monforts

world of denim

MONFORTS ATC

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Dyeing & Finishing

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the possibility of carrying out extensive fabric trials
under real production conditions.
For absolute reliability in the finishing result
and tailored machine engineering.

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- Training of operators and service personnel

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- II. Finishing of knitted fabrics
- III. Finishing of woven fabrics
- IV. Finishing of Technical Textiles

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GERMAN Technology

BLUECOMPETENCE Alliance Member

VDMA

Denim forever

The popularity for fashion denim continues to grow as proven by the recent Denim by PV show in Barcelona; with record exhibitors and attendees.

The show also highlighted trends in new denim fabrics and production techniques as producers strive to stay ahead of the competition.

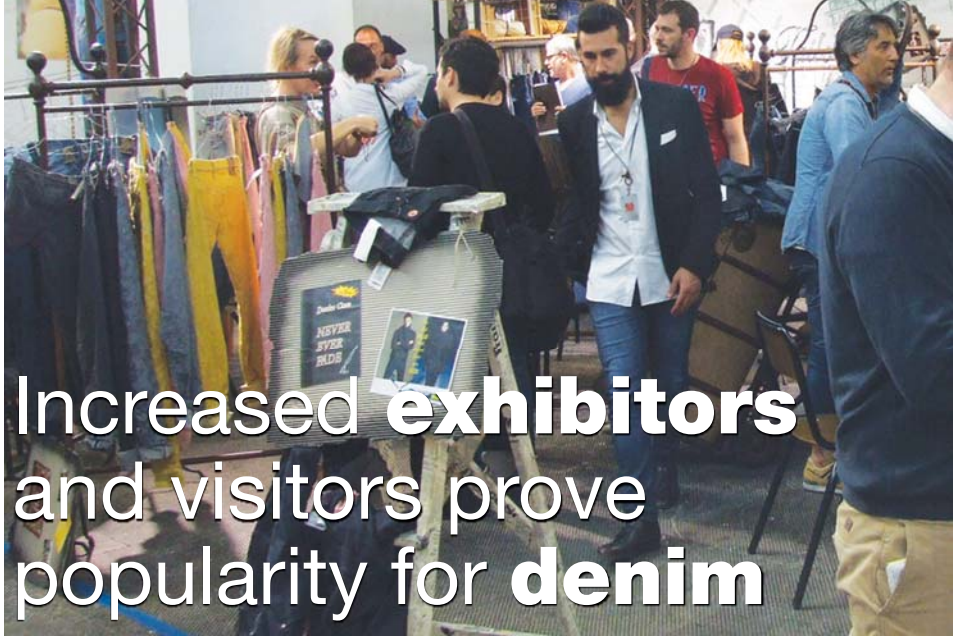
From new fibres, such as UHMwPE - one of the world's strongest fibres; 15 times stronger than steel but lighter than water - to fabrics initially developed by NASA for astronauts.

From fabrics made from domestically resourced plastic bottles and packaging, including ketchup bottles to far infrared radiation (FIR) technology.

All place additional demands on finishing techniques during production; recognised by many producers exhibiting at the show who enjoy the benefits of Monforts denim finishing lines and highlighted in this magazine.

To continue helping denim producers maximise their quality, efficiency and profitability, Monforts remain committed to ensuring energy cost savings and new finishing solutions.

Roland Hampel,
Managing Director



Increased **exhibitors** and visitors prove popularity for **denim**

The Denim by Premier Vision show's debut in Barcelona proved highly successful for the organisers and exhibitors alike attracting 100 exhibitors and record attendance; both up on last year's show in Paris.

With almost half the exhibitors representing global weavers and 23% denim producers and finishers, Monforts was equally well represented with almost 20 exhibitors relying on Monforts sanforising and finishing equipment in its production facilities - including Artistic Fabric Mill, Arvind, Berto, Bossa, Calik, Cone Denim, Crescent Bahuman, Kipas, Orta Andadolu, Soorty, Tavex and UCO Raymond.

Record visitors were able to see premium fashion-brand specialists and luxury names for cutting-edge products introducing new technologies and techniques for denim wear.

From Calik Denim, for example, a range using fibres initially developed for NASA to protect astronauts from extreme heat fluctuations.

And a new range featuring UHMwPE - one of the world's strongest fibres - 15 times stronger than steel, lighter than water and extremely durable.

Tavex introduced far-infrared radiation (FIR) technology, claimed to combat cellulite and to firm, tone and soften skin. Already popular with sports brands it is being introduced to the denim market.

From the USA's Cone Denim a range of denim featuring recycled plastic bottles and packaging such as Ketchup Red and Mustard Yellow.

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

Artistic Fabric Mills
Artistic Milliners
Arvind
Berto
Bossa
Çalik Denim
Cone Denim
Crescent Bahuman
iSKO
Kipas
Matesa Denim
Orta Anadolu
Santanense
Soorty Enterprises
Tavex
UCO Raymond

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BOSSA DENIM

Bossa presses the re-set button

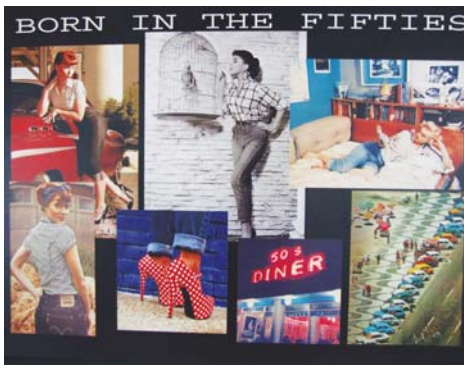
Bossa highlights the importance of 'the three Rs' - reduce, reuse and re-cycle - in its Re-Set denim collection.

The company places a strong emphasis on the development of environmentally-friendly denim concepts. It now has its own denim recycling plant in which waste nil fabrics are shredded back into fibres and spun into new yarns.

"In addition to the environmental benefit there is also a product benefit," explained the company's Mrs Birim Atagan.

"There is already some colour in the new yarns before they go through the rope dyeing machine, so the final result is a yarn with a very rich and intense colour, as well as a nice, slubby character."

> "In addition to the environmental benefit there is also a product benefit"
>
> **Mrs Birim Atagan.**



Bossa is employing 30% of these yarns with 70% virgin yarns in the warps of various denim collections and also works with organic and GMO-free cotton, as well as other fibres.

These include Tencel, the natural cellulosic fibre featured in its Shades of Blue collection showcased along with the new Born in the Fifties range.

Located in Adana, Turkey, Bossa manufactures some 66 million metres of fabric annually.

SANTANENSE

All eyes on **Brazil**

The vibrancy and vivid colours of Brazil have been showcased throughout the 2014 FIFA World Cup football tournament and are reflected in the latest denim collections of Tecidos Santanese - one of the biggest producers of textiles in Latin America.

"The differential at Santanense is the advanced finishing technology," observed Export Manager, Mrs Michele Gallo. "It greatly increases the productivity, quality, and versatility of the company's processes and products."

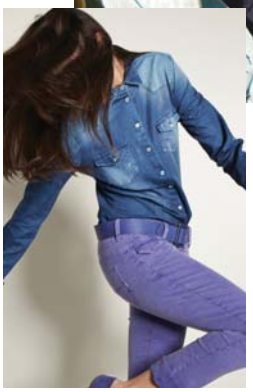
Founded in 1891, the company's business is in workwear, sportswear and denim.

Santanense currently has three plants in Brazil's Minas Gerais State and one in Blumenau, Santa Catarina State, all with their own weaving and spinning operations.

The plant in Itaúna also specialises in finishing including dyeing and/or printing, flame retardant, anti-static, anti-bacterial, anti-infra-red and other special treatments.

"The highly effective, protective finishes available from Santanense are just one of the results of the company's extensive research, expertise and experience in the industry," said Mrs Gallo.

"The company's technological research analyses not only specific treatments for textiles, but also the best fibres and fabric compositions, as well as the most up to date technology available."



While research and development represent a significant portion of the company's expenditure, Santanense's largest investment is in technology.

In recent years the Brazilian textiles industry has been affected by low-cost imports from China and Pakistan.

Continued investment in technology, service and all-round quality has been the combat strategy of Santanense, leading to the introduction of more customised, specialist textiles and a broader product range of market niches.

Inspiration from **Italy**

Berto SpA is taking Italian flair and German finishing machinery innovation to a whole new level with its latest Never Fade solid indigo denims which are guaranteed to retain their colour for their lifetime.

The company, headquartered in the beautiful village of Bovolenta, in Padua, Italy, was the first in the country to install a Monforts stenter line with an integrated Eco Applicator, with which it has developed a wide range of new coating and colouring concepts.

At the recent Denim by PV in Barcelona, Berto showcased its Grace Kelly and Romance printed denims and the Karma Glove range of coated stretch fabrics in vivid, full colours, in addition to the groundbreaking Never Fade jeans.

A strategy of continuous investment has been a key to Berto's success - it began spinning its own open end yarns and adding ring spinning in 2004.

As denim output intensified, the company installed an indigo dyeing plant and later, as part of a major modernisation and expansion programme, took delivery of the Monforts eight-chamber Montex stenter with the Eco Applicator installed in-line.

"This has enabled us to increase even further the wide range of differentiated fabrics - primarily denims - we are manufacturing each season," says Finishing Manager, Sebastiano Antico. "The sensor-controlled Eco Applicator unit is a very efficient method of applying dyes and coatings via a sophisticated roller system."

"The reliability and accuracy of the Monforts line is excellent," he adds. "Since we installed it, the percentage of fabrics we've had to re-work has decreased substantially. It also allowed us to considerably expand the range of special materials we offer, including resin treated and polymerized fabrics. Our latest Never Fade solid indigo denims have been a real success and rely on both a special dyeing technique and the precision finishing made possible by the Eco Applicator."

The Monforts Eco Applicator unit allows the very precise application of treatments for new functionality on just one side of the material, or on both, and can also apply separate treatments on each side. The sensors automatically adjust the moisture application rollers to the speed of the fabric and can move with or against the line, depending on the desired objective.

Not only is this resulting in a wide range of new treatments and effects being achieved by skilled specialists at Berto, it's also leading to big savings, as a result of the amount of reduced drying energy for the fabric being used.

As a supplier of denim to the leading European designer brands - including Armani, Dolce & Gabbana and Valentino in Italy alone - Berto has been quick to exploit the potential of this new technology.

> "Eco Applicator technology has enabled us to increase even further the wide range of mainly denim fabrics we are manufacturing each season."
>
> **Marilù Tosato, Berto**

ÇALIK DENIM

It's all in the **science...**

The Denim Science range of performance denim fabrics launched by Çalik Denim comprises ten items featuring functional fabrics in rigid, stretch and superstretch variants and in various shades of indigo and black.

Advanced fibres characterise the range, providing performance properties such as thermal regulation, durability, abrasion resistance and a combination of good moisture management and a natural feel.

These include Outlast, which Çalik R&D manager Ibrahim Buyukpepe explained was initially developed for NASA to protect astronauts from extreme heat fluctuations.

"We are one of the first denim manufacturers to employ this technology," he said.

UHMwPE, meanwhile, is one of the world's strongest fibres - 15 times stronger than steel, lighter than water and extremely durable. While protecting against cuts, abrasions, tears, punctures and slashes, it is lightweight, thin and flexible and also highly heat-conductive.

A third fibre being employed by Çalik is Mitsubishi Rayon's Miyabi, which creates fabrics that are soft, smooth and comfortable to wear, with superior anti-pilling properties.

CRESCENT BAHUMAN

Creating an ecological future

Employing more than 6,000 people at its plant in Lahore, Pakistan, Crescent Bahuman Limited (CBL) is building a reputation not only for its lead in denim manufacturing, but also its commitment to the environment and the welfare of its workforce.

Located in the heart of the Punjab on a 250 plus acre site, the company's vertically-integrated manufacturing plant is equipped with its own power and effluent treatment systems to ensure both security of supply and the highest ecological standards.

In addition, there is an attractive, open plan housing estate for both workers and guests plus a school for the children of employees.

CBL introduced its Silver range of two-colour denims which Vice-President of R&D, Idrish Minshi, confirmed had proved extremely popular to buyers, who are always looking for new eye-catching denim effects.

Crescent has an extensive catalogue of shades for denim in the weight range of 8 oz/yd^2 to over 16 oz/yd^2.

"We rely on the latest equipment to finish approximately sixteen million metres of denim fabric annually, in regular, mill wash and mercerised finishes as well as various resin treatments and pigment coating applications," he added.

Further finishing is also carried out on the 8 million pairs of jeans the company makes up in-house, including whiskering, ageing and resination, plus laser and ozone treatments.

CBL is a supplier to many of the leading European and US brands, including Levi Strauss.

The company has also been involved in pioneering and developing the strongest 14 oz denim fabric using HMPE fibres intimately blended with cotton to ensure wear resistance - which is surpassing expectations.

CBL has also been involved in pioneering an abrasion (stonewash) system using no water and no stones to achieve the contrasting high-lows on the seams together with the 'crackle and speckle' on the surface to provide a true authentic, worn-in vintage look.

This process is soon to be used in production, saving millions of litres of water a week as well as energy; producing a more sustainable and greener garment.

MATESA DENIM

Pushing the boundaries…

'Stopper Effect' is the name of the latest denim collection from Matesa Denim - as 'these jeans look so good they'll stop you dead in your tracks!'

Other new products were described by a spokesman as 'pushing the boundaries.' It's 'Feather soft' range, for example, is produced using fabrics containing luxurious fibres such as Modal, Tencel and Cupro offering extra softness and 'hand feel', and Lurex.

Modal is shiny and soft offering excellent 'feel' and when mixed with Tencel provides further enhanced softening.

The 'Glitterer' range features metallic coatings and yarns as an alternative to the 'shiny techno' fabrics.

'New age aggression' involves heavy ounce fabrics with special finishing treatment.

The new 'Cord denim' has a very special 'look'.

Together with the properties of Cupro and Lurex it ensures a very special denim perfect for ladies fashion wear.

Matesa Textiles, headquartered close to Kahramanmaraş in Turkey, is one of the country's biggest textile companies with eight yarn manufacturing plants and those for weaving, knitting and dyeing and finishing.

Matesa Denim is the youngster of the group, established in 2006 with a vertically-integrated plant equipped with the very latest European production machines, including Monforts stentering and finishing equipment.

Annual capacity is 1.8 million metres of denim per month.

ORTA ANADOLU

Looking to the past...and the **future**

Turkey's Orta Anadolu teamed up with the London, UK-based retro clothing specialists, The Vintage Showroom, to highlight what some of the classic denim styles from the past would be like with its advanced 2014 denim fabrics.

These were combined with original antique clothing to illustrate the positive changes in denim technology that have taken place over the decades.

A second component to Orta's display employed Yoga-positioned mannequins to showcase the full benefits of the company's Body Science range, which is all about improvements in both functional performance, comfort and aesthetics.

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

But Orta also has a strong commitment to social responsibility and five years ago founded its Orta Blu division to promote efforts in resource management and conservation and to promote upcycling and recycling.It aims to show how even small changes can make a difference.

Recently, Orta Blu and Mavi Jeans collaborated with the Ecological Reserarch Society (EKAD NGO) to assist in conservation efforts to save two 110 million year old sea turtle species which have become endangered.

Orta Blu supports this worthwhile cause by supplying camping materials for EKAD. Mavi Jeans meanwhile sells T-shirts under the theme 'Indigo Turtles.'

Any sold T-shirt ensures the life of ten baby turtles.

The project aims to maintain the lives of 15,000 baby sea turtles by adopting 400 nesting grounds.

Another Orta Blu project is working to resurrect the hand-woven textile traditions of Buldan - a small village of 15,000 people built on a hill side in the inner Aegean region of Turkey.

The town's textile heritage dates back to the 13th century and by the end of the 19th century, there were over 1,500 looms accounting for the largest textile production of its time.

With the advent of modern textile machine manufacturing, Buldan's capacity has shrunk down to a few looms that cater mostly to the local shops.

Orta Blu aims to revive the local traditional weaving craft by increasing the amount of looms, providing better salaries for the weavers and, above all, create a more viable business model so that the weavers and their products will be able to take advantage of a more global system of sales and distribution.

The **healthy** denim option

Hospitals and doctors commonly use infrared light as a therapeutic treatment for conditions ranging from high blood pressure and congestive heart failure to muscle tears and rheumatoid arthritis.

Further exploiting the benefits of infrared energy has become one of the latest trends in sportswear, based on fibres and yarns with a combination of minerals added at the extrusion stage.

The optically-responsive minerals embedded within the fibres and turned into garments allow the heat and infrared radiation, emitted by the human body, to be captured and re-emitted back in the form of far-infrared (FIR) radiation.

This results in a host of benefits including increased circulation and oxygenation, in addition to an increase in the wearer's rate of recovery from injuries, wounds and exercise. Infrared exposure increases the respiratory metabolism of exposed cells.

FIR is also said to combat cellulite and to firm, tone and soften the skin and it has certainly found favour with the sports brands and the major players featuring it in 2014 include Adidas, Asics, Head, New Balance and Puma.

Now the same technology is being introduced to the denim market by Tavex - one of the world's largest manufacturers of denim with an annual capacity of over 150 million metres and plants in Spain, Brazil, Mexico, Morocco and Argentina. Tavex showcased its Denim Therapy® by Tavex collection based on the concept of wellness. Smart fabrics that incorporate high performance treatments which bring beneficial effects to the body.

Energizing is the first denim integrating Gold Reflect Line technology®, a bioceramic complex created by combining 30 metal oxides that provide a series of physiological benefits. The bioceramic complex absorbs the infrared light produced by the sun and recovers the energy produced by the body.

"This technology has previously been applied to high-end technical garments but Tavex has met the challenge of introducing it to denim, transferring all of its benefits to everyday clothes," said David Bardin, Director of Marketing Europe for Tavex.

Svelt is one of the more successful launches inside this collection. A denim fabric that includes cosmetic properties which improve orange peel skin by firming, toning and softening. It helps combat the localised build-up of fat, gradually moulding and sculpting the figure through continuous use.

"It operates by natural cosmetic principles which, in contact with the skin, gradually release all their properties in a uniform and constant manner."

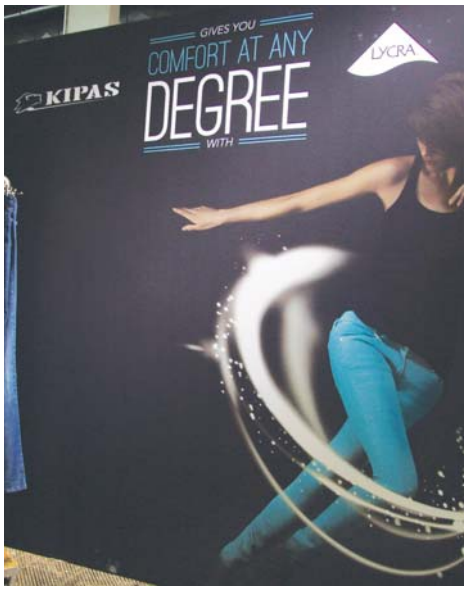
Also on show were the company's latest Absolute Fit® denim fabric which are characterised by more than 60% elasticity, the perfect 24 hours jeans.

KIPAS DENIM

An **invisible** presence

A new finish for denim called Phantom was introduced to the market by Kipas, based in Kahramanmaraş, Turkey.

Phantom provides a polyamide-silicone stretch handle to denim without affecting the shade of the material in any way, explained R&D Manager Alberto Rimoldi.



"The treatment is highly stretchable, so it doesn't break while applying further wash treatments," he said, adding, "It's a transparent formula and guarantees high washing down resistance with a gradual washing off performance."

"It makes it possible to obtain real 3D effects with subsequent processing such as scrapings, chemical sprays and stone washes and to secure high contrast without losing the characteristics of a clear twill with dark shades around the stitching areas."

Phantom can be applied on denim dyed with indigo, sulphur or other dyes without limitation. Plus it is generally conferring high colour fastness together with wet and dry crocking improvements.

Kipas is also now employing Tencel fibre to bring an entirely new feel to its denim fabrics allowing new levels of comfort and eco-friendliness to be achieved in denim jeans.

"Tencel is a cellulosic fibre with supreme credentials," Mr Rimoldi explained. "It's made using a unique closed loop solvent spinning process in which almost all of the solvent used is recycled. It is a highly breathable fibre and denims made from it are incredibly comfortable and shiny."

Kipas Group has been producing yarn for the denim industry for over 20 years and now has a daily production capacity of 75,000 metres.

Its plant is equipped with the latest technically advanced machinery including, naturally, Monforts stentering and additional finishing equipment.

iSKO

Backing up the **Bluemasters**

Most consumers don't really care where their favourite brands source their denim. iSKO, headquartered in Bursa, Turkey, wants this to change.

'The Bluemasters' is the name of the book launched by the company in New York earlier in 2014 celebrating the work of the top denim jeans designers over the past half century.

iSKO's fabrics are aimed squarely at the premium brand market in which they currently enjoy a 35% share.

The company points out that, just as all jeans aren't created the same, all

denim fabric is not made the same - the quality of denim produced by a supplier has a significant impact on the final product.

"We liken ourselves to a brand such as Gore-tex," says Marketing Director Marco Lucietti.

"Just as they mark a standard for membranes, we represent the quality endorsement for denim. A denim designer - or Bluemaster - delves into the fine details of construction when creating a garment. iSKO teams journey just as deeply into the textile design and finishing processes."

This seasons new products include 'Slow fade' - created using a 100% indigo which resists fading during washes thanks to an exclusive dye processing technique which fixes the indigo to the cotton.

'Hi Shine' is introduced as an alternative to leather providing a sophisticated and luxurious sheen. Designed as a unisex coating and fabric concept it features a hi-shine and very wearable 'soft hand.'

With numerous other new products released each season, iSKO 's claims are reinforced by its partnerships with Diesel, Hugo Boss, Sisley, Aeronautica Militare, Habitual and Citizens of Humanity and many other upmarket brands.

And naturally, Monforts finishing equipment is a must for this company.

UCO RAYMOND

A **pioneer** since 'Mule Jenny'

'Comfort at Any Degree' is the pledge from UCO Raymond, which has partnered with Lycra to develop its latest range of high-stretch, comfort denim jeans.

The history of Belgium's Uco dates right back to 1789 when Lieven Bauwens imported an early 'Mule Jenny' mechanical weaving loom from England to Ghent - paving the way for a century of growth for the company.

By 1989 it had become three separate companies - UCO Yarns, UCO LDC and UCO Sportswear.

Over the last fifteen years it established an international presence before merging with Raymond of India in 2006; creating a global denim powerhouse, Raymond UCO Denim; with a combined annual capacity of 46 million metres.

The company has pioneered the development of denim ever since jeans were first introduced to Europe from the USA in the 1960's.

Among notable landmarks, it introduced a new process for indigo dyeing in collaboration with BASF back in 1970 and started the production of heavy weight denims four years later.

More recently it was early in pioneering the use of stretch denim and colour and introduced both PU coated yarns and 3D fabrics to this market.

SOORTY ENTERPRISES

Right product, right **time**

As one of the fastest-growing denim manufacturers in Asia, Soorty Enterprises, based in Karachi, Pakistan, is constantly looking to introduce products to the market, including the latest ranges such as Street Fighters, 360, Denim VIP and X-Fit.

"Our vision is to bring the right product to the market at the right time - to be proactive, ever-evolving, innovative and product development leaders," says Director Nargis Soorty.

"We are ready to experiment with anything new. We work with different kinds of slubs and fibres such as Modal, viscose and wool and weave with techniques that add value and uniqueness to our products."

"Coupled with our European laundry and garment expertise, this gives us the extra edge when it comes to new developments."

With a monthly output of 3.2 million metres of fabric, the company's customers include C&A, Diesel, Dorothy Perkins, Esprit, Gstar, Inditex Group, Mango, Republic and Tommy Hilfiger.

Soorty Enterprises as a whole employs more than 12,000 people at 12 units across Karachi. Its factories are certified by ISO 9001:2009, BSCI, SA 8000, GOTS, OE 100 and WRAP.

"Our vertical integration helps us achieve precision and we believe those companies who have both garment and spinning units under their own umbrella will be the ones who succeed in the long-term," says Ms Soorty.

"Our research and development teams for the garment and denim divisions also work closely together to create new collections and our washing plant has collaborated with an Italian laundry team of six technicians who have provided two years' worth of extensive training to our employees."

"The plant has been acclaimed by some buyers as the best they have seen in the region."

Soorty is currently exporting around 15 million pairs of jeans each year.

ARTISTIC MILLINERS

Enviable **reputation**

A new state-of-the-art 'green' denim mill has recently been built for Artistic Milliners in the Korangi Industrial Area of Karachi in Pakistan to provide garment washing and stitching techniques. Together with other facilities across Karachi, equipped with the latest European equipment including a Monforts denim finishing line, the company's production has been increased up to 36 million metres annually. Founded in 1949, Artistic Milliners employs some 7,650 people and has built up an enviable reputation for customer satisfaction in respect of product development at source, design support, short lead times, on-time deliveries and warehousing facilities.

ARVIND

Arvind climbing to the **top**

The denim market in India is already estimated to be worth more than US$1 billion and is on course to double in the next few years. Intending to lead the field is manufacturing powerhouse Arvind - which already produces an annual 100 million metres of denim fabric. It is also aiming to move from its mid-segment market to the premium category.

The market is dominated by international brands such as Levi's, Pepe and Wrangler and others such as Mango, Zara and Marks & Spencer have also introduced denim jeans at the entry level to attract first-time consumers.

To help achieve its goals, Arvind has just acquired a 49% stake in the world-famous Calvin Klein brand in India and expects to be able to triple sales of CK jeans in the country in the next few years.

The company has licenced other international brands such as Arrow, Lee, Wrangler and Tommy Hilfiger and sells them through its nationwide retail network. It also owns Megamart, India's largest value retail chain.

Meanwhile, Arvind - which has been a dedicated user of Monforts stentering and finishing equipment throughout its mills for many years - has introduced a number of new products as part of its Autumn/Winter 2015/16 collections.

These include Performance Denim, combining no less than five different yarns in various areas - Invista's Thermolite hollow fibre for insulation, Tough Max multifilaments for strength, Coolmax for high wicking and keeping cool, Lycra Dual FX for stretch and DuPont's cut resistant Kevlar.

Arvind's Neo Denim is produced using a new dyeing method which significantly reduces water consumption yet achieves a saturated dark blue shade. The company is also producing corduroys in a wide number of forest shades and blues made with the Neo dyeing method.

Two methods of fabric construction are employed to produce Arvind Knit Denim jeans, explained Head of Sales and Marketing Rajeev Rana in Barcelona.

"These jeans mould to the body and are extremely comfortable, as are our Boomerang Denim jeans," he added. "These feature a highly stretchable fabric with extra softness and volume and high shape retention properties, so it bounces back into shape every time it's worn."

"The incorporation of special fibres and treatments impart extra suppleness and stretch for skinny jeans, making them highly fashionable."

Rana pointed out that Arvind is part of the Sustainable Apparel Coalition, and as such implements a number of sustainable technologies in various production processes.

These include the use of organic and Better Cotton Initiative cottons and using natural indigos, in addition to the company's latest advanced denim system for water conservation.

Learning from the masters

Pakistan's Artistic Fabric Mills (AFM) consulted with craftsmen who hand dye indigo in the Indus Valley using family techniques passed from generation to generation, for the development of its new Ajrak indigo piece-dyeing process.

Ajrak Technology is named after the indigo dyed and woodblock printed fabrics which were popularised in around the 17th century.

AFM technologists spent time with the remaining indigo hand dyers whose families have mastered the craft and are working hard to keep the trade sustainable.

"Repeatedly dipping the fabrics slowly was something these masters taught us that is crucial to piece dyeing indigo," says AFM Director, Hasan Javed.

"We took this lesson back to our new denim range - that is different from traditional rope dyeing - and cut the speed at which we ran our fabrics.

The shade on our fabric instantly became more vibrant and nuanced."

"We have always been inspired by our roots and from a fashion standpoint this is the perfect time for us to unveil Ajrak Technology."

"There is a lot of design interest in indigo fabrics that have an artisanal, dip dyed look and indigo from our own history proved to be the most inspiring."

The new dyeing technology, he added, produces denim fabrics with distinct layers, rich shades and a lustre that designers often seek but do not easily find.

With a large-scale, fully vertical denim operation based in Karachi, AFM produces around 40 million meters of denim fabric each year for some of the world's leading high street and retail brands.

Condiments with your jeans!

Cone Denim continues to expand the EarthSpun recycled polyester yarn programme as an element of its broader commitment to the development of eco-conscious denim solutions.

Manufactured by neighbouring North Carolina spinner Patrick Yarns, the EarthSpun ranges are made from domestically sourced, post-consumer plastic bottles and packaging. At Denim by PV the company introduced two new variants - Ketchup Red and Mustard Yellow.

Used primarily in the wefts of 75/25 and 65/35 cotton/polyester twills, these yarns impart subtle tints to premium denim surfaces and join Cone's popular Beer-bottle brown, Soda Pop green and X-Ray grey options - the latter made from recycled film from medical offices.

Cone's made-in-America denims are produced at its White Oak mill in Greensboro, North Carolina, where it has operated since 1905.

The company also now has plants in Mexico and China.

The nerve **centre** for c

The Monforts Advanced Technology Centre in Germany draws on all of the know-how of the company in respect of fabric processing, including denim coating, elastane treatments, over-dyeing, creating special denim surface effects and much more. *Textile journalist Adrian Wilson reports.*

At first glance, the two production-scale finishing lines at the €2.5 million Monforts Advanced Technology Centre (ATC) which has just been completed at the company's head office in Mönchengladbach look very similar, yet they're designed with very different markets in mind.

And at the same time, they represent individual manufacturing capabilities which are now solidly in place on two continents - the first line for treating knitted fabrics having been built at the Monforts plant in Zongshan, China, and the second line for treating technical textiles at the St Stephan facility in Austria.

"The ATC allows customers to test their own textiles and technical fabrics on Monforts dyeing and finishing machines under fully confidential, real production conditions," says Vice-President of marketing, Klaus Heinrichs. "Using the results from these trials, we are also able to make recommendations for improving many fabric finishes."

"As a global company, Mönchengladbach remains the nerve-centre for what it's possible to achieve with advanced finishing techniques."

The ATC also houses a Thermex range for the overdyeing of denim and continuous dyeing of woven fabrics, including the Econtrol process, consisting of a padder, infrared pre-dryer, hotflue chamber, cooling zone and winder.

A steam generator for the Econtrol dyeing processes is installed, along with utilities such as the expansive colour kitchen and extensive fabric laboratory testing equipment.

The Monforts ATC offers a wide potential for denim manufacturers to differentiate their products and benefit from Monforts' vast experience in fields ranging from special coating effects, elastane treatments, the over-dyeing of denim fabrics and the creation of entirely new special surface effects.

Knitwear

The finishing line at the ATC is based around a Montex 6500 stenter with vertical chain return and is designed for the state-of-the art finishing of knitwear.

Knitted fabrics, explains ATC manager Fred Vohsdahl, must never be stretched and need to be treated in a relaxed state. As a consequence, the 2.2m wide, four-chamber stenter incorporates a TwinAir nozzle system that ensures the relaxed fabric is kept like an 'air-cushion' in between the upper and lower nozzle system, despite 'bowing'. Exact selvedge control with the minimum pinning in is also extremely important with knitted fabrics.

The line is equipped with the company's Eco Applicator system which eliminates the need for a conventional wet-on-wet padder, instead employing trough and roller techniques to precisely apply the

Left to right: Peter Tolksdorf, Jürgen Hanel and Fred Vohsdahl

denim finishing

Though they look very similar, the two ATC stentering lines are engineered to deal with very different material requirements.

required amount of liquid/coating to the fabric.

This is an extremely flexible unit, allowing coating to be applied on either side of the fabric, or both, and with single or separate finishes. An obvious example would be the application of a soil or water repellent finish on the face fabric and a softener or water absorption finish to the other side of the fabric.

"Compared with a padder system, the initial moisture content of 60% is reduced to 40% using the Eco Applicator, ensuring a reduction in drying times and reduced energy costs," says Fred.

"These are just a couple of the special elements of the line which has been engineered for complete, fingertip control of all working parameters", he adds.

"People often talk of the 'recipe' for setting advanced finishing lines, but for me this word doesn't accurately describe what's being achieved and is more applicable to the dyehouse. We're talking about setting up and controlling all aspects of the line for maximum efficiency and repeatability."

Technical textiles

Jürgen Hanel joined Monforts as the manager of the company's Technical Textiles business three years ago when the ATC was just at the planning stage. He had a number of specific ideas for what the second line dedicated to technical textiles within the ATC should be able to offer.

ATC manager Fred Vohsdahl at the controls of the dedicated Montex 6500 stenter.

Firstly, it had to be capable of processing organic solvents, which can often be volatile.

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

Nevertheless, they do require a highly-controlled and contained environment, and as a consequence, the ATC technical textiles line which incorporates a Montex 8000 four-chamber, horizontal chain stenter, is fitted with an explosion-proof coating application chamber.

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

The coating heads can be knife or roller for dealing with either water or solvent based finishes.

Special features on the finishing line relate to a further advanced function - the ability to treat materials not only at temperatures of up to 300°C, but also to be able to treat the top and bottom faces of certain materials at different temperatures within a single pass through the machine.

Monforts Denim Ranges

A Concept for Denim Finishing Possibilities

by Dipl.-Ing. Kurt van Wersch - Senior Consultant

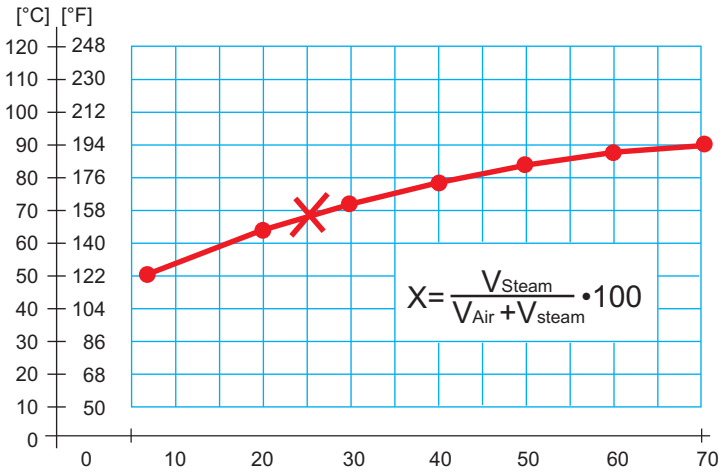
Part 1: Over-dyeing of Denim Grey Fabric with the Econtrol® Process

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 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, coatings and functionalisation are currently the topics of the hour in the denim segment for designers, weavers and finishers. Coloured jeans are the trend, special effects are called for, functionalisation such as various hydrophobic or hydrophilic finishes, flameproofing, etc. are required. Wellness is one of the "new catch words" for special denim finishing.

Monforts will be reporting on these topics in future in the Monforts World of Denim.



[1] The fabric temperature during drying as a function of the steam content in the circulating air

[1] *Warentemperatur beim Trocknen in Abhängigkeit vom Dampfgehalt in der Umluft*

Monforts Denim-Anlagen

Ein Konzept für Denim-Veredlungsmöglichkeiten

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

Teil 1: Überfärben von Denim-Rohware nach dem Econtrol®-Verfahren

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, Beschichtungen und Funktionalisierungen 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, Flammschutzausrüstungen usw, sind erforderlich. Wellness ist unter anderem das „ neue Zauberwort“ für spezielle Denim-Ausrüstungen.

Monforts wird zukünftig mit Beiträgen zu diesen Themen in Monforts World of Denim berichten.

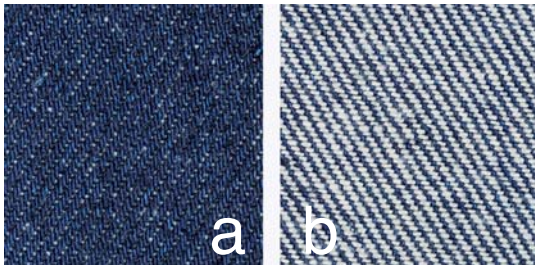
Folgende Beiträge sind unter anderem vorgesehen:

- ***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, Schaumauftragsanlagen,

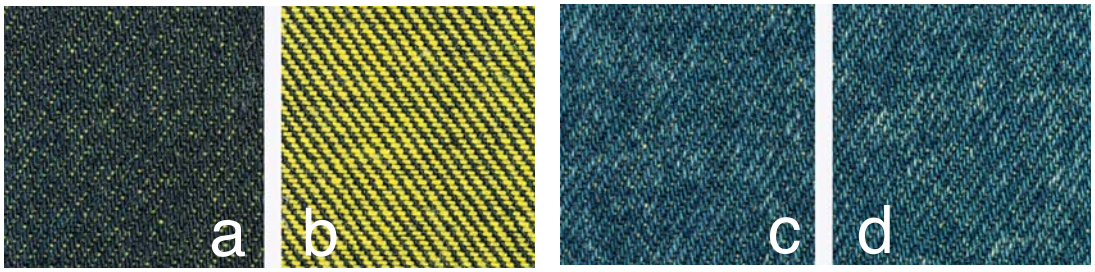
Raw material
Ausgangsmaterial



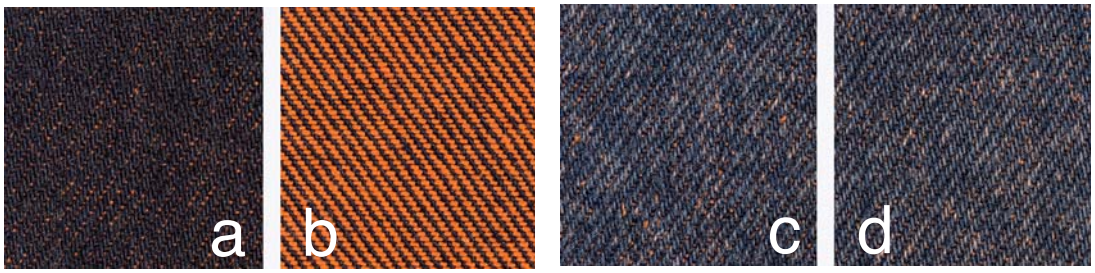
[2] Colour pattern
a) Front side
b) Rear side
c) Front side after stone wash
d) Front side after enzyme wash

[2] *Farbmuster*
a) Vorderseite
b) Rückseite
c) Vorderseite nach Stone-wash
d) Vorderseite nach Enzym-wash

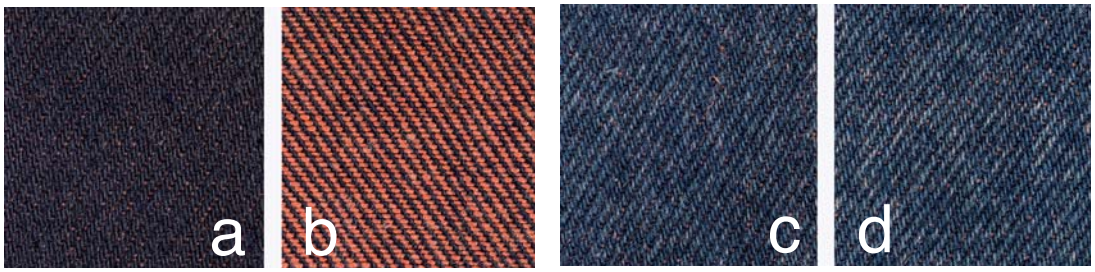
20g/l Levafix Gelb CA
10g/l Soda Ash
5,7ml/l NaOH 50 %



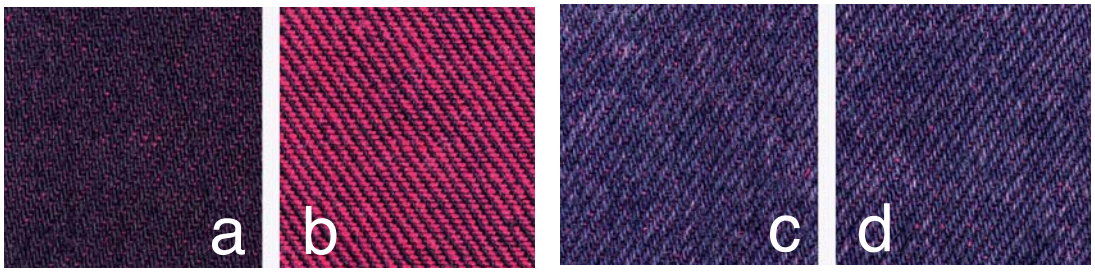
20g/l Levafix Orange CA
10g/l Soda Ash
5,7ml/l NaOH 50 %



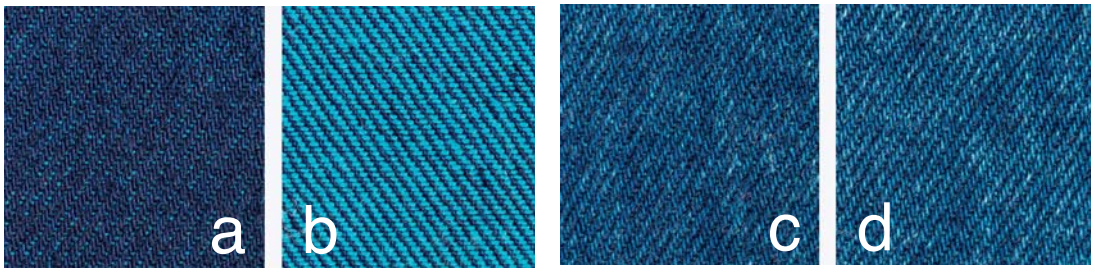
20g/l Levafix Brown E-2R
10g/l Soda Ash
5,7ml/l NaOH 50 %



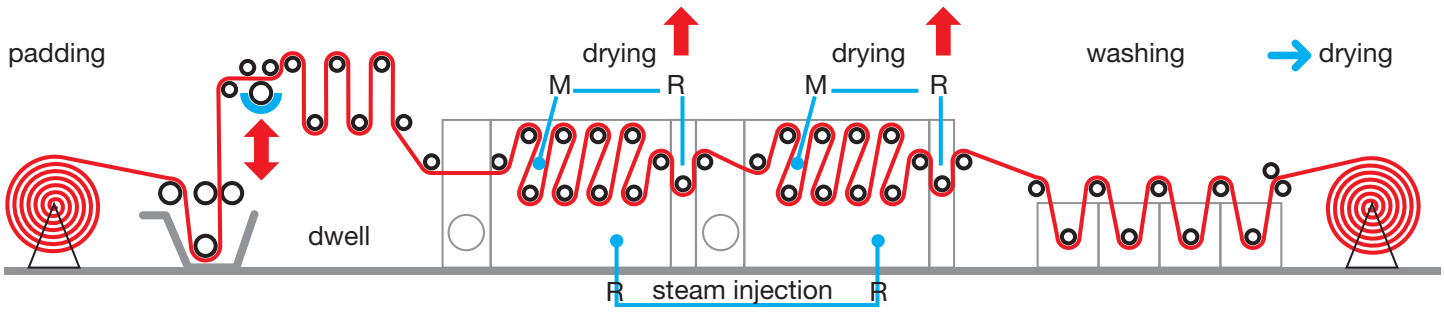
20g/l Levafix Red CA
10g/l Soda Ash
5,7ml/l NaOH 50 %



20g/l Ramazol Turquoise G133
20g/l Soda Ash
7ml/l NaOH 50 %



70g/l Ramazol Black NF
20g/l Soda Ash
14ml/l NaOH 50 %



[3] *Der schematische Ablauf des Prozesses.*

[3] The schematic course of the process.

The following articles i.a. are 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.

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.

This article deals with the ecological and economical over-dyeing of denim grey fabric using the Econtrol® process.

What does the Econtrol® process mean?

The Econtrol® process is a pad-dry process employed in continuous dyeing in which reactive dyestuff is fixed to the cellulose fibres during drying. The fixing medium is a controlled steam/air mixture.

Fixing is performed in the dry temperature range of 110-130 °C and with a steam content in the drying air of 25% v/v within 2 - 3 minutes.

Responsible for the fixing here is the increase in the fabric temperature to 68°C during drying and the 25% v/v steam content in the circulating air. [1]

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.

Dieser Beitrag befasst sich mit dem ökologischen und ökonomischen Überfärben von Denim-Rohware nach dem Econtrol®-Verfahren.

Was bedeutet Econtrol®-Verfahren?

Der Econtrol®-Prozess ist ein in der Kontinuefärberei angewandter Pad-Dry-Prozess, bei dem während der Trocknung Reaktivfarbstoff an die Zellulosefaser fixiert wird. Das Fixiermedium ist ein kontrolliertes Dampf-Luft-Gemisch.

Die Fixierung erfolgt im Trocken-Temperaturbereich von 110-130 °C und einem Dampfgehalt in der Trocknungsluft von 25 Vol % innerhalb von 2-3 Minuten.

Verantwortlich für die Fixierung ist hierbei die angestiegene Warentemperatur von 68 °C beim Trocknen durch den 25 Vol % igen Dampfgehalt in der Umluft. [1]

Der Verfahrensablauf ist wie folgt:

Die gesengte Denim-Rohware wird foulardiert mit x g/l Reaktivfarbstoff (in diesem Fall mit Levafix - oder Remozol-Farbstoff). Erkantol AS 1-3g/l (Netzmittel), Levalin MIP 5-10g/l (Migrationsinhibitor) ,Soda ash (je nach Menge und Art des Farbstoffes), Natronlauge (je nach Menge und Art des Farbstoffes) (genaue Rezeptur steht bei den Färbungen in [2])

Durch eine Luftgang-Passage wird dem Farbstoff Zeit gegeben, in die Faser einzudiffundieren. Je nach Gewicht der zu überfärbenden Denimware kommen IR-Vortrockner zum Einsatz.

Die weitere Trocknung erfolgt danach auf einer Hotflue bei 110-130 °C (je nach Warengewicht) mit 25 Vol % Dampf in der Kammer innerhalb von 2-3 Minuten. Danach wird die gefärbte Ware gewaschen, getrocknet und kann entsprechend weiter behandelt werden. [3]

The process takes place as follows:

The singed denim grey fabric is padded with x g/l reactive dyestuff (in this case with Levafix or Remozol dyestuff).

Erkantol AS 1-3g/l (wetting agent), Levalin MIP 5-10g/l (migration inhibitor), Soda ash (depending on the quantity and type of dyestuff), Sodium hydroxide (depending on the quantity and type of dyestuff) [2]

During an air passage, the dyestuff is given time to diffuse into the fibres.

IR predryers may be used, depending on the weight of the denim fabric to be over-dyed.

The further drying is then performed on a hotflue at 110 - 130°C (depending on the fabric weight) with 25% v/v steam in the chamber within 2 - 3 minutes. The dyed fabric is then washed, dried and can be further treated as required. [3]

Ecologically and economically, the Econtrol® dyeing process is a real step towards environmental protection. - Avoidance is better than disposal -

By comparison with the pad-dry/pad-steam process in which 250 g/l salt are used, or with the pad-dry/bake process with 150 g/l urea, the Econtrol® process requires only 10-20 g/l soda ash and/or 5-15 ml 50% NaOH. [4]

The production of 40 m/min with an average fabric weight results in the following annual discharges:

a) Pad-dry-pad-steam process
543 to salt into the waste water

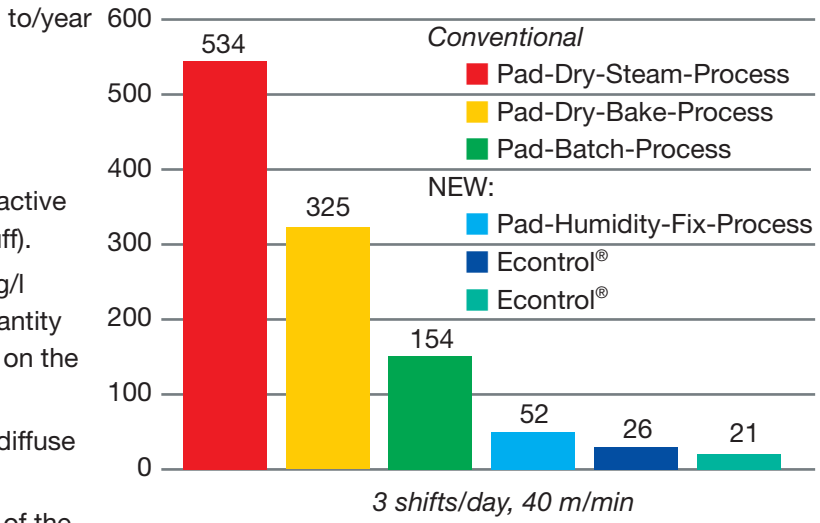
b) Pad-dry-bake process
325 to urea, partly into the water air and partly into the waste water.

c) Econtrol® process 21-52 to soda and/or NaOH into the waste water, depending on the conditions.

With this economical and ecological dyeing process, the denim finisher has a wide range of possibilities for the over-dyeing of denim grey fabric. The dyeing range can also be integrated into the finishing line. Further information is available on request from Monforts GmbH & Co. KG or from the respective dyestuff manufacturers.

Denim is "forever young", denim reinvents itself time and again, denim is unrivalled in form, colour and design. The denim industry is striving to further expand its market share with new variants and even higher quality. Monforts supports the denim industry in surviving on the hotly contested market with innovative process variants and ranges for a wide variety of qualities.

Econtrol® is a registered mark
of DyStar Colours Distribution GmbH, Germany.



[4] *Chemiekalienverbrauch bei verschiedenen Prozessen*

[4] The chemicals consumption for the different processes.

Ökologisch und ökonomisch gesehen ist der Econtrol®-Färbeprozess ein richtiger Verfahrensschritt in Richtung Umweltschutz. - Vermeiden ist besser als Entsorgen -

Im Verfahrensvergleich zum Pad-Dry-Pad-Steam-Process bei dem 250g/l Salz eingesetzt werden oder bei dem Pad-Dry-Bake-Process mit 150g/l Harnstoff benötigt der Econtrol®-Prozess nur 10-20g/l Soda ash und/oder 5-15ml NaOH 50%ig.

Bei einer Produktion von 40m/min bei einem mittleren Warengewicht gehen jährlich beim

a) Pad-Dry-Pad-Steam-Process
543 to Salz ins Abwasser

b) Pad-Dry-Bake-Process
325 to Harnstoff zum Teil in die Abluft und zum Teil ins Abwasser.

c) Econtrol®-Process je nach Bedingungen
21-52 to Soda und/oder NaOH ins Abwasser.

Mit diesem ökonomischen und ökologischen Färbeprozess hat der Denim-Veredler viele Möglichkeiten der Farbgebung beim Überfärben von Denim-Rohware. Die Färbeanlage kann auch in die Veredlungslinie integriert werden. Mehr Informationen erhalten Sie auf Anfrage bei der Firma Monforts GmbH&Co.KG oder bei den entsprechenden Farbwerken.

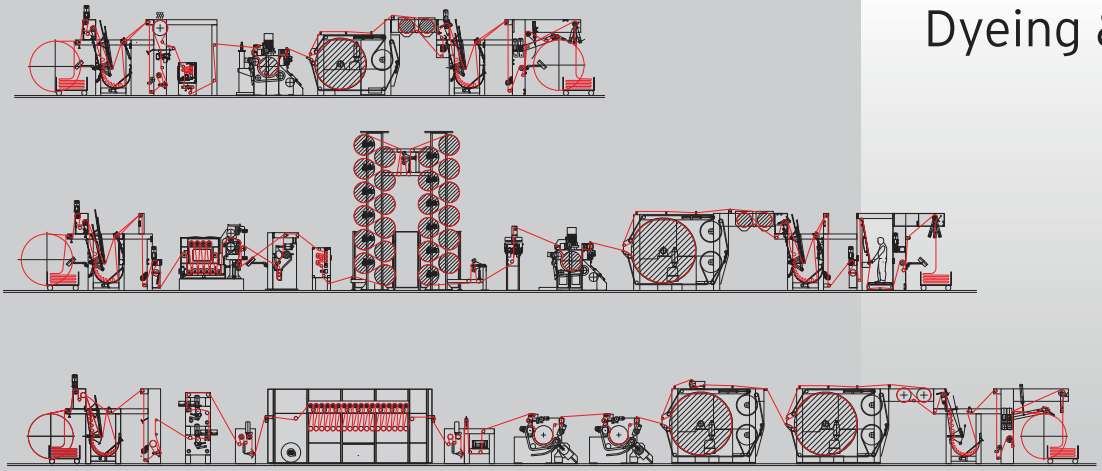
Denim ist „ewig jung", Denim erfindet sich immer neu, Denim ist in Form, Farbe und Gestaltung unerreicht. Die Denim Industrie versucht, mit neuen Varianten und noch besseren Qualitäten den Markt auszubauen. Monforts unterstützt die Denim-Industrie mit innovativen Prozess-Varianten und Anlagen für verschiedenste Qualitäten, um in dem hart umkämpften Markt zu bestehen.

Econtrol® ist eine eingetragene Marke von DyStar Colours Distribution GmbH, Deutschland.

Competence in Denim Finishing

monforts

Excellence in Dyeing & Finishing



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