



world of denim

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Denim forever

The recent Denim by Première Vision exhibition showcased once again the continuing demand for denim fashionwear.

Long gone are the days when denim was used solely for workwear.

Today's increasing trend towards 'all day fashionwear' holds the key towards the diversity of denim with promotion of elasticity, body kinetics and other body heat treatments together with a variety of coating treatments.

Placing additional demands on finishing techniques Monforts continues to offer solutions for these new treatments to ensure further improved eco friendly denim finishing.

Once again a high number of denim producers participating at the show enjoy the benefits of Monforts finishing lines; with Monforts remaining committed to ensuring energy cost savings and other sustainable finishing solutions.

Roland Hampel,
Managing Director

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Spelling out the ‘Smart’ Facts

At the 17th Denim Première Vision exhibition in Barcelona, in an open forum, Chantel Malingrey, Director of Première Vision, set out the aims of the new Smart Creation initiative.

Launched last year, it is now being extended to include denim producers. Beyond simply highlighting products, its goal is to showcase exhibitor initiatives addressing sustainable development, as well as respect for ethical and environmental concerns, and communicate them more effectively to buyers, brands and the consumer.

“We want to allow industrialists to make the most of a new added-value - that of responsible production and creation,” said Malingrey.

“The denim industry is truly a centre for innovation and creative research. It is also one of the most advanced and daring in terms of responsible production, especially in the upstream branch represented at Denim Première Vision.”

Carmen Enrique Silla of Spanish denim technology company Jeanologia said that while the consumer was not prepared to pay more for sustainable products, it was also actively seeking them out.

“We must respond with smart evolution,” he suggested. “2015 saw something extraordinary happen in the automotive industry. In a single day the value of Volkswagen dropped significantly and its brand image plummeted.

“If we are to prevent this happening in the textiles sector we must adopt smart processes and more transparency. And we must promote these values.”

“Travelling globally, I am always surprised to see so much waste in denim production,” observed Jessica Dorfma, a designer for Calvin Klein Jeans.

“We need more sustainability and with so many new machines available we need to see more integration of denim production. We must also look at improving training for operators and have more platforms where machine operators and owners and designers get together.”



Omer Ahmad, General Director of Pakistan denim manufacturer Artistic Milliners, said that when he joined his company a decade ago, he was asked to look at the area of sustainable production, but at the same time, ensure products remained affordable.

“We initially looked at organic products to meet demand but only received orders for some five thousand metres,” he said. “We were therefore perplexed - the customer wanted organic cotton but would not pay more for it.

“Sustainability as a concept has now gained ground but we quickly realised that we needed to look at it as an overall approach, rather than an end-product.

“We subsequently invested in an eco-friendly line and have adopted

sustainable techniques and practices. Today our factory is acknowledged as the best in Pakistan.

“We are achieving softer touch fabrics with Tencel, the sustainable fibre, and also using recycled polyester.

“At the ITMA 2015 exhibition in Milan it was clear that everyone is beginning to speak from the same page. It’s about constantly improving practices - smart creation is the new sustainability,” he added.

“The Smart Creation initiative wants to communicate, among other things, traceability of sourcing for raw materials and transparency in terms of production, energy use, waste, water management and social policies,” concluded Chantel Malingrey.

“These are what we call the Smart Facts.”

Energy savings and remote diag

While off-the-peg technology will continue to be sold around the world, there is an increasing demand for special requirements to be met, not only in respect of a constant stream of new coating 'recipes' for apparel, but also to meet the high standards and flexibility now expected of equipment for technical textiles, and especially denim.



Hans Wroblowski

Recently, the largest manufacturer of denim in the world - a Turkish company- purchased five extremely complex special systems from Monforts, and for good reason,

says Denim Specialist Hans Wroblowski.

"We have recently introduced a combined stretching and drying system and the denim industry has been very quick to recognise its potential because the drying of denim is extremely energy intensive," he explained.

"The new system can result in savings of up to 60% of the heating energy usually required in the drying process during the single or double-sided coating of such textiles."

The key to the new coating system is in reducing the initial moisture content in the material prior to drying, he added.

"Logically, if the fabrics contain less moisture, less heat energy is required to evaporate the water. This unit applies a minimum quantity of liquor to the product and the substrate is not immersed, as is usually the case.

"Instead, the finishing liquid is deposited in just a thin, resource-

conserving layer by steel rollers. In this way, the required application quantity can be calculated precisely beforehand, so less liquor residues are left and the quantity of waste water is reduced."

The system is based on intelligent automation and a design that is a completely new to the market - the coating unit is an integral component of the stenter frame.

"The remarkable thing about it is its two-part construction, with a permanently installed lower section and a modular upper section, which can be replaced very quickly according to the intended application," said Wroblowski.

Another bonus in respect of its effectiveness stems from the fact that the time-consuming cleaning of modules can be performed outside the actual stenter frame.

This also makes machine selection and forward planning much simpler.

Improved eco friendly denim

Monfortex compressive shrinkage ranges for denim finishing are now even more cost-efficient and eco-friendly.

Stretching and skewing functions for denim fabric can be performed by a modified Thermex Thermo stretch unit. This configuration allows fabric speeds of up to 40m/min to be achieved with 14.5oz/yd² denim on

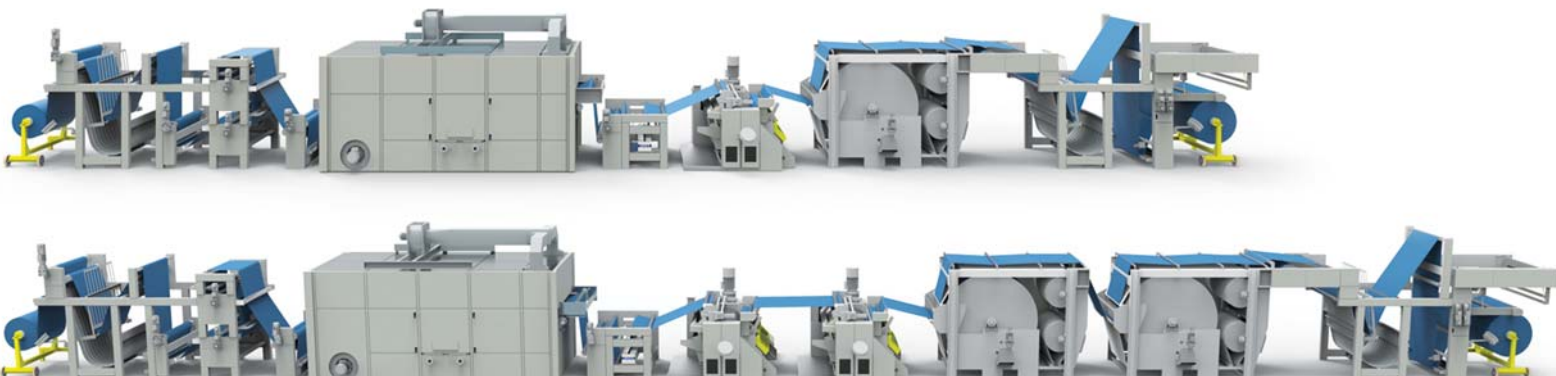
the single rubber version.

A 'double rubber' version comprises two compressive shrinkage units and two felt calenders in line. Together with the innovative Thermex Thermo Stretch, fabric speeds of up to

80m/min can be achieved with 14.5oz/yd² denim.

On both range versions, the denim fabric is stretched and skewed far more gently than with conventional range combinations.

With the larger diameter of the shrinkage cylinder in combination with the automatic rubber belt grinder, the



agnostics for denim manufacturers

Previously, the user had to decide on a quite specific coating system when making an investment decision.

“Application Y could be bought for price X, but that is history now,” said Wroblowski.

“With our solution, the user only needs to decide on a stenter frame, and with this buys the option to choose from the modules that are required in each case.

“The system is constantly being developed further and subsequent upgrading with special modules can be arranged without difficulty.”

In addition, Monforts employs a significant number of engineers to watch over the equipment installed for its customers worldwide, as part of teleservice arrangements.

This brings a number of benefits. Firstly, it ensures that the machines are installed and run-in sooner and also that in the event of a breakdown, repairs can be effected rapidly and downtimes are minimised.

The consequences of a stenter frame or even malfunctioning are



Teleservice

considerably more serious than if one of 60 weaving machines in a mill, for example, are out of service.

Preventative maintenance is another key benefit. The remote team can ascertain, for example, if a machine's drive units are being overloaded or if malfunctions have occurred and

quickly make the system operator aware of the fault via webcam.

Software updates for systems can also be sent for immediate download which in many cases spares the customer service technician from a trip to the site, which in the past has been time consuming and expensive.

finishing

standard is determined in shrinkage technology for minimum residual shrinkage values and optimum fabric hand.

With a quick-change facility available only from Monforts, the shrinkage belt can be changed in the shortest possible time and standstill times are absolutely minimised.

Eco Applicator for denim finishing The proven, energy saving, Eco-Applicator soft coating process from Monforts for the application of liquors and functional chemicals is now available for denim fabric applications.

The Eco-Applicator 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.

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

- > Absolute Denim Co.
- > Albiate 1830
- > Ariteks
- > Artistic Fabric Mills
- > Artistic Milliners
- > Arvind Ltd.
- > Berto
- > Bossa
- > Çalik Denim
- > Cone Denim
- > Crescent Bahuman
- > ICOMA Group
- > Kipaş
- > Matesa Denim
- > Orta Anadolu
- > Soorty Enterprises
- > Tavex Europe
- > Textil Santanderina
- > UCO Raymond
- > U S Denim Mills

Are biokinetics the next big thing?

It's now 30 years since Istanbul-headquartered Orta Anadolu made the decision to commit completely to denim manufacturing, but the company's ideas for differentiating its fabrics are far from exhausted.



“We believe that the next major launch will bring something really new to the market, with tremendous benefits for the consumer.”

Bengi Yıldız Ergon
Product Engineer

Founded in 1953 as a traditional spinning and weaving company, Orta has, since 1985, been building up its denim capacity by investing in the latest European machinery, including Monforts stentering and finishing equipment.

The company is keen on collaboration with innovative brands such as Denmark's Jack & Jones, with whom it developed the latest Super Stretch with skinny fit

jeans which combine polyester and elastane duo-core yarns to provide freedom of movement and comfort with shape retention.

Orta is also behind the technology of the latest Power Curvy women's denim fashion range for Guess, defined by extremely feminine fabrics and a slimming effect which results in very stylish silhouettes.

According to Product Engineer, Bengi Yıldız Ergon, Orta is dedicated to bringing sustainable innovation to the denim market through pioneering new fibres and finishes.

She added, “We believe that the next major launch will bring something really new to the market, with tremendous benefits for the consumer.”

The Symbiosis Biokinetic denim collection is based on Emanas®, the new polyamide 6.6 yarn developed by Rhodia Solvay.

This smart yarn is embedded with bioactive crystals which absorb body heat and emanates infrared rays back to the skin, to both provide thermo-regulation properties and improve micro-circulation, while at the same time, stimulating skin vitality and reducing the appearance of cellulite.

For athletes, Symbiosis fabrics with Emanas improve sports performance by reducing muscle fatigue, reducing oxygen consumption and leading to faster recovery from exercise

All of these benefits are scientifically proven and the effect is permanent, regardless of the amount of washes the garment goes through.

Emanas® technology is class I certified under the Oeko-Tex Standard 100, with no harmful substances present in the product.



Soorty adds the science of stretch

New possibilities with stretch were showcased by Soorty in the company's latest Zumba, Extreme Sports and 3Sixty ranges.

They are based on Soorty partner Hyosung's Creora Fit2 technology, developed to meet the real consumer demand for second-skin fit with 360-degree comfort.

The technology capitalises on the superior setting performance of Creora spandex for four-way stretch developments. This allows the

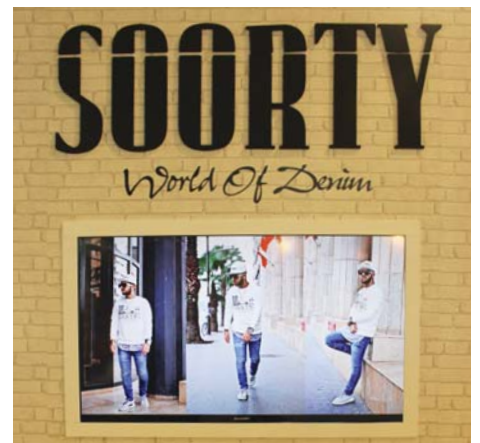


production of extremely comfortable and smooth denims, with improved dimensional stability and no bagging or sagging.

Soorty's Summer Feather range, meanwhile, testifies to the company's denim manufacturing prowess by featuring fine fabrics in weights of just 8.5oz, while the Eco Fab collection makes the most of what's available in the latest sustainable raw materials.

Eco Fab denims use 100% organic cotton supplied by members of the Better Cotton Initiative, along with Invista's CoolMax Ecomade recycled polyester.

An Oeko-tex approved, non-toxic antimicrobial silver finish provides both effective odour control and protects against discoloration or



deterioration from bacteria too.

Headquartered in Karachi, Pakistan, Soorty is a highly vertically-integrated operation. On a daily basis, its 16,800-spindle spinning mill turns 60,000 pounds of fibre into yarn in counts of Ne 6/1 to Nec 24/1.

This is woven, finished and made-up into 1.7 million pairs of store-ready jeans.

Soorty is constantly upgrading its equipment ranges and recently installed one of the first Monforts Eco Applicators in Pakistan on an existing range.

Monforts representative Al Ameen Trading Corporation has also recently supplied a complete new denim finishing line which is currently under construction and will also be equipped with the Eco Applicator.

Demand for DualFX

Denim in all its diversity was the offer at Denim Première (Première) Vision of Belgium's UCO - Raymond, which since 2006 has been part of India's Raymond Group as a 50/50 joint venture.

"**Proving** extremely popular at the moment, are our DualFX super-stretch ranges," said Marketing Director, Johan Van den Heede.

"These provide the ultimate in comfort and free movement and yet have the look and feel of authentic

denim. We've further improved the elasticity and recovery of these fabrics."

DualFX is an Invista Lycra technology based on several patented processes for the production of both dual core and bicomponent yarns. As such,



DualFX contains the high stretch that Lycra is famous for, along with the recovery power of Lycra T400.

T400 combines different polymers within each filament which shrink to differing degrees when exposed to heat, producing a smooth helical crimp.

Because the crimp is not mechanically induced, this results in more durable stretch and recovery, and a softer, smoother hand than textured yarns that are generally used for stretch.

Another interesting development from Uco Raymond is collection of classic denim structures and weights with authentic selvedge denims with vegetable indigo.

"The handmade look and feel of this collection is appealing to a range of brands," said Van Den Heede.



"We've further improved the elasticity and recovery of these fabrics."

Johan Van den Heede,
Marketing Director

Gold for Artistic Milliners

In January 2015, denim powerhouse Artistic Milliners started production at its latest AM-IV plant in Karachi, Pakistan. It is the only one of its kind with a LEEDS Gold certified building and sustainable production processes.

LEED certification is the building industry's well-respected recognition of superior energy and environmental design and construction.

A gold certification recognises the highest level of performance as measured by the US Green Building Council - the world's foremost coalition of leaders from across the building industry, working to promote buildings that are environmentally responsible, profitable and healthy places to live and work.

"Artistic Milliners has a commitment to reduce the impact of its operations on the environment," said Company Director, Murtaza Ahmed. "In our older, established facilities, we are also adopting changes in our processes to keep them in line with current state-of-the-art environmental practices.

"The building is the only garment factory in Pakistan to ever receive LEED Gold certification, as well as being the largest and most complex garment manufacturing site yet built.

The LEED certification was issued in respect the sustainable site selection and the building's energy efficient design also taking into account the company's planned water use reduction, responsible materials selection, waste management and enhanced indoor environmental quality.



AM-IV covers an area of 483,299 ft² and will have approximately 3,000 team members when in full production.

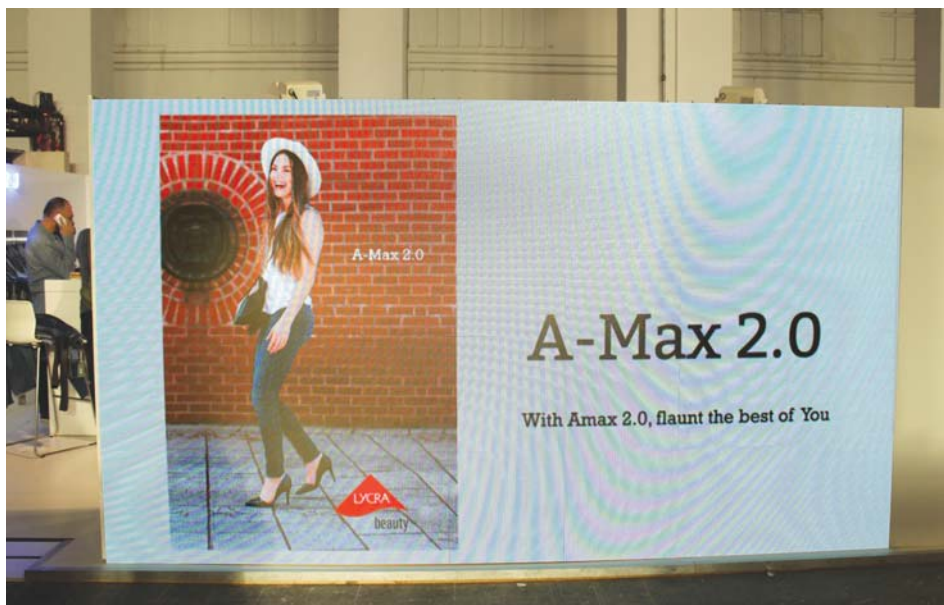
Established in 1949, the company has since expanded to become a fully vertically-integrated textile set-up, providing high-end customers with premium quality denim fabrics and garments.

As such, it caters to specific client needs with package deals including product development at source, design support, shorter lead times, on-time deliveries and warehousing facilities.



In terms of final garments, zero defect products are guaranteed by a vigilant and rigorous network of quality checks to ensure quality at different levels throughout the stitching process. Each garment passes through three online inspection stations and an offline process before dispatch to the laundry.

As one of the largest denim fabric and garment manufacturers, Artistic Milliners has been in the garment business for over 40 years now and employs around 16,000 people.



Symbolic denim supports home industry

The khadi fabric-producing 'charkha' weaving loom was a potent symbol of Ghandi's non-violent protest against British rule in the first half of the 20th Century.



Khadi is made from hand-spun yarns which are also hank-dyed in natural indigo and woven on a handloom. As such, it promoted self-sufficiency, but its popularity has not surprisingly dwindled in the era of globalised mass manufacturing.

Now, however, it's enjoying a revival as the basis for Arvind's Khadi Denim.

As a completely handmade product, natural imperfections give the yarns in these denim fabrics a personal, artisanal touch, adding a certain exclusivity to each pair of jeans.

"Denim is quite a technical product and requires specific treatments for indigo to react to the fibre," Arvind's Executive Director Kulin Lalbhai has explained.

"It then needs to be woven in a certain way with a certain weight. It's an incredibly difficult thing to marry khadi with denim technology.

"Khadi and denim also have very different supply chains," he added. "Spinning the yarn used for khadi is a completely manual process, done on the charkha, so the major challenge with this product begins with how to source it."



Arvind has been working with various intermediaries in Gujarat as well as direct sources to set up an entire supply chain to procure khadi yarn.

Production is also complicated as well, because the yarn is inherently imperfect and quite delicate.

"Retro-fitting the weaving and processing of this yarn with what's required for denim manufacturing has been our second big challenge," he added.

Such products can never be as cheap as machine-produced alternatives, but support a culture of Indian home enterprise that many consumers will see as justifying the premium.

No limits for Albiate

Italian finishing flair and 185 years of accumulated know-how provide Albiate 1830 with an authoritative perspective on the creation of striking designs in both denim and shirting.



Under the well-known Albiate 1830 brand, the company's latest denim ranges are based on the three different manufacturing routes - yarn dyed, printed and jacquard - often combined to create new looks.

Extensive research into yarns and structures is behind the company's collections, which in addition to 100%

cotton, can incorporate linen or slub yarns to give more life to materials.

Silk with linen is another interesting development, along with a range of stretch qualities.

The incorporation of two-fold indigo yarns adds brightness, strength and body to Albiate 1830 and in-house

finishing treatments provide a range of surface effects. The finest two-fold 120s yarns characterise the most refined, high quality denims available.

"We typically produce denims in weights of between 130-200 oz, but set no limits," said Sales Manager, Matthias Menegazzo.

"Our fabrics can be dyed to customer requests. Having only produced denim jeans for many years, we have now transferred a lot of our design and material methods across to shirtings, which is a fast-growing part of our business - today accounting for up to 80% of our production."



“Our fabrics can be dyed to customer requests.”

Matthias Menegazzo,
Sales Manager

Setting new standards

Elastech SmartCut technology will transform the denim industry, believes Çalik Denim, headquartered in Malatya, Turkey.

“If you’re talking about a new colour, a new look, or a new effect, it’s very easy to show its importance,” said MD, Hamit Yenici, “but we are talking about a new technology, something that’s hidden - and often something that’s hidden can have a very high value.”

What Çalik has achieved, is a reduction in fabric shrinkage down to an unprecedented level of just 6-7%, however the fabric is further processed - which will have very significant implications for the way the fabrics need to be treated by garment manufacturers.

“All denim fabrics shrink to different levels depending on how they’re treated in the various finishing stages and the amount of subsequent washing stages that are involved,” Yenici explained.

“This makes it difficult for the garment manufacturers to decide the exact amount of cutting that will be

required with a specific quality, and the washing stages in the mill really have to be determined in order to get it right.

“Rinsing, washing after surface

treatments and also bleaching can all have an impact on this, making it hard to gauge exact sizes. By getting the shrinkage down to such a low level, we believe we will create much fewer problems for the garment industry and set a new industry standard.”

Çalik introduced its latest eco-friendly Oxygene fabrics which can be treated between 50-60% faster than with normal denim and uses smaller quantities of chemicals

and water, while also consuming less energy.

A variety of finishing treatments can also be used including laser, ozone, sandpaper and enzymes.

In addition, treated fabrics are soft to the touch and retain their shiny look after treatment, even though no resins are used.

“Our motivation is to create products that can help conserve natural resources, have less impact on the environment and are at least as attractive and cool as a normal denim, while guaranteeing at least the same level of performance and comfort,” Yenici concluded. “Given the enthusiastic response to our new Oxygene product at Denim Première Vision, we feel we have achieved this.”



Retaining its ‘shape’ all day

Just 4% elastane in the weft is all that’s required to give Bossa’s MX Jeans high stretch of up to 70%, according to Birim Atagan for Turkey’s Bossa.

“These new MX Jeans allow unlimited action without deformation, with denim that provides perfect elongation while keeping shape retention, and with no

‘puckering’ as is common” she said.

“There’s absolutely no sagging, even after long hours of wear, making the jeans suitable for all-day, every day activities.”

The MX Jeans typically feature an 11 oz denim which is 80% cotton and 16% polyester, along with the 4% elastane.

The 2015 annual total production capacity of 84.5 million metres of fabric is produced by vertically-integrated spinning, weaving, dyeing and finishing operations.

Bossa was originally founded in 1951 in Adana as a partnership between the Sabancı and Bosnali families. In 2008 Sabancı Holding transferred ownership of Bossa to the Akkardan Group.



Consistency with compression

The first Shapeform denims were launched by the leading brand customers of Artistic Fabric Mills at the start of 2015 and proved an immediate hit.



“Advanced stretch properties are without doubt the cutting edge of fashion denim fabrics today.”

Henry Wong,
Director of Product
Development Marketing

Artistic is now making these highly crafted jeans available on the open market and reported ‘buzzing’ trade at Denim Première Vision in Barcelona.

“Advanced stretch properties are without doubt the cutting edge of fashion denim fabrics today and like many other manufacturers we’ve invested heavily in the technology over the past few years,” said Henry Wong, the company’s Director of Product Development Marketing.

“But what really distinguishes our Shapeform jeans is the marriage of stretch with the compression that’s usually to be found in professional performance sports apparel.

“The key to unlocking the perfect body shaping denims is in finding the optimal level of compression to ensure movement and comfort do not take a back seat.

“Consistency is the key to how we’ve added the holding power to be found in cycling and running gear to the latest in denim for ladies’ fashion.”

Denim Première Vision stand hostess Anne Bohlens added that she’d been wearing the new jeans throughout the show.

“They really are super comfortable and it’s so easy to move and bend in them, but they don’t lose their shape at all,” she said.

As an Invista partner, Artistic Fabric Mills makes the most of what the speciality yarn brand can offer, including Lycra T400 and Lycra Beauty range yarns, in combination with



cotton, and blends with Lenzing’s Modal and Tencel high grade cellulosics.

The company is also a member of the Better Cotton initiative which aims to reduce the amount of water and chemicals employed to grow cotton, and to improve the social and economic benefits for cotton farmers in various regions of the world.

Based in Karachi, Pakistan, Artistic Fabric Mills has two state-of-the-art manufacturing plants producing 36 million metres of denim annually.

Around 50% of this denim is consumed in-house by AGI, the company’s garment unit, and the rest is exported to the international denim markets.

Second skin denim from Spain



“It’s based on a three-component blended yarn structure containing an elastane core that provides these advanced properties.”

David Bardin
Sales & Marketing Director Europe

Denim jeans don’t come any lighter than this.

Tavex Europe, headquartered in Madrid, Spain, introduced its 9½oz Valeri and incredible 7oz Tami jeans at Denim PV, characterised by softly structured fabrics that are relaxed and loose with unprecedented comfort.

As part of the company’s Flow Denim collection for the Spring/ Summer 2016 Season, both have the appearance of 100% cotton, yet the fabrics have high stretch properties, excellent recovery and low shrinkage.

“This is as a result of Tri-blend Technology, which is proprietary to Tavex,” explained Sales & Marketing Director Europe, David Bardin.

“It’s based on a three-component blended yarn structure containing an elastane core that provides these advanced properties without affecting the natural versatility and comfort of cotton.

“These jeans really fit you like a second skin,” he added.

E-360° is the company’s range of super stretch items characterised by multi-directional elasticity as a result of special yarn blends in both the warp and weft to guarantee maximum flexibility and resistance.

“These are extremely smart fabrics designed with the highest technology to guarantee the maximum freedom of movement,” he said.

At the forefront of the differentiated denim sector, Tavex has an annual capacity of over 15 million metres and over 170 years’ experience in the production of fabrics.





Denim for smooth skin



New from Pakistan-based U S Denim Mills, Cosmo Bodycare denim is described as a collection of bioactive fabrics with micro-encapsulated skin moisturisers, conditioners, and botanicals - for spa skin therapies that enhance circulation, improve skin elasticity and reduce cellulite appearance.

With five variants - Youth, Scent, Phase, Mist and Boost - Cosmo Youth, for example, is an anti-bacterial premium denim with micro-encapsulated aloe vera in the fabric to combat bacteria and bring moisture, nutrients and anti-oxidants to the skin increasing elasticity, preventing stretch marks and

limit the effects of aging.

It also provides the denim with increased durability and improved softness to reduce 'chaffing'.

The premium brand jeans feature a mix of 83% cotton, 16% poly and 1% lycra.

Other new collections included Heritage - a selvedge denim fabric; ReSpun - recycled denim made from post-consumer waste; and Shibuya - a collection of fabric in special weaves such as the Boro weave.

Illustrated, 'extravaganza', a normal denim fabric with a hand painted floral pattern.

Trusted partner to High Street brands

Lumix is the new denim brand introduced by Turkey's Kipaş Denim. It is an acronym for Lift-up, Ultra-soft, Maximum comfort, Imperial sheen and Xtra shape.



Kipaş Denim is an integrated fabric manufacturer with accreditations for major High Street chains including Arcadia, Debenhams and Marks & Spencer.

The company is estimated to be responsible for 10% of Turkey's entire annual yarn production. Of this figure, around 35% is used in its own store brands, including famous denim label Lee Cooper.

Kipaş is an expert in rope dyeing techniques with indigo, sulphur, reactive and vat dyes based on ring, Open End, carded and combed yarns, in addition to those designed

for specific looks such as slubs, multi-count, twisted and core twisted yarns.

The company has an annual finished fabric output of 25.4 million metres, based on 18.2 million metres of greige fabrics and a further 7.2 million metres of yarn-dyed materials produced on 227 weaving looms.

In addition to denim, the company makes fabrics for shirtings, velvets and home textiles and its finishing department consists of bleaching, mercerizing, continuous dyeing, rotary printing and finishing, including Mon-forts stentering.



Where **tradition** meets new technology

No contract was signed and no lawyers were ever appointed, but the Golden Handshake, as it became known, endures to this day.

It granted Cone Denim the exclusive right to produce all of the shrink-to-fit selvedge denim for Levi's iconic 501 jeans.

At its White Oak manufacturing plant in Greensboro, Cone is still employing the same raw materials and the same weaving looms and making the most sought-after denim in the world to the same weaving patterns it used back in 1915.

Both brand and fabric maker have, of course, continued to move with the times too, and Cone Denim has in recent years also become a market leader in developing performance-enhanced denim styles.

Today, its performance collection is the biggest it's ever been, as



customers look to incorporate new technologies into their denim ranges.

From the wicking power of fabrics incorporating Sorbtek, Coolmax and Dri-Release fibres, to the increased strength of Dyneema-infused denims - using fibres with 15 times the abrasion

resistance of steel - the collection continues to grow.

Cone has also taken denim a step further in its partnership with Milliken to develop the Westex Indigo fire-retardant denim which is also woven at White Oak.

Exploring the depths of **indigo**

Absolute Denim Co. Ltd, production facilities in Thailand are ranked as one of the most modern mills in the world. Housed in a single 90,000m² building, the fully integrated mill has the capacity of spinning yarn, dyeing, weaving, finishing and inspection, combined with packing facilities, all under one roof.

To service the market with all its fashion designs using hi-tech machinery, the company has the capacity to produce up to 2 million meters per month.

The company's computerized system, it is claimed, enables the plant to change fabric style without halting production to meet our customer's requirements.



Since cotton quality plays an important role in the denim appearance, Absolute strictly monitors the cotton selection process using only fine quality cotton for spinning; ensuring that all its yarns are produced to the highest quality.

With more than 110 years of experience and expertise in indigo dyeing, for example, the company is able to produce a wide range of indigo colours through various dyeing techniques.

Even more emphasis is made to explore the depth and breadth of the indigo.

"We believe that there are unlimited possibilities in the combination of cotton and indigo, which enable us to meet the ever increasing and diversifying needs," said a company spokesman.

This season Absolute has continued to show a retrospective range of stretch, steel vintage and solar denims together with fragrance denim, doubled colour denim or even denim jama to their latest progressive technologies combining high stretch and greater recovery capabilities.



Special finishes from ICOMA

Morocco's ICOMA Group, founded in 1947, is a vertically integrated producer of denim including spinning, weaving, dyeing and finishing to ensure control of the complete process from cotton to finished fabric.

It prioritises the export markets by developing premium products with high added value, quality and competitive prices.

The latest collection includes a wide range of products such as rigid, comfort

stretch, regular stretch and power stretch with a variety of compositions.

These include 100% cotton, cotton/elastane and cotton/polyester/elastane in various finishes such as special touch and coating.

Sustainable and eco-friendly fabric

Spain's Textil Santanderina introduced its new Fastcel Tencel range which has been developed with an exclusive spinning process to provide a more sustainable and eco-friendly fabric which avoids fibrillation before the enzyme wash; saving time during the washing process and improving the fabric's characteristics.

The finishing offers better colour effects and endless garment possibilities.

Santanderina also exhibited its Faded Finish collection - a print process on indigo using a localised and controlled discolouration of the fabric. This results in high definition designs without damaging or changing the nature of the fabric through advanced discolouration technology.

Another collection, Slimflex, offers high quality superstretch fabrics in cotton/Lycra, Tencel/cotton/Lycra, and other blends, designed for 'skinny' and 'superskinny' garments.



New knitted indigo dyed fabrics from Ariteks



Making their debut at Denim PV, Turkish producer Ariteks Boyacilik, took the opportunity to launch its new Knitted Indigo Dyed fabrics - KNIDIGO - an all knitted product providing more comfort, elasticity and durability than regular woven denims.

According to company spokesman Cem Susin, the new range meets its customers approval with a trendy indigo product ensuring the equivalent comfort to home wear clothing.

“Our customers wanted us to produce a fabric and garments which will be more comfortable to wear than



regular denim. We realised that although there are many designs and patterns for denim garments, the comfort and elasticity was missing - hence the reason we have introduced the new range.”

Founded in 1975 and producing a wide range of dyed and finished fibres, yarn and fabric for apparel and technical textiles Ariteks introduced indigo production 12 months ago.

Next, the company is planning to launch ‘no washing required’ indigo ensuring that producers no longer have to wash the fabric for effect.

“It will be ready to wear without washing,” said Cem Susin.

Competence in Denim Finishing



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Technology





Monforts Denim Ranges

A Concept for Denim Finishing Possibilities

By Dipl. Ing. Kurt van Wersch, Senior Consultant

Part 2: Effect dyeing of denim wide-open fabric using the Eco Applicator

The rapidly growing fashion constantly makes 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 finishers in 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, coatings and functionalisation are currently determining the topics of the hour in the denim segment for designers, weavers and finishers.

Coloured jeans are the trend, special effects are called for, with functionalisation, such as various hydrophobic or hydrophilic finishes, flameproofing, etc., required.

Wellness is the new catch word for special denim finishing.

Monforts will be reporting on these topics in future with the following articles planned:

Part 1 Over-dyeing of denim grey fabric with reactive dyestuffs using the Econtrol® 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 possibilities for functionalisation and coating

Part 5 Denim - Stretching, skewing and compressive shrinking

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

For finishing of denim grey fabric after cleaning and singeing, and for pretreated and prewashed open-wide fabric Monforts offers, for example, padders, foam applicators, minimum-liquor applicators, numerous sizes and versions of stretching and skewing devices, dryers and compressive shrinkage ranges.

Processes and ranges are offered, for example, 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.

This article deals with the effect dyeing of denim wide-open fabric using the Monforts Eco Applicator minimum-liquor applicator.

Monforts Denim-Anlagen

Ein Konzept für Denim-Veredlungsmöglichkeiten

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

Teil 2: Effektfärbungen auf Denim-Breitware mit dem Eco Applicator

Die schnell wachsende 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 ökonomisch und ökologisch ausgereiftes Maschinen- und Verfahrensprogramm zur Denim-Veredlung.

Überfärben, Effektfärben, Drucken, spezielle Vorbehandlungen, Beschichtung und Funktionalisierung bestimmen zur Zeit im Denimbereich das Thema bei Designern, Webern und Ausrüstern.

Coloured-Jeans liegen im Trend, spezielle Effekte sind erwünscht, Funktionalisierung wie z.B. verschiedene Hydrophobierungen, Hydrophilierungen und Flamm-schutz-ausrüstungen 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 Econtrol®-Verfahren

Teil 2 Effektfärbungen auf Denim-Breitware mit dem Eco Applicator

Teil 3 Denim - Warengriff kreativ gestalten durch Vorbehandlungsmethoden

Teil 4 Denim - aktuelle Möglichkeiten zur Funktionalisierung 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, Schaumaufragsanlagen, Minimalauftragsanlagen, Reck- und Schrägstellwerke in verschiedenen Größen und Ausführungen, Trockner und kompressive Krumpfanlagen.

Zur Erzielung von Effekten werden Verfahren und Anlagen, zum Entschlichten, Mercerisieren,

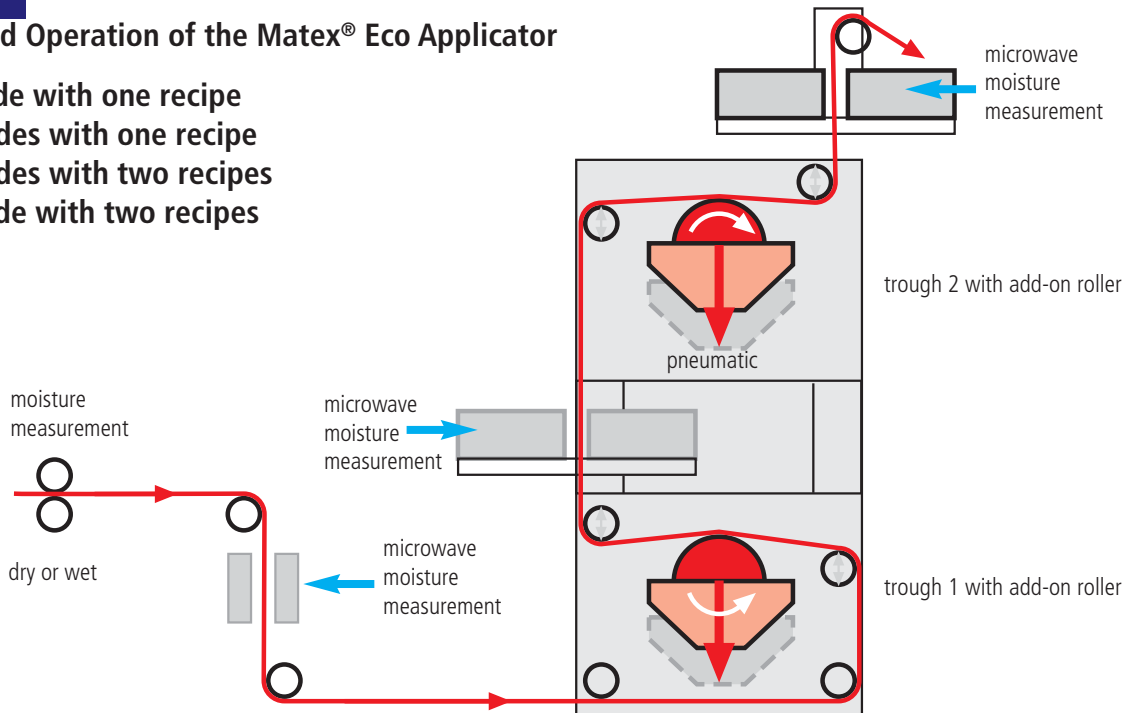
Abziehen, Kontinuefärben, einseitigem oder zweiseitigem Effektfärben, einseitigen oder zweiseitigen Effektausrüstungen und diverse Funktionalisierungs- und Beschichtungs- möglichkeiten angeboten.

Dieser Beitrag befasst sich mit Effektfärbungen auf Denim-Breitware mit dem Minimalauftragsaggregat Monforts Eco Applicator.

Figure 1

Layout and Operation of the Matex® Eco Applicator

- One side with one recipe
- Two sides with one recipe
- Two sides with two recipes
- One side with two recipes



Effect dyeing of denim wide-open fabric using the Eco Applicator

1. Introduction of the Eco Applicator

Figure 1 shows the functional diagram of the liquor applicator. Both dry or damp fabric can be fed into the applicator. Moisture meters in the inlet section measure the condition of the ingoing denim fabric.

On the applicator:

- Liquor can be applied on one side (with one formulation) to the upper or under side
- Liquor can be applied on two sides (with one formulation) to the upper and under side
- Liquor can be applied on two sides (with two different formulations) to the upper and under side
- Liquor can be applied on one side (with two different formulations) to the same side.

The liquor is applied by means of controlled applicator rolls. Microwave-based meters measure and control the desired application rate.

The fabric wetted in this way is then transported to the dryer for product heat-setting and/or curing.

Selective measures and machine settings allow a very wide range of effects to be produced.

2. Effect possibilities with the Eco Applicator

Fig. 2 Reactive or pigment dyestuff (only on the blue denim side)

Fig. 3 Reactive or pigment dyestuff (only on rear side)

Fig. 4 Reactive and/or pigment dyestuff (simultaneously on both sides of the fabric pigment black / pigment yellow)

Fig. 5 Reactive and/or pigment dyestuff (reproducible unequal application on 1 side of the fabric)

Effektfärbungen auf Denim-Breitware mit dem Eco Applicator

1. Vorstellung des Eco Applicators

Abb.1 zeigt das Funktionsschema des Auftragsaggregates. Trockene, aber auch feuchte Ware kann dem Aggregat vorgelegt werden. Feuchtigkeitssensoren im Einlaufbereich erfassen den jeweiligen Zustand der Denim-Ware.

Wahlweise kann:

- ein einseitiger Flottenauftrag (mit einer Rezeptur) auf Ober- oder Unterseite,
- ein zweiseitiger Auftrag (mit einer Rezeptur) auf Ober- und Unterseite,
- ein zweiseitiger Auftrag (mit zwei verschiedenen Rezepturen) für Ober- und Unterseite,
- ein einseitiger Auftrag (mit zwei verschiedenen Rezepturen) auf die gleiche Seite durchgeführt werden.

Die Flotte wird durch geregelte Antragswalzen aufgetragen. Mikro wellen. Messgeräte messen und kontrollieren die gewünschte Auftragsmenge.

Die so benetzte Ware wird dann dem Trockner zur Produktfixierung und/oder Kondensation zugeführt.

Durch gezielte Maßnahmen und Maschineneinstellungen lassen sich die verschiedensten Effekte erzeugen.

2. Effektmöglichkeiten mit dem Eco Applicator

Abb. 2 Reaktiv- oder Pigmentfarbstoff (nur auf die blaue Denimseite)

Abb. 3 Reaktiv- oder Pigmentfarbstoff nur auf der Rückseite

Abb. 4 Reaktiv- und/oder Pigmentfarbstoff (gleichzeitig auf beide Wareseiten Pigment black / Pigment yellow)

Abb. 5 Reaktiv- und/oder Pigmentfarbstoff (reproduzierbar unegaler Auftrag auf 1 Wareseite)

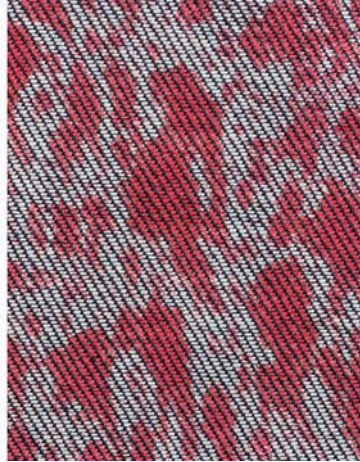
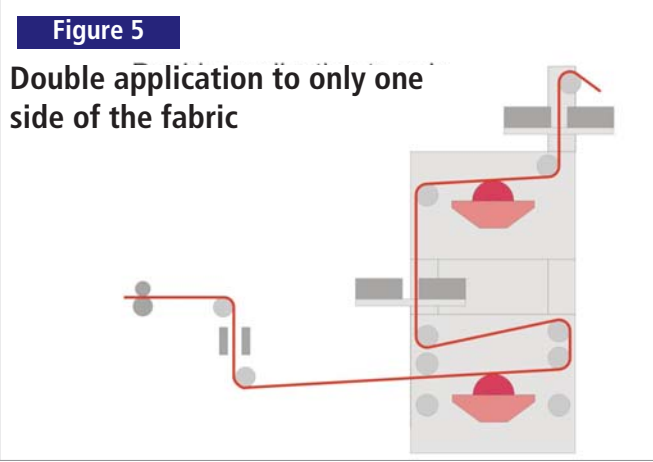
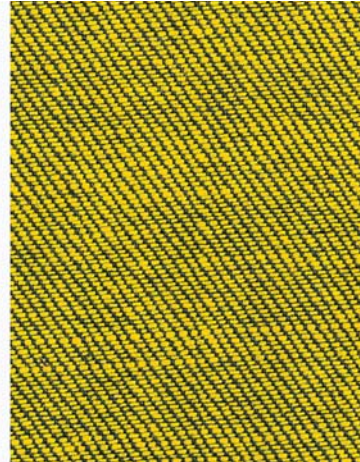
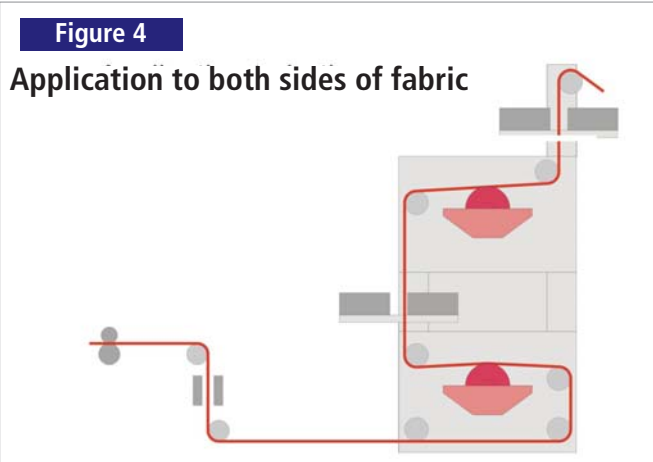
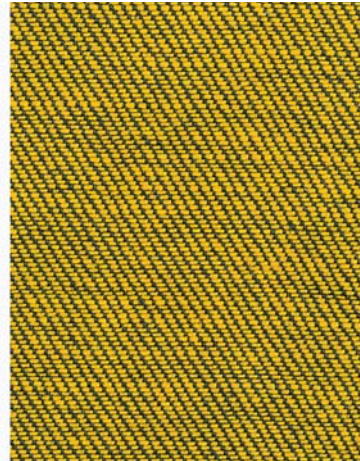
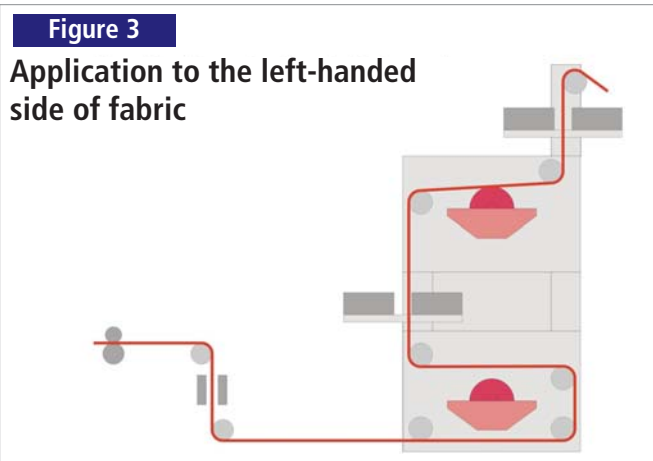
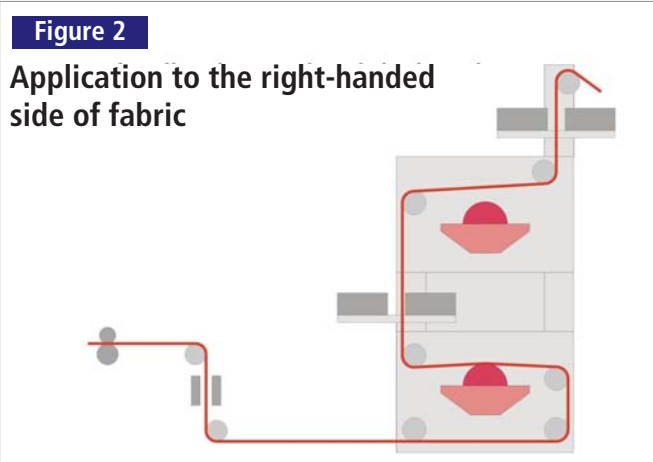
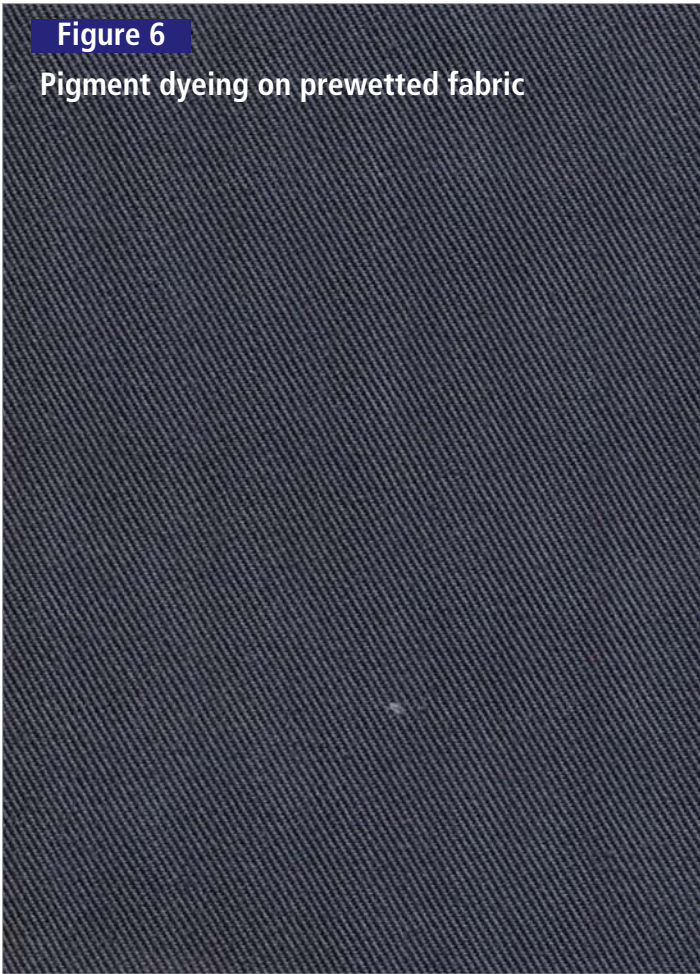


Figure 6

Pigment dyeing on prewetted fabric



The Eco Applicator therefore allows bi-colour effects to be achieved.

With reactive dyestuffs, the dyestuffs are fixed using the Econtrol® process, (drying for 2-3 minutes, 110-130°C, 25% v/v steam in the circulating air). With pigment dyestuffs using the pad-dry cure process (drying at 120-140°C, curing for 2 minutes at 170°C).

The recommendations of the dyestuffs manufacturers must be observed.

3. Reproducible unequal dyestuff application using the Eco Applicator on white denim fabric (bull denim)

The white fabric is wet with water using the 1st applicator roller (approximately 20-25% moisture application). The second applicator roller (approximately 20% liquor application) applies, for example, a pigment dyestuff.

Fig. 6 Pigment dyeing on prewetted fabric
Fabric appearance after application. Due to the previously applied water, the cotton fibre is only able to absorb the pigment dyestuff at the surface. A ring dyeing effect is produced.

Fig. 7 Pigment dyestuffs - Penetration.
After drying and curing, the fabric is finished and made up. Garment washing then enables the desired jeans effects to be achieved.

Fig. 8 Made-up and briefly washed
Another way of achieving the 'used look' is by following the non-continuous method.
The white fabric is wetted with water, pressed into a spin dryer and spun. With approximately 40% residual moisture, it is taken out of the spin dryer and fed into the Eco Applicator in wide-open form.
The dyestuff is then applied to the damp fabric, the fabric is dyed and the dyestuff fixed. The fabric is finally finished in the normal manner.

Fig. 9 shows the fabric appearance achieved.
The fabric is smooth, but appears wrinkled and has the desired 'used look'.

Mit dem Eco Applicator lassen sich so ebenfalls bicolor-Effekte darstellen.

Die Fixierung der Farbstoffe erfolgt bei Reaktivfarbstoffen nach dem Econtrol®-Verfahren, (trocknen 2-3 Minuten, 110-130 Grad Celsius, 25 Vol % Dampf in der Umluft), bei Pigmentfarbstoffen nach dem Pad-Dry-Cure-Verfahren (trocknen bei 120-140 Grad Celsius, Kondensation 2 Minuten bei 170 Grad Celsius).

Hier sind auch die Empfehlungen der Farbwerke zu berücksichtigen.

3. Reproduzierbarer unegaler Farbauftrag mit dem Eco Applicator auf Denim-Weißware (Bull Denim)

Die Weißware wird mit der 1. Antragswalze (ca. 20-25 % Feuchteauftrag) mit Wasser angefeuchtet. Mit der zweiten Antragswalze wird (ca. 20% Flottenauftrag) z.B. ein Pigmentfarbstoff aufgetragen.

Abb. 6 Warenmuster nach Auftrag
Durch das vorher aufgetragene Wasser ist die Baumwollfaser nur noch in der Lage den Pigmentfarbstoff an der Oberfläche aufzunehmen. Es entsteht eine Ringfärbung.

Abb. 7 Nach dem Trocknen und Kondensieren wird die Ware fertiggestellt und konfektioniert.
Bei der Garmentwäsche lassen sich dann die gewünschten Jeans-Effekte erreichen.

Abb 8 Ein anderer Weg zum „used look“ ist auch nach folgender, aber nicht kontinuierlicher Methode zu erreichen. Die Weißware wird mit Wasser benetzt, in eine Schleuder gepresst und geschleudert.
Mit etwa 40% Restfeuchte wird sie der Schleuder entnommen und ausgebreitet dem Eco Applicator vorgelegt. Hier wird nun auf die feuchte Ware der Farbstoff aufgetragen, die Ware wird getrocknet und der Farbstoff fixiert. Anschließend wird die Ware wie gewohnt fertiggestellt.

Abb. 9 zeigt den erzielten Warenausfall
Die Ware ist glatt, wirkt aber optisch knittrig und hat den gewünschten „used look“.

Figure 7

Pigment dyestuffs Penetration

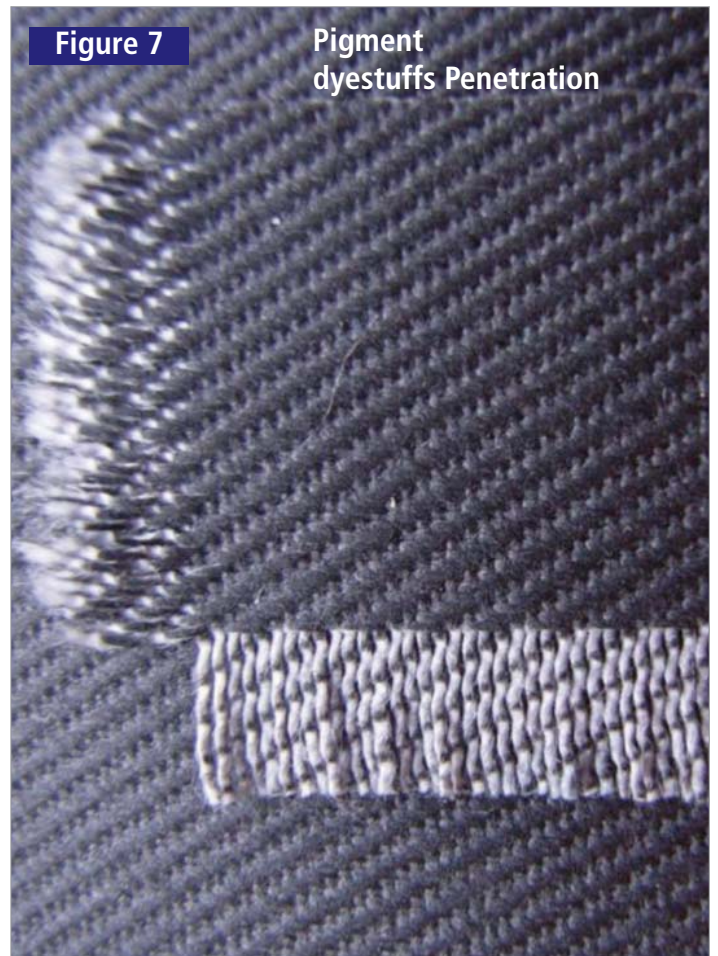


Figure 8

Made-up and briefly washed



The use of the Eco Applicator offers a wide variety of possibilities for achieving effects on wide-open denim fabric. It offers great potential for creative developers.

Denim forms a particularly significant part of present-day textile production with growing production figures.

Fashion designers, designers, dyestuff manufacturers, chemical industry, textile producers and machine engineering constantly work, hand-in-hand, with new ideas and innovations in order to achieve these growing production figures and to offer the consumer an 'ever young' denim product.

Denim reinvents itself time and again. We can help and show you how!

Der Einsatz des Eco Applicators liefert eine Vielzahl von verschiedenen Möglichkeiten Effekte auf Denim-Breitware zu erreichen. Der Eco Applicator bietet ein großes Potetial für kreative Entwickler.

Denim ist ein besonders zu beachtender Bestandteil der heutigen Textilproduktion mit wachsenden Produktionszahlen.

Modeschöpfer, Designer, Farbwerke, chemische Industrie, Textilproduzenten und Maschinenbau arbeiten Hand in Hand mit ständig neuen Ideen und Innovationen, um diese wachsenden Produktionszahlen zu verwirklichen und dem Verbraucher ein immer junges Denimprodukt zu liefern.

Denim erfindet sich immer wieder neu. Wir helfen mit und zeigen wie!

Figure 9



Denim - Pretreatment methods for creative fabric handles

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 pretreatment methods for denim open-wide fabric with the aim of changing the handle and appearance.

The development of jeans fabrics is continuing in leaps and bounds. Jeans have become "must haves".

Today jeans should be extremely soft in the handle, comfortable to wear and nevertheless figure-accentuating. A large influence on the handle occurs during the washing of the made-up jeans articles. Finished part finishing encompasses all the processes required to give the finished garment a particular character, and to obtain an authentic "old look" through dry treatment and washing. Before washing, jeans garments can be e.g. coated, sprayed, scraped, etched, sand-blasted, brushed, torn and repaired again. The different garments are then given their soft and fashionable look through various washing processes. Such effects are generally very energy and time-intensive to achieve. Here machine engineering companies offer a number of alternatives for shortening certain processes during garment washing. Handle and appearance can generally be influenced on the open-wide fabric (before make-up and garment washing). The compressive shrinking process after treatment of the open-wide fabric stabilises the fabric and barely changes the form of the finished garments during washing.

- Pre-shrunk is the opposite of Shrink-to-fit -

Alternative influencing of the handle by washing or enzyme treatment

This article addresses methods that are possible even before the make-up and garment washing. The simplest way of changing the handle on the open-wide fabric is the mill-wash process after singeing that has been known for any years. The mill-wash process washes water-soluble sizes out of the fabric by means of a washing process. In the case of weft-elastic denim containing elastane, a shrinkage potential is also developed that can result in an up to 33% width reduction. Subsequent fixing then stabilises the desired width again.

Water-insoluble sizes can be removed enzymatically. A variety of processes are known for this in practice:

- a) Discontinuous jigger and winch beck (1 hour dwell time)
Dwell process (6 - 12 hours dwell time)
- b) Continuous process (3 - 5 minutes in 100% saturated steam)

As an alternative, Monforts offers another enzymatic desizing process.

Range: Padder, hotflue with Econrol accessories and washing machine. The singed open-wide fabric is padded with the following formulation:

- 5 ml/l Forylase AT
- 8 ml/l Cottoclarin BLN
- 2 ml/l Securon C

Denim - Warengriff kreativ gestalten durch Vorbehandlungsmethoden

Zur Erzielung von Effekten werden Verfahren und Anlagen, zum Entschlichten, Mercerisieren, Abziehen, Kontinuefärben, einseitigem oder zweiseitigem Effekt-färben, einseitigen oder zweiseitigen Effektausrüstungen und diverse Funktionalisierungs- und Beschichtungs- möglichkeiten angeboten.

Allgemein

Dieser Beitrag befasst sich mit diversen Vorbehandlungen auf Denim-Breitware mit dem Ziel Griff und Optik zu verändern.

Die Entwicklung der Jeans-Stoffe schreitet rasant fort. Jeans sind zum „Must have“ geworden.

Heute sollen Jeans im Griff extrem weich sein, bequem zu tragen und trotzdem körperbetont sein. Eine große Griffbeeinflussung erfolgt bei den Waschungen der konfektionierten Jeans-Teile. Die Fertigteilveredlung umfasst alle Verfahren die dazu dienen, dem Fertigteil bestimmten Charakter zu verleihen und durch Trockenbehandlung und Waschen einen authentischen alten Look zu erhalten. Vor dem Waschen können Jeansteile unter anderem beschichtet, besprüht, gescrapt, verätzt, sandgestrahlt, gepinselt, zerrissen und wieder geflickt werden. Die unterschiedlichen Kleidungsstücke erhalten dann durch unterschiedliche Auswaschverfahren ihren weichen und modischen Look. Die Erzeugung solcher Effekte ist meist nur mit einem hohen Aufwand an Energie und Zeit zu erreichen. Der Maschinenbauer bietet hier einige Alternativen an um bestimmte Prozesse bei der Garmentwäsche zu verkürzen. Griff und Optik lassen sich meist schon (vor der Konfektion und Garmentwäsche) an der Breitware beeinflussen. Der kompressive Krumpfpfprozess nach der Breitwarenbehandlung stabilisiert die Ware und verändert die Form beim Waschen der Fertigteile fast nicht. - Pre-Shrunk ist der Gegenzug auf Shrink to Fit-

Alternative Griffbeeinflussung durch Waschen oder Enzym-Behandlung

Der einfachste Weg den Griff bereits an der Breitware zu verändern ist der nach dem Sengen durchgeführte bereits seit langem bekannte Mill-Wash-Prozess. Mit Mill-Wash werden wasserlösliche Schichten aus der Ware mittels eines Waschprozesses entfernt. Bei schusselastischem Denim mit Elasthan-Anteil entfaltet sich zusätzlich ein Schrumpfpotential, das bis zu 33% Breiteneinsprung betragen kann. Eine nachfolgende Fixierung stabilisiert dann wieder die gewünschte Breite.

Wasserunlösliche Schichten können enzymatisch abgebaut werden. Hierzu sind der Praxis verschiedene Verfahren bekannt:

- a) diskontinuierlich Jigger und Haspelkufe (1 Stunde Verweilzeit)
Verweilverfahren (6 - 12 Stunden Verweilzeit)
- b) kontinuierlich Kontinueverfahren (3 - 5 Minuten 100% Sattedampf)

Alternativ bietet Monforts hierzu einen anderen enzymatischer Entschlichtungs-Prozess an.

Anlage: Foulard, Hotflue mit Econrol-Zubehör und Waschmaschine. Die gesengte Breitware wird mit folgender Rezeptur foulardiert:

- 5 ml / l Forylase AT
- 8 ml / l Cottoclarin BLN
- 2 ml / l Securon C

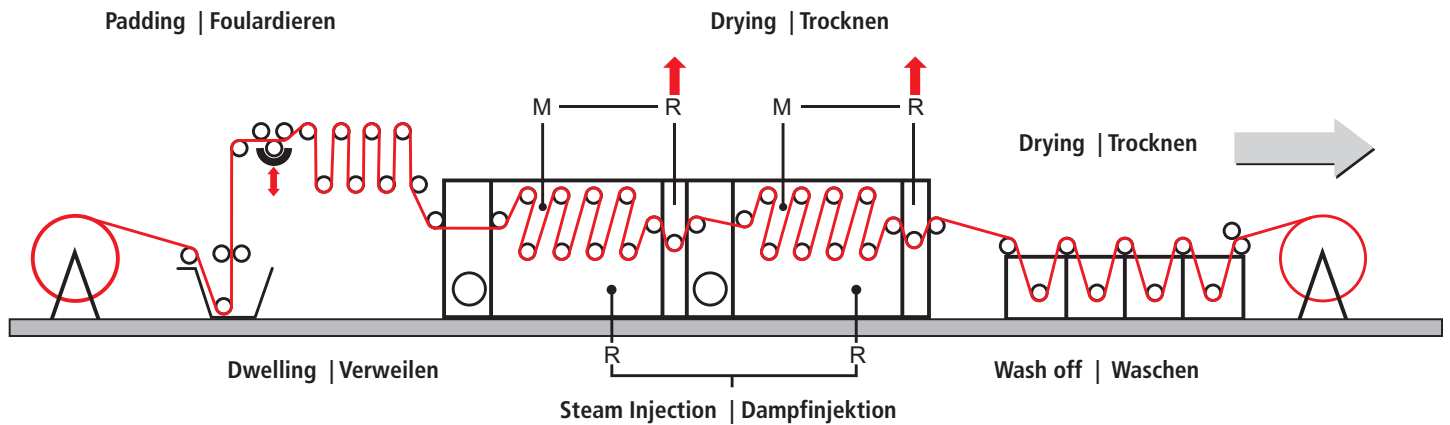


Figure 1

Forylase AT is a bacterial amylase for enzymatic desizing, **Cottoclarin BLN** is a highly effective wetting agent, and **Securon C** is a complexing agent with extracting properties. (These products were provided by Pulcra for the development of the process.)

The padded fabric is dried in the hotflue.

Drying conditions: Temperature 130°C
 Steam in the circulating air 25% v/v
 Drying intensity controlled for 3-5 minutes drying time.

As long as the fabric is damp during drying, a cooling limit temperature of 68°C is established on the fabric with 25% v/v steam in the circulating air. Warm and damp, those are ideal conditions for the bacteria.

Figure 1 shows the range layout

Figure 2 Shows the effectiveness in % in relationship to the temperature in °C. The fabric is subsequently washed, dried, padded or finished wet-in-wet, stretched, skewed, dried and compressively shrunk.

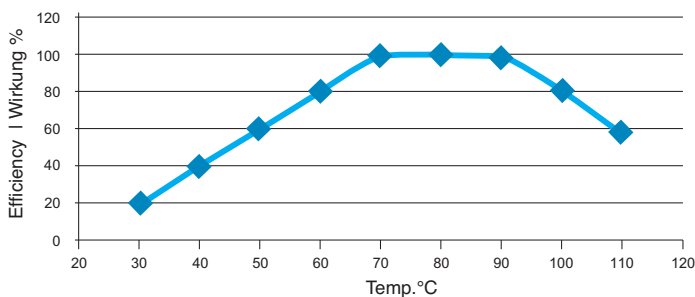


Figure 2 Abb. 2

Source/Quelle: Pulcra

Figure 3 shows a complete range

After the processes, the finished open-wide fabric had a finished width of 150 cm and after washing a residual shrinkage of -1% in warp direction and -1% in weft direction.

The fabric handle was very soft.

Alternative influencing of the handle by mercerising effects

Mercerising finishes open-wide denim fabric into a top product. The fabric is given a silky gloss, an elegant appearance and a very nice handle. Mercerising ranges with prewetting vat, mercerising and stabilising section are in widespread use in practice today as roller-type or chain-type mercerising ranges.

Monforts offers an alternative method for achieving good mercerising effects on open-wide denim fabric. All that is needed here is a padder, hotflue and washing machine.

Abb. 1

Forylase AT ist eine Bakterienamylase für die enzymatische Entschlichtung, **Cottoclarin BLN** ist ein hochwirksames Netzmittel und **Securon C** ist ein Komplexbildner mit extrahierenden Eigenschaften. (Diese Produkte wurden zur Entwicklung des Verfahrens von Pulcra zur Verfügung gestellt.)

Die foulardierte Ware wird in der Hotflue getrocknet.

Trocknungsbedingungen: Temperatur 130 °C
 Dampf in der Umluft 25 Vol %
 Trocknungsintensität geregelt auf 3-5 Minuten Trockenzeit.

Solange die Ware beim Trocknen feucht ist stellt sich bei 25 Vol % Dampf in der Umluft eine Kühlgrenztemperatur von 68 °C auf der Ware ein. Warm und feucht, das sind ideale Bedingungen für die Bakterien.

Abb. 1 zeigt das Anlagenschema

Abb. 2 zeigt die Wirksamkeit in % im Verhältnis zur Temperatur in °C. Die Ware wird anschließend gewaschen, getrocknet foulardiert oder nass in nass gefinished, gereckt, schräggestellt, getrocknet und kompressiv gekrumpft.

Abb.3 zeigt eine Gesamtanlage

Die ausgerüstete Breitware hatte nach den Prozessen eine Fertigbreite von 150 cm und nach dem Waschen einen Restkrupf von -1% in Kett- und -1% in Schussrichtung.

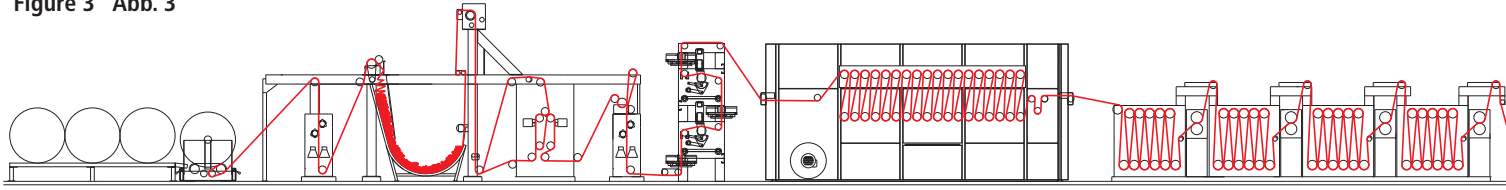
Der Warengriff war sehr weich.

Alternative Griffbeeinflussung durch Mercerisier-Effekte

Mercerisieren veredelt Denim-Breitware zu einem Spitzenprodukt. Die Ware bekommt einen seidigen Glanz, eine edle Optik und einen sehr schönen Griff. Üblich sind heute Mercerisier-Anlagen mit Vornetztrug, Mercerisier- und Stabilisiererteil als Walzen- oder Ketten-Mercerisier-Anlagen in der Praxis im Einsatz.

Monforts bietet zur Erzielung von guten Mercerisier-Effekten auf Denim-Breitware eine alternative Methode an. Benötigt werden hierzu nur Foulard, Hotflue und Waschmaschine.

Figure 3 Abb. 3



The alternative process takes place as follows:

The singed open-wide denim fabric is treated with NaOH 25° Be' on the padder. After a short dwell passage in the air dryer, the fabric is dried on the hotflue.

Drying temperature 140°C. During this process the fabric shrinks in width from 162 cm to 155 cm. After the drying process, the caustic soda lye is washed out. The fabric is then finished dry, or the finishing product can be applied wet-in-wet.

Padder finishing formulation: 20 g/l Belsoft 300
 15 g/l Adalin NI
 20 g/l Adalin SO-N
 2 g/l Cottoclarin BLN

- > **Belsoft 300** is a softener that gives the fabric softness, volume and smoothness.
- > **Adalin NI** is a HD polyethylene-based non-ionic softening agent with smoothing properties.
- > **Adalin SO-N** is a non-ionic softening and shrinking agent.
- > **Cottoclarin BLN** is a highly effective wetting agent.

(These products were provided by Pulcra for the development of the process.)

After padding, the denim fabric is stretched in the width, skewed and dried to approx. 10% residual moisture. With this residual moisture content, the fabric enters the shrinking process.

The fabric data achieved for a 14.5 oz/yd² 100% cotton article are:

- > Width before treatment: 162 cm
- > Width after mercerising: 155 cm
- > Width after drying: 150.5 cm
- > Washing shrinkage upline of Monfortex: -10% in warp direction and 0% in weft direction
- > Washing shrinkage downline of Monfortex: -0.5% in warp direction and 0% in weft direction

The fabric data achieved for a 10 oz/yd² article of cotton with elastane are:

- > Width before treatment: 159 cm
- > Width after treatment and drying: 122 cm
- > Width after fixing process: 128 cm
- > Washing shrinkage upline of the Monfortex: -8% in warp direction and -2.5% in weft direction
- > Washing shrinkage downline of Monfortex: -1.5% in warp direction and -2.5% in weft direction

The articles finished in this way have a very elegant, silky appearance and an outstanding handle and can be produced on ranges such as that shown in Figure 3.

Alternatively the liquor (caustic soda lye) for the mercerising effect can be applied with the Eco Applicator instead of the padder. Less liquor then means less fabric shrinkage, more liquor more fabric shrinkage.

Der alternative Prozessablauf ist wie folgt:

Die gesengte Denim-Breitware wird mittels Foulard mit NaOH 25° Be' versehen. Nach einer kurzen Verweilpassage im Luftgang wird die Ware auf einer Hotflue getrocknet.

Trocken-Temperatur 140 °C. Bei diesem Prozess krumpft die Ware in der Breite von 162 cm auf 155 cm. Nach dem Trockenprozess wird die Natronlauge ausgewaschen. Die dann getrocknete Ware wird gefinished, der Finish-Produkt-Auftrag kann auch naß in naß durchgeführt werden.

Foulard-Finish-Rezeptur: 20 g/l Belsoft 300
 15 g/l Adalin NI
 20 g/l Adalin SO-N
 2 g/l Cottoclarin BLN

- > **Belsoft 300** ist ein Weichmacher der Weichheit, Fülle und Geschmeidigkeit verleiht.
- > **Adalin NI** ist ein nichtionisches Weichmachungsmittel auf Basis eines HD-Polyethylens mit glättenden Eigenschaften.
- > **Adalin SO-N** ist ein nichtionisches, weichmachendes Krumpfhilfsmittel.
- > **Cottoclarin BLN** ist ein hochwirksames Netzmittel.

(Diese Produkte wurden zur Entwicklung des Verfahrens von Pulcra zur Verfügung gestellt.)

Die so foulardierte Denim-Ware wird auf Breite gereckt, schräggestellt und auf ca. 10% Restfeuchte getrocknet. Mit dieser Restfeuchte wird die Ware dem Krumpfpzess zugeführt.

Die erzielten Warendaten für einen 14,5 oz / yd² 100% Baumwollartikel sind:

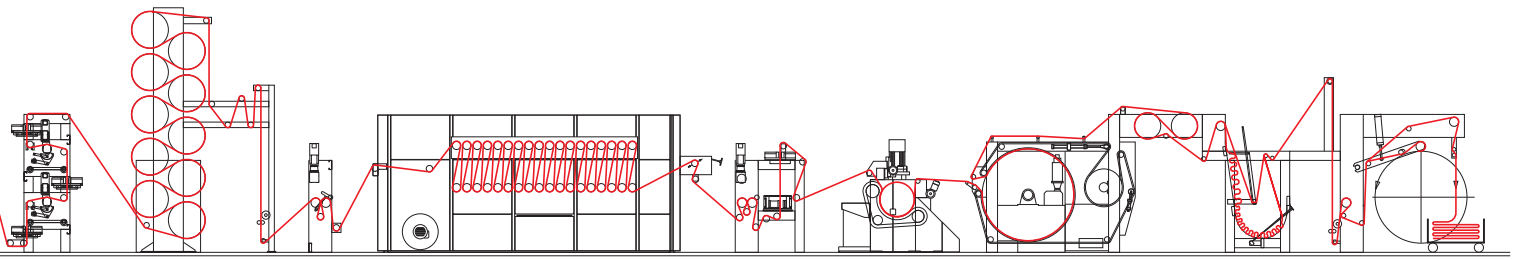
- > Breite vor der Behandlung : 162 cm
- > Breite nach der Mercerisierung: 155 cm
- > Breite nach dem Trocknen : 150,5 cm
- > Waschkrumpf vor Monfortex: -10 % in Kettrichtung und 0% in Schussrichtung
- > Waschkrumpf nach Monfortex: -0,5 % in Kettrichtung und 0% in Schussrichtung

Die erzielten Warendaten für einen 10 oz / yd² Artikel aus Baumwolle mit Elasthan sind:

- > Breite vor der Behandlung: 159 cm
- > Breite nach Behandlung und Trocknung: 122 cm
- > Breite nach Fixierprozess: 128 cm
- > Waschkrumpf vor Monfortex: -8 % in Kettrichtung und -2,5 % in Schussrichtung
- > Waschkrumpf nach Monfortex: -1,5 % in Kettrichtung und -2,5 % in Schussrichtung

Die so ausgerüsteten Artikel haben ein sehr elegantes seidiges Aussehen und einen hervorragenden Griff und sind auf Anlagen wie in Abb. 3 dargestellt zu erreichen.

Alternativ könnte der Flottenauftrag (Natronlauge)für den Mercerisierereffekt statt Foulard auch mit dem Eco Applicator aufgetragen werden. Wenig Flotte heißt dann geringer Waren-Einsprung, mehr Flotte heißt dann auch mehr Waren-Einsprung.



Changing of the blue fabric side in appearance and handle

During garment washing, the jeans blue is frequently brightened. These articles are intended to look older and more worn in order to reduce the treatment time, process energy and the use of chemicals for the garment washer or garment finisher, a "preliminary brightening step" can be carried out during the treatment of the open-wide fabric.

Possibilities for brightening the blue side:

Padder or Eco Applicator, hotflue and washing machine are again used here.

Depending on the desired effect, the fabric is padded with:

- > 5 - 10 g/l KMnO_4
- > 3 g/l Cottoclarin BLN
- > 5 ml/l CH_3COOH 60%

and then dried on a hotflue at 130°C drying temperature and 25% v/v steam in the circulating area with controlled nozzle pressure with 3 minutes reaction time. Potassium permanganate destroys the indigo dyestuff and brightens the fabric.

Then the fabric is washed out with:

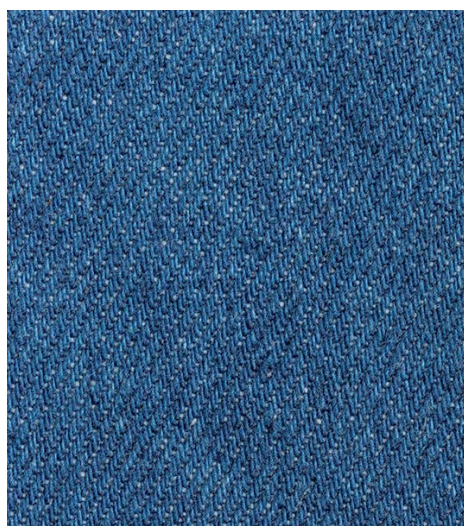
- > 3 g/l sodium sulphide (3rd washing compartment)
- > 1 ml/l H_2O_2 35% (5th washing compartment)

dried, finished, stretched, skewed and compressively shrunk.

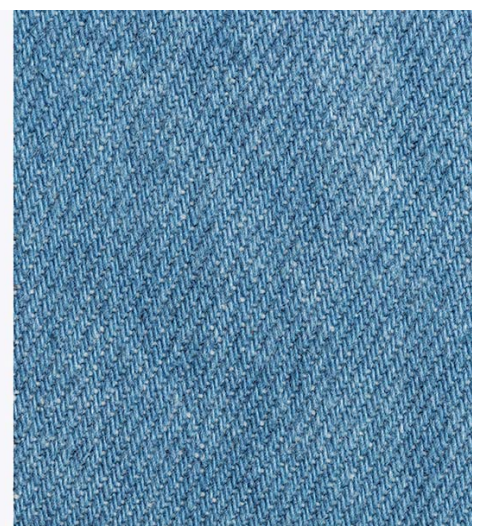
Figure 4 shows the results achieved



untreated fabric Ausgangsware



5 g/l KMnO_4



5 g/l KMnO_4

The result is a brightened denim article with soft handle.

These processes offer open-wide denim fabric finishers and the garment finishers possibilities of using alternative finishing methods to add variety to denim products in an ecological and economical manner, because as MOSCHINO says

"Fashion in our century would be meaningless without jeans"

Veränderung der blauen Wareseite in Optik und Griff

Bei der Garmentwäsche wird häufig das Jeans-Blau aufgehellt. Solche Artikel sollen älter und abgenutzt aussehen. Um dem Garmentwäscher bzw. dem Garmentveredler Behandlungszeit, Prozess-Energie und den Einsatz von Chemikalien zu reduzieren, bietet sich eine „aufhellende Vorstufe“ schon bei der Breitwaren-Behandlung an.

Möglichkeit zur Aufhellung der blauen Seite:

Als Anlage kommen hier wieder Foulard oder Eco Applicator, Hotflue und Waschmaschine zum Einsatz.

Je nach gewünschtem Effekt wird die Ware mit:

- > 5 - 10 g/l KMnO_4
- > 3 g/l Cottoclarin BLN
- > 5 ml/l CH_3COOH 60%

foulardiert, auf einer Hotflue bei 130 °C Trockentemperatur und 25 Vol % Dampf in der Umluft mit geregelterm Düsendruck bei 3 Minuten Reaktionszeit getrocknet. Kaliumpermanganat zerstört den Indigo-Farbstoff und hellt die Ware auf.

Hiernach wird mit:

- > 3 g/l Natriumsulfid (3. Waschabteil)
- > 1 ml/l H_2O_2 35 % (5. Waschabteil)

die Ware ausgewaschen, getrocknet, gefinished, gereckt, schräggestellt und kompressiv gekrumpft.

Abb. 4 zeigt die erzielten Ergebnisse

Das Ergebnis ist ein aufgehellter Denim-Artikel mit weichem Griff.

Mit diesen Verfahren werden den Denim-Breitwaren-Veredlern und den Garmentveredlern Möglichkeiten aufgezeigt mit alternativen Ausrüstungs-Methoden auf ökologische und ökonomische Weise Denim-Vielfältig weiter zu erreichen, denn wie sagt MOSCHINO

„Mode in unserem Jahrhundert wäre bedeutungslos ohne Jeans“

Competence in Denim Finishing



THINKING AHEAD
FOR SUSTAINABLE SOLUTIONS



► Proven success.

The Monforts range combinations for denim finishing are now even more cost-efficient and eco-friendly: The Monforts ECO Applicator is now used for liquor application.

Drying, stretching and skewing functions for the denim fabric are performed by a modified Thermex-Thermo-Stretch unit. This configuration allows fabric speeds of up to 40 m/min to be achieved with 14.5 oz/yd² denim on the "single rubber" version.

The "double rubber" version comprises two compressive shrinkage units and two felt calenders in line. Together with the innovative Thermex stretching unit, fabric speeds of up to 80 m/min can thus be achieved with 14.5 oz/yd² denim.

On both range versions, the denim fabric is stretched and skewed far more gently than with conventional range combinations. Ask our denim technologists.

We will be happy to advise you.

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