Denim-Anlagen Teil 2)

Sehr gefragte Effekte sind heute zweiseitige, unterschiedliche Ausrüstungen in einem Arbeitsgang, wie z.B. hydrophil / hydrophob. Die blaue Wareenseite ist hydrophob ausgerüstet und die weiße Wareenseite (Hautseite) ist hydrophil ausgerüstet und/oder mit Wellness-Produkten versehen.

Abb1. zeigt den Eco-Applicator im Einsatz für den zweiseitigen Auftrag.

Abb2 Blaue Seite hydrophob, weiße Seite hydrophil

Eine gängige Rezeptur für die zweiseitige Ausrüstung ist:

Blaue Seite: 120 g/l Repellan TC-6
0,1 g/l Laviron MDF
0,06 g/l Breviol D 340

Weißer Seite: 80 g/l Adasil Ultra Wet

Flottenaufnahme: 20% blaue Seite, 20 % weiße Seite

Trockentemperatur: 130 °C

Kondensationstemperatur: 170 °C

(die Produkte wurden von Pulcra für die Versuche zur Verfügung gestellt).



Beispiel 2 Denim Keramik-Ausrüstung

Einige Denim-Ausrüster verwenden bereits die Keramik- Ausrüstung für Denim-Breitware unter dem Motto - „The healthy denim option“ - (Quelle Tavex)

Keramik Beschichtung auf Denim Ware ist schon länger bekannt, jedoch wird sie erst jetzt stärker in den Vordergrund gestellt. FIR (far - infrared radiation) ist das Schlagwort.

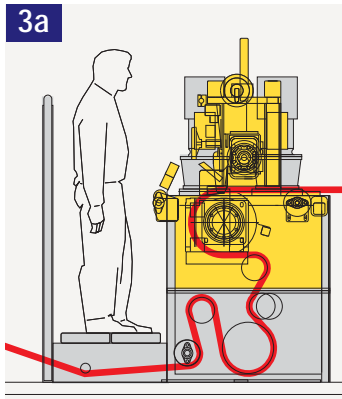
Diese Ausrüstung durch Beschichtung der Denim-Breitware spendet Kühle, ist revitalisierend, reflektiert IR-Strahlen und die Denim-Ware hat einen kühlen Griff.

Eine Beispiel-Rezeptur ist: EVO-XEN915 Teile
EVO-Soft SXN20 Teile
Sero-Foam HTS5 Teile
Lutexal Thickener10 Teile

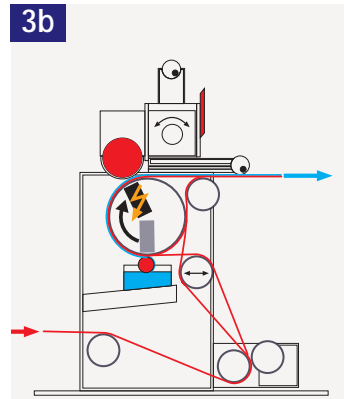
Viskosität: 70 Poise, (Produkte: DyStar / BASF)

Abb. 3a und 3b zeigen die Monforts – Beschichtungs-Anlagen Montex Allround und das System Timatec.

Montex Allround ist ein Beschichtungsaggregat mit der Möglichkeit, schnell und problemlos auf verschiedene Beschichtungssysteme umzustellen. Für fast alle Beschichtungsmöglichkeiten sind die Module wählbar wie z.B.: Walzenrakel, Luft rakel, Rotationsschablone, Breitschlitzdüse, Pulver-Streuer usw. Weitere Möglichkeiten bestehen mit dem Monforts-Beschichtungsmodul System Timatec, wie zum Beispiel Magnetrakel, Messerrakel und Rotationssiebdruck, auch zum Nachrüsten vorhandene Spannrahmen.



Montex Allround



Timatec system



Coating of open-wide denim fabric

A wide variety of effects and visual changes can be achieved through the use of coating ranges for the finishing of open-wide denim fabric. Anything is possible, from glitter and sparkle effects through to leather imitation.

Here are a few denim coating examples with formulations in overview:

Recipe 1 (air knife) Coating after pre-finishing [Fig.4]

Viscosity:	approx. 11,000 - 12,000 mPas
Dry coating:	approx. 15 g/m ²
Drying:	140 - 160°C
Curing:	170°C
Calander cold:	8 t
Formulation:	Appretan N 52281 liq100
	Appretan Thickener 27101.3
	Merlin Magna Pearl pigment10

Recipe 2 (air knife) Coating after pre-finishing [Fig.5]

Viscosity:	approx. 11,000 - 12,000 mPas
Dry coating:	approx. 15 g/m ²
Drying:	140 - 160°C
Curing:	170°C
Calander cold:	8 t
Formulation:	Appretan N 52281 liq100
	Appretan Thickener 27101.3
	Sili Polyester Glitter Salmon Pearl pigment ..10

(formulations from Archroma / CH)

Recipe 3 (air knife) Foam coating after pre-finishing [Fig.6]

- 1.) Pre-finishing: 30 g/l Ceraperm MCT liq.
Liquor pick-up 60-70%
Drying 130°C
- 2.) Foam coating: Appretan N 92100 liq.10 kg
Hostapur OS liq. 0.1 kg
Mearlin Magna Pearl 5000 pigment 1 kg
Foam:220-350 g/l
Dry coating:approx. 5 g/m²
Drying:100°C
Calander cold:8 t
Curing:170°C

Depending on the further treatment, the basis is laid here for further innovative denim products.

Denim imitation through coating

The offerings of eco-denim has truly exploded in recent years. Eco-denim is on the one side denim fabric made from ecologically grown cotton, and on the other side simple denim imitations, in other words articles that look like denim, but which have not been produced from indigo-dyed yarns. A wide variety of coating processes allow denim imitations to be produced on white cotton fabrics and cotton/linen blends. An excellent "denim imitation" can be produced from a 48/52 cotton/linen blend, approx. 230 g/m² (cotton warp threads dyed with vat dye and

Beschichtung von Denim-Breitware

Durch den Einsatz von Beschichtungsanlagen bei der Denim-Breitwaren-Veredlung lassen sich eine Vielzahl von verschiedenen Ausrüstungsmöglichkeiten und optische Veränderungen erreichen. Von Glitzer- / Sparkleeffekten bis hin zu Lederimitaten ist alles möglich.

Hier einige Denim - Beschichtungs - Beispiele mit Rezepturen zur Ansicht:

Rezept 1 (Lufrakel) Beschichtung nach Pre-Finishing [Abb.4]

Viskosität:	ca 11.000 - 12.000 mPas
Trockenaufgabe:	ca 15g/m ²
Trocknung:	-140 - 160 °C
Kondensation:	170 °C
Kalander kalt:	8 to
Rezeptur:	Appretan N 52281 liq.100
	Appretan Thickener 27101,3
	Pigment Merlin Magna Pearl10

Rezept 2 (Lufrakel) Beschichtung nach Pre-Finishing [Abb.5]

Viskosität:	ca 11.000 – 12.000 mPas
Trockenaufgabe:	ca 15g/m ²
Trocknung:	140 –160 °C
Kondensation:	170 °C
Kalander kalt:	8 to
Rezeptur:	Appretan N 52281 liq.100
	Appretan Thickener 27101,3
	Pigment Sili Polyester Glitter Salmon Pearle ..10

(Rezepturen Fa. Archroma / CH)

Rezept 3 (Lufrakel) Schaum-Beschichtung nach Pre-Finishing [Abb.6]

- 1.) Pre-Finishing: 30 g/l Ceraperm MCT liq.
Flottenaufnahme 60-70%
Trocknung 130 Grd C
- 2.) Schaum-Beschichtung: Appretan N 92100 liq.10 Kg
Hostapur OS liq.0,1 Kg
Pigment Mearlin Magna Pearl 5000 1 Kg
Schaum:220-350 g/l
Trockenaufgabe: ca 5 g/m²
Trocknung:100 °C
Kalander kalt:8 to
Kondensation:170 °C

Je nach Weiterbehandlung werden hier die Grundlagen für weitere innovative Denim-Produkte gelegt.

Denim-Imitate durch Beschichtung

Das Angebot an Öko-Denim ist in den letzten Jahren explodiert. Öko-Denim ist auf der einen Seite Denim-Ware aus ökologischen Baumwollanbau und auf der anderen Seite einfache Denim-Imitate, also Artikel, die wie Denim aussehen aber nicht aus mit Indigo gefärbten Garnen hergestellt wurden. Viele Beschichtungsmöglichkeiten erlauben auf Baumwoll-Weißware und Baumwoll- Leinen-Mischungen Denim Imitate herzustellen. Aus Baumwolle / Leinen 48 / 52 ca 230g/m² (Kette Baum-



Fig. 6 Coated and stone washed | Abb.6 beschichtet und stone washed

white linen weft threads) with an additional NH₃ treatment followed by an indigo coating and a finishing coating.

“Imitations” with good fabric appearance can be easily produced, here 2 examples:

Recipe 1: Coming Blue [Fig. 7]

Paste application with air knife on cotton fabric

Drying:	at 130°C
Curing:	1.5 minutes at 165°C
Calander:	cold 8 t
Chemicals:	Appretan N 92111 liq.100 Parts
	Solusoft UP liq. 10 Parts
	Cassurit FF liq. 5 Parts
	Phoenix 1261 pearl gloss pigment1.8 Parts
Appretan Thickeners:	2710 liq. 0.76
Viscosity (Haake):	5600 mPas
Dry coating:	29.2 g/m ²

Recipe 2: Acrylic Blue (starting formulation) [Fig.8]

Paste application with roller knife on cotton fabric

Drying:	at 120 °C
Curing:	120 sec at 175°C
Chemicals:	Appretan N 92111 liq.100 Parts
	Water: 50 Parts
	Printofix Blue T-P.....2.5 Parts
	Printofix Black HM-A.....0.6 Parts
Cassurit FF liq.	10
Solusoft UP liq. hc	50
Appretan Thickeners 2710 liq.....	1
Viscosity (Brookfield)	9000

Although millions of denim articles are produced per year, the market for similar articles is already huge and growing constantly. Imitation denim here has nothing to do with “fakes” and can even command a firm place for itself in fashion, depending on the field of application.

The fabric samples shown were provided by Archroma.

Printing on denim

Print jeans and coloured jeans articles are a further area that the denim designers are pushing alongside the classic blue denim.



wolle gefärbt mit Küpenfarbstoff und Schuß Leinen weiß) mit einer zusätzlichen NH₃- Behandlung läßt sich danach durch Indigo-Beschichtung und einer Ausrüstungsbeschichtung ein exzellentes „Denim- Imitat“ herstellen.

Auf einfache Weise lassen sich “Imitate” mit gutem Warenerfolg erzeugen, hier 2 Beispiele:

Rezept 1: Coming Blue [Abb.7]

Pastenapplikation mit Luftrakel auf Baumwollgewebe

Trocknung:	bei 130 °C
Kondensation:	1,5 Minuten bei 165 °C
Kalander:	kalt 8 to
Chemikalien:	Appretan N 92111 liq.100 Teile
	Solusoft UP liq.10 Teile
	CassuritFF liq.5 Teile
	Perlglanzpigment Phoenix 12611,8 Teile
Appretan Thickeners	2710 liq. 0,76
Viskosität (Haake)	5600 mPas
Trockenaufgabe	29,2 g/m ²

Rezept 2: Acrylic Blue (Richtrezeptur) [Abb. 8]

Pastenapplikation mit Walzenrakel auf Baumwollgewebe

Trocknung:	bei 120 °C
Kondensation:	120 sec bei 175 °C
Chemikalien:	Appretan N 92111 liq.100 Teile
	Wasser50 Teile
	Printofix Blue T-P.....2,5 Teile
	Printofix Black HM-A.....0,6 Teile
Cassurit FF liq.	10
Solusoft UP liq. hc	50
Appretan Thickeners 2710 liq.....	1
Viskosität (Brookfield)	9000

Obwohl Millionen von Denim Artikeln pro Jahr produziert werden ist der Markt für ähnliche

Artikel bereits riesig und stets wachsend. Imitat-Denim hat hier nichts mit „Fakes“ zu tun sondern kann je nach Einsatzgebiet auch in der Mode einen angestrebten festen Platz finden.

Die angeführten Warenmuster wurden von Archroma zur Verfügung gestellt.

Druck auf Denim

Print Jeans und farbige Jeans-Artikel sind ein weiterer Bereich, den die Denim-Designer neben dem klassischen Blue Denim forcieren.

Auf der einen Seite findet man bedruckte Baumwollstoffe und Stoffe aus Baumwolle, gemischt mit Tencel oder Leinen, die zu Jeans verarbeitet werden, auf der anderen Seite werden

Bluedenim-Stoffe mit den verschiedensten Motiven bedruckt, um weitere Denim-Varianten zu

kreieren. (siehe Abb.9 und Abb.10)

Zusammenfassung

Um alle Verfahrensschritte, die in diesem Beitrag beschrieben wurden, auf einer Anlage durchführen zu können, plante Monforts in Zusammenarbeit mit einem Kunden eine multifunktionale Veredelungsanlage - Monforts Allround –



Fig. 9 Denim printed and stone washed

Abb. 9 Denim bedruckt und stonewashed

On the one hand there are printed cotton fabrics and cotton fabrics blended with Tencel or linen that are processed to produce jeans, and on the other hand blue denim fabrics are printed with a vast array of motifs to create further denim variants. (see Fig. 9 and Fig. 10)

Summary

In order to be able to carry out all the process steps described in this article on a single range, Monforts is planning to develop a multifunctional finishing range in cooperation with a customer, the Monforts Allround.

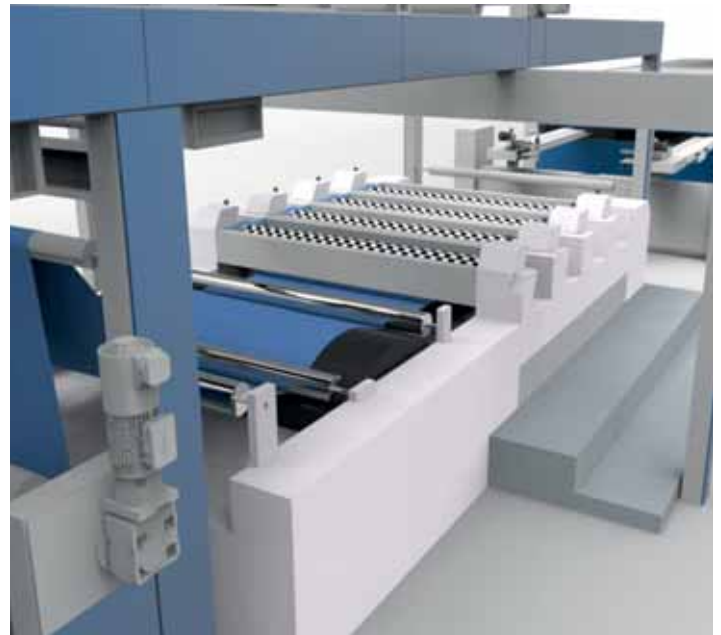
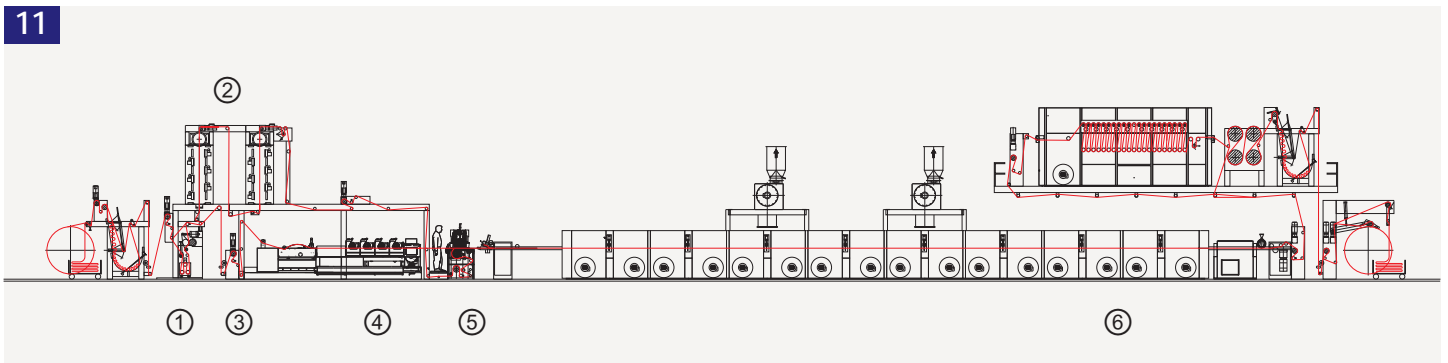


Fig. 10 Detail: Range with 4 rotary printing screens

Abb.10 Bild-Ausschnitt: Anlage mit 4 Farb-Rotationsdruckschablonen



The fabric pass diagram of this range illustrates the potential applications. [11]

Process possibilities and range components that are specially used:

- ① Overdyeing with pigment dyestuffs
Padder 1, VTG IR predryer 2, Drying stenter 6, Curing hotflue 7,
- ② Single-sided overdyeing with pigment dyestuffs
Eco Applicator 3, Drying stenter 6, Curing hotflue 7,
- ③ Two-sided finishing with synthetic resins
Padder 1 or Eco Applicator 3, Drying stenter 6, Curing hotflue 7,
- ④ Two-sided finishing with different products, e.g. hydrophobic/hydrophilic
Eco Applicator 3, Drying stenter 6, Curing hotflue 7,
- ⑤ Printing with pigment dyestuffs
Rotary screens 4, Drying stenter 6, Curing hotflue 7,
- ⑥ Coating using various methods
Montex Allround 5, Drying stenter 6, Curing hotflue 7,

This range configuration gives the denim finisher the possibility of carrying out the various finishing processes without the inconvenience of long set-up and standstill times.

Thanks

We wish to extend our particular thanks to Pulcra / Geretried and Archroma / Switzerland for providing the products, formulations and samples presented.

Am Warenlaufschemata dieser Anlage sollen die Anwendungsmöglichkeiten verdeutlicht werden.[11]

Verfahrensmöglichkeiten und Anlagenteile die speziell zum Einsatz kommen:

- ① Überfärben mit Pigmentfarbstoffen
Foulard 1, VTG IR-Vortrockner 2, Trockenrahmen 6, Kondensationshotflue 7,
- ② Einseitiges Überfärben mit Pigmentfarbstoffen
Eco Applicator 3, Trockenrahmen 6, Kondensationshotflue 7,
- ③ Zweiseitige Ausrüstung mit Kunstharzen
Foulard1 oder Eco Applicator 3, Trockenrahmen 6, Kondensationshotflue 7,
- ④ Zweiseitige Ausrüstung mit verschiedenen Produkten z.B. hydrophob/hydrophil
Eco Applicator 3, Trockenrahmen 6, Kondensationshotflue 7,
- ⑤ Bedrucken mit Pigmentfarbstoffen
Rotationsschablonen 4, Trockenrahmen 6, Kondensationshotflue 7,
- ⑥ Beschichten nach unterschiedlichen Methoden
Montex-Allround 5, Trockenrahmen 6, (Kondensationshotflue 7),

Diese Anlagenkonfiguration gibt dem Denim-Veredler die Möglichkeit je nach Bedarf die verschiedenen Veredelungsprozesse durchführen zu können, ohne dabei lange Rüst- und Stillstandzeiten in Kauf nehmen zu müssen.

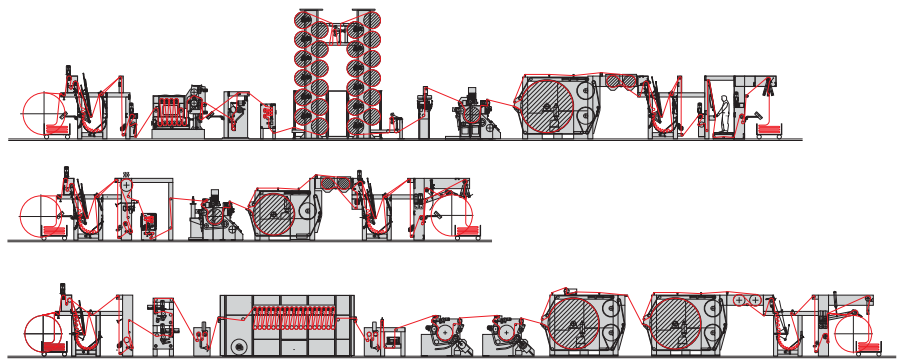
Danksagung

Unser besonderer Dank gilt den Firmen Pulcra / Geretried und Archroma / Schweiz für die zur Verfügung gestellten Produkte, Rezepte und Muster.



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