

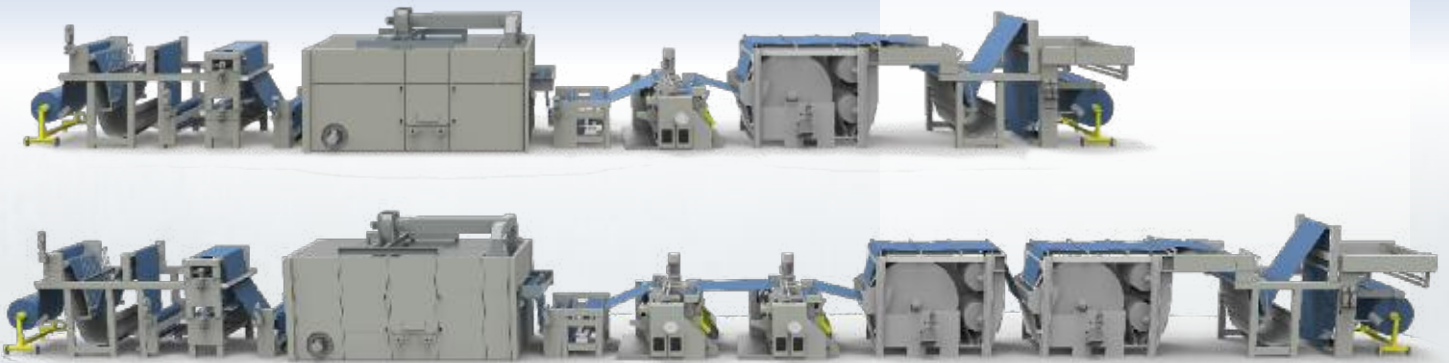


# world of denim

# 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/yd<sup>2</sup> 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/yd<sup>2</sup> 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.



A. Monforts Textilmaschinen GmbH & Co. KG  
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GERMAN   
Technology





# Sustainability drives the agenda



In reading this latest issue of *Monforts World of Denim*, it will quickly become apparent that sustainable processes and products are becoming of paramount importance to both manufacturers and brands.

As James Veenhoff of the Alliance for Responsible Denim observes on page 21, there are three major ecological issues facing the denim industry – water, energy and chemicals.

Monforts is supplying advanced technologies which are providing an active difference in all of these areas.

Our latest Eco Applicator soft coating unit, for example, allows the very efficient application of finish coatings to fabrics, compared to a conventional padder system. By applying only the precise amount of functional finish, the subsequent drying time can be shortened – in some cases dramatically so. Customers have reported cycles which previously took on average around 160 minutes now being reduced to just 40 minutes, with significant energy savings.

Monforts is now the only manufacturer offering completely European-made integrated coating lines from a single source and tailored to the subsequent Monforts drying technology.

Specifically for denim manufacturers, the Monforts Eco Denim concept combines the Eco Applicator with the Thermex Thermo Stretch unit for the stretching and skewing of denim fabric under steam, with a much gentler treatment than was

previously achievable. This results in both higher productivity and again, lower energy consumption.

Further efficiencies stem from the integration of the self-cleaning Eco Booster HRC which is now fully integrated into the latest chamber design on Montex stenter dryers.

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

High quality and differentiation through advanced finishing techniques are essential to success in the highly-competitive denim market which is now dominated by manufacturers in the Asia-Pacific region. The major manufacturers have been very successful in supplying their products to the main markets, which remain Europe and the USA, and heightened sustainable credentials are becoming increasingly important.

As Adnan Feroz of Rajby Industries remarks on page 28 of this issue, there is now simply no room in the denim industry for companies who are not adopting the latest sustainable processing techniques.

Monforts will continue to focus on developing ever-more efficient finishing technologies to support our customers in all aspects of their business.

**Roland Hampel**  
*Managing Director*

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# **Monforts denim customers are on trend for 2019**

**With sustainability now driving the agenda in the denim field, the special Denim Première Vision Smart and Sustainable exhibition at the show in Paris featured the notable achievements in this area of many of the denim mills who are valued users of Monforts finishing technology.**



“ We’re seeing a return to much more simple and subtle designs. Denim is taking a rest from vintage looks and there’s much less emphasis on elaborate finishes. Everything is in the patterning, and jacquard weaves are featuring prominently. So it’s a big change.”

*Marion Foret,  
Denim Première Vision design trends specialist.*



Among highlights were the Re-Create project of Turkey’s Kilim Denim, based on the creation of new yarns from post-consumer jeans, and the Renim range from Tavex, manufactured at the Spanish company’s plant in Morocco.

In the production of authentic sustainable Tavex fabrics, the entire process is exhaustively controlled, with complete traceability of all the materials used. The Renim denim range contains a 30% minimum of recycled material – 15% recycled polyester and 15% recycled cotton from post-consumer jeans.

Santanderina meanwhile presented denims based on Refibra – a Tencel cellulosic fibre which is made from cotton waste fabrics.

### Water savings

Thirst-free H<sub>2</sub>NO denim is made with a new technology developed by Naveena Denim of Pakistan which employs air to reproduce ozone gas conditions and provide denims with a worn and aged appearance. The process conserves up to 90% of the water and energy usually consumed in achieving such effects – an estimated 12 litres of water per pair of jeans. It is also allowing between 10-12 tons of chemicals to be saved by the company annually.

LNJ Denim of India is a strong supporter of the Better Cotton Initiative (BCI), employing cotton from its equitable-trade

programme. Its intention is to improve the livelihoods and economic development of poorer cotton-producing regions around the world, while reducing the negative effects of their production on both humans and the environment. LNJ’s jeans now contain 62% BCI cotton.

With its Herbal Blue, Pakistan’s Soorty is reviving indigo dyes based on natural resources. Herbal Blue uses GOTS V4.0 certified dye stuff in an established process which can achieve the same colour as regular indigo dyes, along with equivalent wash downs and visuals. The company’s Active Jacket combines the Herbal Blue colouring with 50% organic cotton and 50% high resistance fibre construction.

Velcorex Since 1828 of France has also introduced velvets and sportswear fabrics coloured with natural dyes to give them the appearance of denims in its Evolutive Colours collection, while all of the products used to wash the Arvind denim jacket included in the Smart and Sustainable

exhibition have been Green Screen certified.

### Strictest test

This means that all chemical processes pass the strictest toxicological test known in textiles. In addition, the garment has been washed with the new Geo-power NPS product, with which a true stone wash effect can be achieved without using any pumice stone. This results in a product with a lower carbon footprint and 80% water conservation.

The sustainable credentials of Denim International’s entire processing plant in Pakistan was also acknowledged. It is equipped with the latest laser and ozone technologies for water-less processing and is also Detox certified, meaning 11 chemicals which have been identified as causing pollution have been entirely eliminated.

At the show, Denim International’s head of R&D Massimiliano Gioielli – a veteran of denim finishing with leading companies in Italy, China, India and now Pakistan, whose know-how is



Soft and creamy fabrics are being achieved through blends of lyocell, recycled elastane, cotton and linen, resulting in liquid-like fabrics, such as this shirt from Hong Kong’s Black Peony.

greatly admired and valued – said the company was currently exploring the use of chlorophyll as a dye for denim.

The dark green pigment is what gives plants their colour.

“Chlorophyll has only been used as a food colouring in the past, and it’s not easy, but we believe we have now developed a feasible process for the chlorophyll dyeing of denim,” Gioielli said. “It has the potential to allow a thousand metres of fabric to be coloured with just a glass of water.”

### Denim trends

Marion Foret of Denim PV’s design team also provided a tour of the show’s trends area to point out some of the latest innovations in respect of design features for the Spring/Summer 2019 season.

“In general we’re seeing a return to much more simple and subtle designs, with a lot of use of tone-on-tone effects and delicate features,” she said. “Denim is taking a rest from vintage looks and there’s much less emphasis on elaborate finishes such as laser effects and prints. Everything is in the patterning, and jacquard weaves are featuring prominently. There’s not an as much extensive stretch in evidence this year – it’s being employed much more sparingly – but the demand for comfort remains as high as ever.”

The ‘paperbag’ pull-string waist will be big in both denim skirts and jeans, as developed by Monforts customers such as Pakistan’s Rajby Industries.



Cut-out panels are prominent, enhanced by wispy elements of embroidery, tulle, embossed plastics and other structural variations, as in this design from Global Denim.

In addition to power stretch and bi-stretch, she adds, this is being achieved through generous cuts, looser constructions and less restrictive fits. Soft and creamy fabrics are being achieved through blends of lyocell, recycled elastane, cotton and linen. The result is liquid-like fabrics. Trims, including polished metals, smooth leather patches and graphic patterns are being added to finesse the generally neat, sober and neutral aesthetic.

‘Inside out denim’ is a new novelty now appearing, with the fabric being decorated on the inside with prints and jacquard weaves, and revealed in only subtle, but striking touches.

Pant legs are running extra-long to allow for dramatic turn ups of as much as 30cm, while jackets

and button-down shirts are boxy and short. Denim shirts are currently especially popular for women and mid-length peasant skirts are returning, often featuring asymmetrical hems and prominent ‘paper bag waists’, which are also appearing on women’s wide leg trousers.

Pastels and transparent materials are also prominent, Marion stressed, enhanced by wispy elements of tulle, embossed plastics, cut-out labels, tracing paper and muslin. In contrast, other trims are huge, with stretched out labels, extra-long threads that take on a fringe quality, enormous back yokes and patches and panels filling significant areas behind denim structures adding significant impact. ■

“Chlorophyll has only been used as a food colouring in the past, but we believe we have now developed a feasible process for using it to sustainably dye denim.”

*Massimiliano Gioielli,  
Head of R&D, Denim International.*



Denim producers participating at the show enjoying the benefits of Monforts finishing lines included: Absolute Denim, Akkuş Tekstil, Artistic Milliners, Arvind, Azgard-9, Black Peony, Çalık Denim, Denim Clothing Company, Denim International, Kassim, Kipaş, Naveena, Rajby Industries, Raymond Uco, Santanderina, Soorty, Tavex, Toray International, US Denim Mills, Vicunha Textil





How long should turn-ups be?  
How about 30cm, as  
proposed by Artistic Milliners?



# Arvind: A long-term approach to sustainability

Patagonia – perhaps the most well-known outdoor clothing brand in terms of its pioneering approach to sustainability – is happy to be supplied with all of its denim by India's Arvind.



“It’s not even funny anymore, the amount of waste we are generating with used clothing – it’s absurd.”

*Creative Director,  
Stefano Aldighieri.*



“Patagonia knows our denim is completely traceable, which is not always the case with other mills,” says the company’s Creative Director, Stefano Aldighieri. “The great thing about Arvind, is that from its foundation, the owners understood that if you want to have a successful business you have to be aware of your impact – and that includes responsibility to people, too. In India, Arvind already has one business already entirely run by women at every level, which is pretty progressive for the country.”

As far as manufacturing is concerned, Arvind’s current annual denim capacity is now 110 million metres and some key initiatives have been specifically aimed at reducing the use of energy, water and chemicals.

The manufacturing process of a single pair of denim jeans usually creates between 6-9kg of industrial greenhouse gas emissions and Arvind is now able to supply carbon neutral products

by supporting UN-certified climate mitigation to off-set its carbon emissions. It is also working to further reduce emissions by moving to solar energy, using biomass fuels and investing in energy saving projects.

### **Eco Line**

Arvind has also recently installed India’s first Monforts Eco Line denim finishing machine for faster production, greater savings in energy, and better flexibility in design and innovation.

The Eco Line, which can handle fabric widths of 1.8 metres and operate at high speeds of up to 80 m/min, is operating alongside four Montex foam finishing stenters, which are also able to handle this same width of material.

The Eco Line system reduces energy losses and energy use, increases thermal transfer and keeps the drying energy on the textile material longer, so that it can be used very efficiently. As a result, energy savings of up to

50% can be achieved. Exhaust air energy can also be reduced to a minimum, which has a positive effect on the emission load into the atmosphere.

“We are also introducing new ways of doing new things with indigo dyes – such as our Naruril Indigo denims using multi-dip rope dyeing process using pure vegetable indigo, which is the oldest dye known to mankind,” says Stefano. “We have a growing garment business in which we are investing in new technology and techniques, because having got the finishing of fabric right through technologies such as the Monforts line, there’s a lot you can do at the garment manufacturing laundering stage.”

“Our plant in Bangalore, for example, has now become the first in India to eliminate the use of pumice stones in laundering, and this is a big issue in terms of getting rid of the sludge created. There are also a lot of positive things happening in respect of



laser garment finishing and other techniques, but perhaps Arvind is in the position to make such investments while other companies are not. Sustainable production always pays off, but the problem is it requires upfront investment and not all companies are in a position to do this.”

### Waste

Recycling, he adds, will become increasingly important.

“It’s not even funny anymore, the amount of waste we are generating with used clothing – it’s absurd,” he says. “We have been working towards 100% recycled PET, for example, but so much of the waste material available for recycling is in blends, which makes things difficult. We are also looking at other natural fibres as an alternative to cotton – linen, hemp, bamboo and lastly, wool – which to me is the most eco-friendly fibre. Tencel is also a great fibre with which superb fabric features can be achieved.”

When it comes to trends, he believes a return to more classic products and looks is now taking place.

“ The cost of a pair of jeans is now less than it was twenty years ago. Try buying a house or car for the same price as back then. But we take this for granted. ”

“I hope this is a reaction to fast fashion in a positive way, because there are design and aesthetic elements that are always relevant in denim and have been for fifty years – it’s a question of reinforcing them. Generally, we stay away from short-term trends and concentrate on the macro trends that will be around long term.”

The crossover between casual wear and sportswear is certainly here for the longer term, he believes. Arvind’s Bi-stretch

ranges, for example, are characterised by high dimensional stability with stretch in any direction, retaining shape over time and also providing ideal comfort during day-to-day activities. Hybrids of denims and chinos, constructed with high warp cover, are also now available in saturated shade and with a very soft hand feel due to the use of two-ply yarns.

Across all of its ranges, however, the emphasis is now on optimising the utilisation of resources to bring out the best in innovation and design.

“Sustainability is now taking hold in the denim industry,” Stefano concludes. “After many years of dilly-dallying, people are starting to realise it’s time to act. We have to be pragmatic in our decisions and make every choice in a responsible way, and that includes not trying to increase capacity all the time. „The more we make, the more we are competing against each other. The cost of a pair of jeans is now less than it was twenty years ago. Try buying a house or car for the same price as back then. But we take this for granted.” ■





# Going Platinum in Karachi

**Soorty is currently establishing a new denim garment manufacturing plant in Karachi, Pakistan, which will be LEED Platinum certified.**

LEED – Leadership in Energy and Environmental Design – is the most widely used green building rating system in the world and a globally-recognised symbol of sustainable achievement.

To achieve Platinum status, 80 of a possible 100 points must be achieved across six credit categories – Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality and Innovation in Design.

Soorty has already established a LEED Gold garment manufacturing plant in Bangladesh and continues to pioneer sustainable developments across all of its operations.

## Objectives

“Sustainable denim is our passion and we are investing more and more to achieve our objectives,” says Mansoor Bilal, the company’s senior marketing and product development manager.

Employing some 22,000 people, Soorty began as a garment making operation in 1983 and expanded into denim fabric manufacturing just ten years ago.

Its denim mill was first expanded in 2009 followed by the establishment of a spinning mill in 2011.

The LEED Gold Bangladesh garment manufacturing operation was established in 2014, when the company also opened a development centre in Amsterdam.

During 2016, a second denim manufacturing plant was opened in Karachi, along with an open-end spinning mill and a dedicated recycling unit. In respect of the latter, the company now has the capacity to recycle some 2.5 tons of spinning, fabric and garment waste material per day and is also collaborating with I:Collect to establish post-consumer waste processing.

Following a systematic expansion programme, the company now has three Monforts Montex stenters as well as three Monforts sanforizing units. This brings the company’s finished woven denim capacity to a monthly 5.5 million metres.

Soorty also recently became the first company in Pakistan to install the new Monforts EcoApplicator with which it has been achieving very substantial finishing cost savings.

## Denim Active

Soorty’s Denim Active concept – which blurs the boundaries between casual wear and sportswear – had already attracted considerable attention in



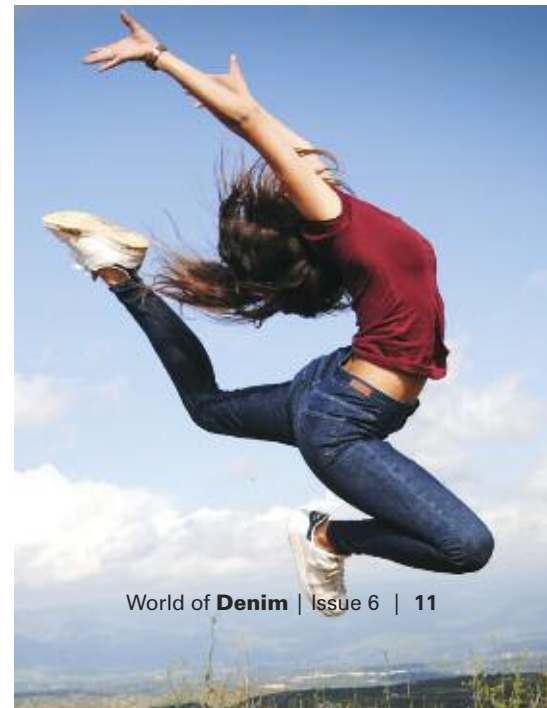
“ Sustainable denim is our passion and we are investing more and more to achieve our objectives. ”

*Mansoor Bilal*

2017, even before being showcased at Denim PV.

“It’s made with Coolmax EcoMade technology, and helps keep the wearer cool and dry by moving moisture to the outside of the fabric where it can quickly evaporate,” explains Mansoor Bilal. “And since the Coolmax EcoMade fibre is made from 97% recycled resources such as plastic bottles, it means less material going to landfill.”

“The addition of a special Lycra fibre also provides 360 degree stretch in this lightweight fabric, so it combines a unique denim aesthetic with the softness and comfort of a specially engineered, second skin silhouette, making it suitable for a variety of activities.” ■





# Simply Eco for Azgard-9

**Denim jackets with integrated solar panels for charging mobile phones as the wearer is on the move, in addition to powering decorative LED lights, have been developed by Azgard-9**

"This is a simple and effective way of getting more functionality into fabrics," says head of product development Muhammad Aamir. "It ties in with the market's demands for the performance of technical textiles in their denims, which we are also responding to with treatments for water repellency, UV protection and advanced moisture management."

In terms of trends, he adds that demand right now is for vintage and open constructions with prominent twill lines, and grey casts are very in.

"There's a move to less stretch too," he says. "Whereas last season we were asked for as much as 80% stretch, now the demand is for 30-40% and Zara, as one of our major

customers, is even requesting rigid fabrics. There's also much more of an emphasis on dobby and jacquard designs."

The denims manufactured under Azgard 9's Eco brand meanwhile require 70% less water, 40% fewer chemicals and 30% less energy in their production than conventionally-finished products.

"We have adopted all of the processes that are efficient at reducing consumption, including the Monforts Eco Applicator," says Aamir. "It's a very good system in allowing us to employ far fewer finishing chemicals by applying them accurately to just one side of the fabric and is far advanced compared to the usual dipping and drying methods."

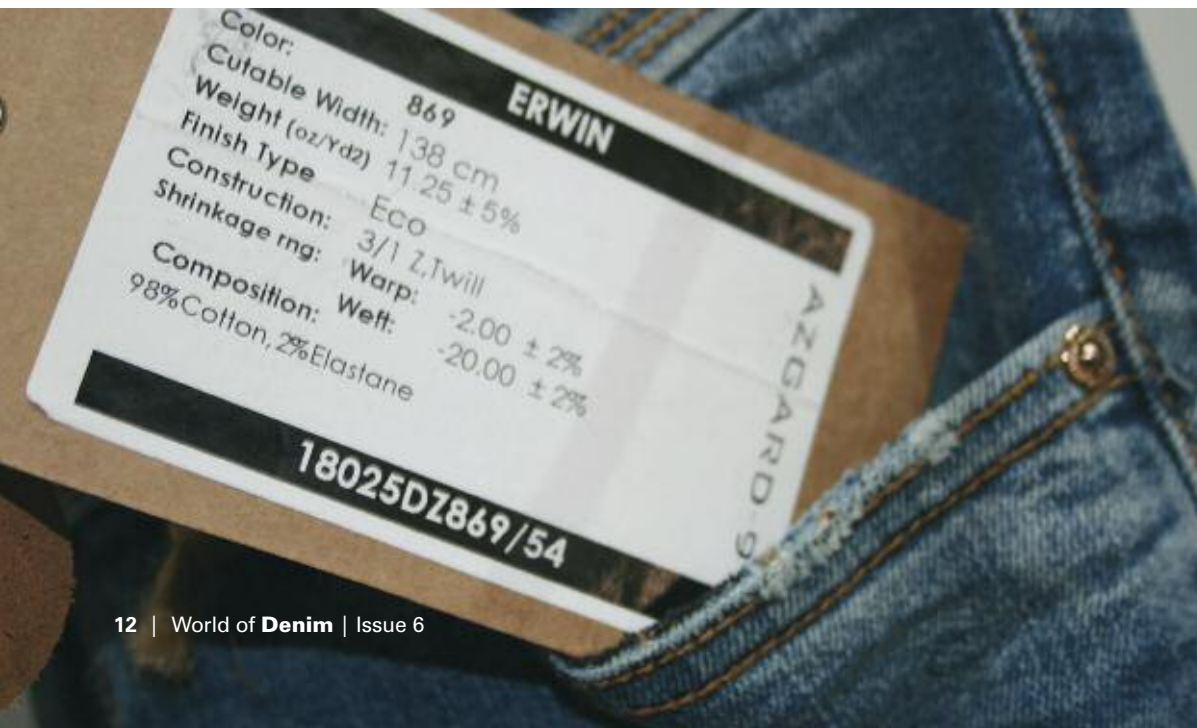


“ We have adopted all of the processes that are efficient at reducing consumption, including the Monforts Eco Applicator. ”

*Muhammad Aamir*

Azgard 9, formed in 1993, is headquartered in Lahore and has its manufacturing operations in Kasur in Pakistan

The company has an extremely extensive range of different fibre types, fabric constructions and finishes which can be expertly tailored to individual customer's needs. ■



# Crystal Clear for industry change

**Artistic Milliners is the denim manufacturer behind the G-Star Elwood RFTPi jeans which are being launched by Dutch brand G-Star RAW for the Spring/Summer 2018 season and are Cradle-to-Cradle (C2C) Gold level certified – a first for the sector.**

The jeans were developed by analyzing each part of the denim design process and exploring how to reduce the environmental impact at every step.

Together with chemicals leader Dystar, G-Star RAW and Artistic Milliners formulated the cleanest indigo technology to date, employing an organic fixing agent to result in 70% fewer chemicals, no salts and producing no salt by-products during the reduction and dyeing process, consequently saving water and leaving clean and recyclable water effluent.

## Brilliant shades

The process creates brilliant indigo shades with enhanced sheen, and is applicable to both indigo and sulphur dyeing.

“ This is perhaps the most radical change to the indigo dyeing process since its industrialisation. ”

*Omer Ahmed,  
Artistic Milliners*

In conventional systems, Artistic Milliners reports that indigo dyestuff is stored after the dyeing process and only around 20% can be reused due to salt formation. The company's Crystal Clear formulation involves pre-reduced liquid indigo that requires no additional water or salt and allows indigo recovery up to 100%. Additionally, there's no need for heating in the indigo fixation process, which means less energy consumption.

G-Star also worked with long-standing partner Saitex to make and wash the garments. By employing sustainable technologies, good chemistry and renewable energies, 98% of the water will be recycled and re-used and the other 2% will be evaporated, leaving no water to be wasted or discharged into the local environment.

## Unwanted components

Only 100% organic cotton was used and all other components not conducive to easy recycling were removed – rivets and zippers have been replaced with eco-finished metal buttons and all labelling and carton packaging is responsibly sourced.

G-Star is now working with Artistic Milliners to provide open-source access to fabric



development processes through Cradle-to-Cradle certification.

“Our new denim fabric and its revolutionary indigo process will become an open source for the rest of the industry to use,” said Frouke Bruinsma, corporate responsibility director at G-Star RAW. “We would like to invite others to join us towards cleaner and more ethical denim production globally.”

## Wider adoption

“We are really proud to have collaborated with our partners in developing the most sustainable denim fabric ever made at Artistic Milliners,” added Artistic Milliners Director Omer Ahmed. “Together we have pioneered a radical new dyeing method which is water and salt-free and which we call Crystal Clear. This is perhaps the most radical change to the indigo dyeing process since its industrialisation. Even though this formula is in its infancy we are hopeful that in due time it will be adopted by the denim industry at large.” ■





### Out to celebrate

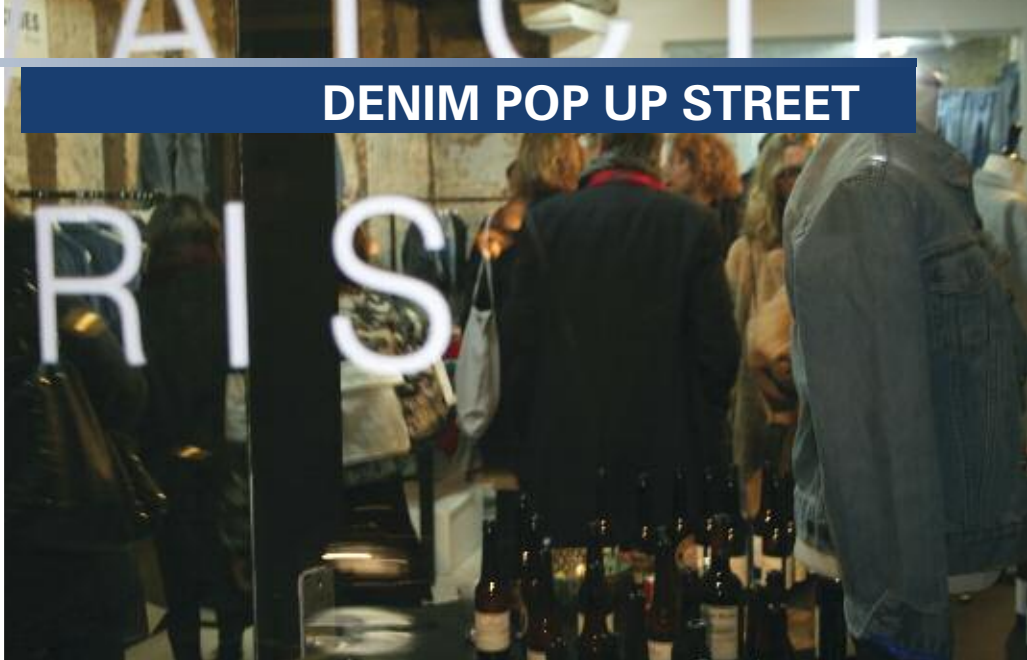
The Denim Pop Up Street was held each evening after Denim PV on Rue du Vertbois in the Paris Marais neighbourhood.

Open to the general public as well as show goers, the one-off event celebrated denim culture with a mix of inspired ideas, shopping and participatory workshops held in over a dozen boutiques.

To the fore were the collections by avant-garde designers (see page 17) as well as Parisian atelier brands and artists.







DENIM POP UP STREET





Inspired by Ray Bradbury's novel Fahrenheit 451, Proëms de Paris set out to "find the balance between sublimation and destruction."

“ I aimed to create highly innovative garments using intricate fabric manipulation techniques. ”

*Hannah Brabon*



## Avant Garde approaches

**A number of key Monforts customers provided fabrics and worked on the development of outfits with avant-garde designers for a special collection that was exhibited at Denim PV in Paris, and also in the stores of the Denim Pop Up Street held each evening after the show, on Rue du Vertbois in the city’s Marais neighbourhood.**

Advance Denim, Kassim and Textil Santanderina all supplied fabrics for the UK designer Hannah Brabon, whose collections are focused on luxury, sportswear-inspired knitwear.

“For my two outfits I aimed to create highly innovative garments using intricate fabric manipulation techniques,” she said. “I chose to work with high-quality materials, including organic cotton and Lyocell. The elaborate techniques employed reflect the ethos of creating lovingly crafted and slow-made fashion. A combination of bleaching, fraying and knitting techniques were used.”

### Pleats

Swiss designer Eliane Heutschi of the Savoer-fer womenswear brand worked with Japan’s Toray International and applied the pleating technique that is normally used with light and feminine fabrics to denim.

“I was inspired by this contrast with the thickness of original denim workwear materials,” she said. “Pleats in themselves are a contradiction, giving form to fabric but hiding body shapes when applied to garments.”

Her jacket and pants were the result of playing with the lines of a denim jacket/pant suit – the

normal part of the suit is made from closed flat pleats with the fused part having more open pleats that fall with the volume until becoming horizontal.

“This creates a distortion – a form of elongation that continues to open and close in on itself,” Eliane said.

The cut of the Savoer-fer dress, meanwhile, is light and open but its fabric is dense and it floats around the body without constraining or constricting it

### Knitwear

Elanore Guthries’ Knorts brand, based in Los Angeles, is also



known for handmade denim knitwear made with the finest indigo, but discovered new possibilities through collaborations with Artistic Milliners and Kassim Denim.

“Knitwear allows Knorts to create any texture and silhouette imaginable, so I appreciated the fact that machine-woven jacquard denim can offer similar capabilities,” Elanore said. “The designs are inherently complimentary and reminiscent of our design process and knitted denim aesthetic.”

Denim from Artistic Milliners was employed in the Knorts athleisure outfit on display, and that from Kassim in an outfit comprising fisherman’s wading pants and a matching cropped, button-up shirt.

Afterhomework’s designs are usually made entirely in small Paris ateliers – as showcased at the Denim Pop Up Street – but the Paris brand worked with the machine-manufactured denims of Brazil’s Vicunha in designing silhouettes inspired by the code of workwear – from centuries past to modern times, and from big peasant skirts to craftsmen’s aprons.

### Playing with fire

While there was a notable move away from the elaborate laser designs and rips and frays of previous shows at the Paris show, in favour of simpler, classic design elements, Marion Gauban Cammas and Ulysse Meridjen of Proêms de Paris opted to go to the other extreme with fabrics from Çalık Denim and US Denim Mills.

Their work, the designers explain, is often inspired by literature.

“We played with fire for our first silhouette,” they explain. “We were working on the concept of dystopia for our previous collection and this idea was directly inspired by Ray Bradbury’s novel Fahrenheit 451. We wanted to torture the material, push it to its limits, deteriorate it while retaining its allure and feel. Denim is a very robust material and it was interesting to find the balance between sublimation and destruction.” ■



Pleats are a contradiction, giving form to fabric, but hiding body shapes when applied to garments, says Eliane Heutschi of Savoer-fer.



Denim from Artistic Milliners and Kassim was employed in the knitwear designs of Knorts.



Brazil’s Vicunha contributed denim for Afterhomework’s designs, which are usually made entirely in small Paris ateliers.



# The outer limits of lightness

Çalık Denim is promoting its revolutionary, featherweight stretch Fly Jean concept by launching a series of active leisurewear hybrids. Impossible lightness, exceptional flexibility, creamy softness, and shape retention are some product features that Fly Jean offers.

“We’ve had a great reaction to our Fly Jean concept,” said Çiğdem Kaçar, Çalık’s Senior Product Marketing Executive. “Fly Jean is a new dimension for athleisure style.”

Çalık’s Red Carpet concept is meanwhile based on dazzling luxury look fabrics.

“These shiny fabrics are directly reminiscent of 80s disco pants,” said Mrs Kaçar. “Since we are offering them as ready-to-dye products with different construction alternatives, it is possible to achieve assorted looks by piece dyeing in different colours after garment manufacturing. These articles offer an unexpected soft hand feel and are very comfortable inside.”

Çalık Denim was founded in 1987 and today has an annual production capacity of 42 million metres. With its integrated manufacturing plant and R&D centre in Malatya, Turkey, sales and marketing centre in Istanbul and worldwide sales offices, the company provides employment to over 1,500 people and has 427 weaving looms. ■

“ Fly Jean is a new dimension for athleisure style.”

*Çiğdem Kaçar, Senior Product Marketing Executive*





# Taking responsibility

The new Alliance for Responsible Denim (ARD) has been formed in order to address two of the key sustainable challenges relating to denim production and involves a number of Monforts customers.



In the production of authentic sustainable fabrics by Spain's Tavex, the entire process is exhaustively controlled, with complete traceability of all the materials used.

“ Recover recycled cotton is the lowest impact cotton option available today and there are immense impact savings to be achieved with it. ”

*Hélène Smits of ARD*



ARD consists of a core group of Dutch brands along with stakeholders and experts from the denim industry and a broad group of international suppliers.

“It’s unique that we have big and small denim brands together with suppliers working on these sustainability issues,” said James Veenhoff from the House of Denim Foundation, that along with Made-By, Circle Economy and the Amsterdam University of Applied Sciences established ARD. “It’s the only way to progress and change the industry.”

There are three major ecological issues facing the denim industry he adds – water, energy and chemicals. The use of these resources is concentrated at four stages of the production process – cotton cultivation, dyeing, fabric finishing and garment finishing.

ARD’s focus is on establishing measurements, benchmarks and standards for resource use and recycled denim.

In one project, it is focusing on improving the environmental

impact of denim garment washing by developing a new measurement tool from the ground up, drawing on existing garment washing techniques and conducting pilot trials within the denim supply chain.

### **Benchmarks**

Because benchmarking depends on a range of factors, ARD is comparing new, improved wash recipes with conventional ones so that the brands can specifically see the progress they are making.

Currently, it is difficult to determine what is sustainable or unsustainable in denim garment finishing and in some cases alternative technologies to traditional practices may reduce water use but increase energy use. ARD believes that defining measurements and benchmarks of finishing techniques is an important first step to improving the sustainability impact of a denim garment.

A second ARD project involves developing a preferred industry

buying standard, defining a business model and roadmap for the introduction and scaling up of post-consumer recycled denim (PCRD) production.

“We believe establishing a preferred buying standard can increase the volume of PCRD and further its adoption in the industry,” said Veenhoff.

ARD defines PCRD as a fabric or product with a minimum content of 5% post-consumer fibres and urges brands and mills to use it in order to reduce their dependency on virgin materials and drive impact savings across all areas, from electricity to water.

ARD’s influence was evident at the November 2017 Denim Première Vision, with Turkey’s Kilim Denim and Spain’s Tavex among the organisation’s members offering PCRD fabrics for Spring/Summer 2019 at the trade show.

Cansu Meşegül, sales executive for Kilim Denim said that her company’s new Re-Create collection employs the Recover



yarns in the weft, with organic cotton in the warp of the fabrics.

In the Remin collection, Tavex offers denim fabrics made with a minimum of 30% recycled materials, including recycled polyester and Recover.

### Upcycling

Both companies receive special recycled cotton yarns for denim from Hilaturas Ferre, based in Banyeres de Mariola, Spain, which began recycling textiles 70 years ago and in 2015 introduced the Recover Upcycled Textiles System.

This is designed as a circular system through which yarns can flow for many life-cycles.

Hilaturas Ferre collects and sorts textile waste resources from all around the world and upcycles it into new Recover yarn via cutting/shredding and spinning.

The company ensures the quality and colour of its Recover yarns is consistent, replicable, and free of harmful substances through optimised waste management systems, strict testing and certification policies, and its proprietary ColorBlend process.

"There is around 92 million tons of textile waste generated each year and there's a real need to try and introduce more recycled fibres," said H el ene Smits of ARD, who also promotes the Ferre Recover Upcycled Textiles

“ You can save up to 15,000 litres of water when you use 1kg of Recover recycled fibre instead of 1kg of conventional dyed cotton. ”

System. "Recover recycled cotton is the lowest impact cotton option available today and there are immense impact savings to be achieved with it, not only because we limit the use of virgin cotton and the associated impacts, but also because we do not add water or chemicals to the cotton to get the colour. Together this means you can save up to 15,000 litres of water when you use 1kg of Recover recycled fibre instead of 1kg of conventional dyed cotton."

### Considerations

Recover recycled cotton, however, is not the same as virgin cotton, she adds, since due to the mechanical recycling process, the fibres are a bit shorter and the yarns are not as consistent.

"We advise our customers to take this into consideration when choosing Recover yarns," H el ene

says. "They can sometimes contain small imperfections which are not defects but characteristics that naturally occur as a result of the mechanical recycling process.

"For denim, Recover yarns are not as strong as virgin equivalent yarns, which is something to consider in the weaving process and might also require some adaptations in dyeing and finishing processes. These are design opportunities for brands to tackle."

"With the Alliance for Responsible denim project, there is an increased focus on recycled denim and it seems more brands are becoming interested and more mills are developing fabrics based on them. This is great start, but we now need to keep the momentum going and actually see this translated into the collections of the brands."

"The active pull is only there from front-running brands at present, but I think many others would go for it if the access was easy via their regular channels – and of course also when the quality and price is acceptable. This is exactly what ARD, as a united front, is hoping to achieve. Together, rather than in isolation, we can create the demand, the drive and the development. We are doing this by setting short-term goals with our brands for long-term impact." ■



“ Our new Re-Create collection employs the Recover yarns in the weft, with organic cotton in the warp of the fabrics. ”

*Cansu Meşeg ul,  
sales executive  
for Kilim Denim*



# World's first Monforts Eco Denim Line

**TCE, Vietnam's biggest denim producer, celebrated the first year of its Eco Line installation achieving close fabric control and significant energy savings benefits.**

TCE Corporation was the world's first denim producer to install a Monforts Eco Denim Line, and after a full year of production is now able to evaluate the advantages in terms of production and energy and water savings.

The company is the largest producer of denim in Vietnam, and one of the largest in Asia.

Founded in South Korea in 1956, TCE relocated its entire production to Vietnam in 2014, and now produces only denim at its TCE Vina Denim mill, which occupies a 110,000m<sup>2</sup> site two hours outside of Hanoi.

TCE exports 100% of its production overseas, with Europe, at about 45% being the largest market, followed by the USA at 30%, and Japan and Korea the other main export destinations.

Chief executive officer Stanley Hwang says that production ranges from lightweight to heavyweight denim, in the range of 4 to 14 ounces.

## Critical point

"The critical point with denim is consistency and shrinkage," he says. "The greatest benefit of the Eco Line is that it allows the fine control of fabric shrinkage."

"We are a long-time user of Monforts equipment, having installed our first machine in



TCE Chief Executive Officer Stanley Hwang (left) and Production General Manager Ku Myung Soo (right)

1996, a machine that is still in full operation."

"We then progressed to the second-generation machines, where we can control the shrinkage but it can be complicated."

"With the Eco Line we can see exactly what is going on in the production line, and it is very easy

to operate. We have complete control of the shrinkage, and we need one or two less staff to operate the machine."

The Eco Line was manufactured by Monforts in Germany and supplied via Peja Vietnam, Monforts representative for Vietnam.



## Savings

The Eco Line is engineered to save on water and energy usage.

At the front of the machine is the Eco Applicator which applies the chemicals, replacing a conventional padder and applying less moisture to the fabric, reducing drying needs and therefore energy consumption.

After this stage the Thermex Hotflue Chamber generates the necessary moisture and temperature for making the denim stretchable, whilst incorporating a soft stretching of the fabric using many rollers instead of only the one or two

used in a traditional stretching unit.

This consequently saves on the volume of water needed to generate the steam, and also saves on the amount of energy required to convert the water to steam.

Mr Hwang says that TCE is saving on both water and electricity. Water is taken from the public supply, for better quality and convenience than a well, and savings are in the region of 20 to 30%. Electricity savings are around 10%.

TCE had started to make denim in Korea in 1969, and was probably the third Asian producer to do so.

## Consistent

"We were the first denim producer in Korea to use Monforts machines," says Mr Hwang.

"Monforts for us is very safe. So although other companies approached us when we were planning to expand production, there was no doubt on our part that we would install a new Monforts machine."

"The consistency we achieve with Monforts is perfect. We love Monforts!"

Production general manager Ku Myung Soo says that the fabric passes in one continuous run, through the Eco Applicator, then





through the Thermex, and finally through the shrinkage process.

“There are three main stages,” he says, “and the fine-control system allows us to closely monitor the entire process.”

“Monforts sent an engineer from Germany to install the machine and train the staff, and we have continual backup from the Peja team, with who we work closely.”

“Our production staff find the Eco Line very easy indeed to work with.”

## Anniversary

Investment in the Eco Line came as part of an important expansion

to coincide with TCE’s 60th anniversary last year, and which boosted output from 1.5 million yards a month to 3.5 million yards, the biggest production capacity in Vietnam. The Eco Line throughput is 1.5 million yards.

There is anticipation that the demand for Vietnam denim will increase substantially when the European Union Free Trade Agreement with the country comes into effect, which is expected to be at the beginning of 2018.

TCE is additionally implementing its own vertically integrated facility including

garment manufacturing to provide a full package for buyers.

Mr Ku explains that the company produces its own rope dyeing machines, the entire design, manufacturing and installation of the machines being carried out by the TCE team.

There are now five rope-dyeing machines to cope with the new production capacity, the latest having 22 dips to provide the dark indigo colour that is demanded by certain sectors of the market.

TCE has a total workforce of around 1,800, and works 24 hours a day, usually six days per week but seven when necessary. ■





# First for Santanderina with Refibra

Spain's Santanderina has become the first denim manufacturer to turn Refibra – the new Tencel fibre made from a pulp of cotton scraps left over from fabric cutting operations – into denims.



Lenzing worked closely with Santanderina during the initial development of Refibra fibre

Santanderina already has a strong partnership with the Tencel fibre maker Lenzing and indeed, many of its denims are composed of 100% Tencel. Once woven, the Tencel denims are enzyme washed in a chemical-free process taking only between 20-30 minutes.

"Tencel provides countless benefits in appearance, with an extremely high degree of comfort, but most importantly is a sustainable fibre based on wood that can play a big role in introducing the concept of the circular economy to textiles," says Santanderina Creative Director Jordi Ballus. "We are very strong on ecological finishing concepts with our Ecolandye, Naturdye and Vital formulations, and our high capacity production system is both versatile and self-sufficient. Our four plants are equipped with state-of-the-art textile machinery, naturally including finishing lines supplied by Monforts. Refibra is a further step in moving towards circular production."

## Recycling

In general, the recycling options for cellulosics like Tencel are currently all mechanical, such as re-spinning or needlepunching, explains Christian Weilach, a specialist at Lenzing in Austria.

"These processes, however, cause significant fibre degradation, making the fibres only suitable for being turned into low-grade nonwovens such as wipers and insulation, or shoddy."

“ We are very strong on ecological finishing concepts and our high capacity production system is both versatile and self-sufficient. ”

*Creative Director,  
Jordi Ballus*



By contrast, Refibra is a clean chemical solution based on turning the cotton scraps into pulp and then feeding them into the closed loop Lyocell process to produce fibres that can have a much more valuable second life.

“There are considerable volumes of pre-consumer waste available and in general it’s a large batch of the same material we can work with,” Weilach says. “There are still, however, special characteristics to be considered, since cotton pulp is not the same as wood in terms of its molecular weight distribution, the lower content of hemi cellulose, a

different fibre morphology, higher crystallinity and lower porosity.”

### Collaboration

Establishing the Refibra programme, he adds, has involved collaboration across what is a very fragmented textile value chain and required significant collaboration and transparency which is paramount for efficient recycling.

Lenzing has notably teamed up with Inditex, headquartered in Arteixo, Spain and one of the world’s biggest fashion groups, with 7,200 stores in 93 global markets worldwide.

Lenzing and Inditex are now working together to identify raw materials suitable for recycling prior to garment making, collect the waste during production, further develop logistics and supply chain and provide mutual feedback on how to improve processes.

“We are now planning to extend the loop for post-consumer waste but this is much more complex,” Weilach says. “There are labels, sewing yarns and elastics to be separated and you are always working with blends, and with no insights into the history of the mixed batches. Collaboration will certainly be the key to moving forward.” ■

## Cleaning the Oceans

As an active partner in the Upcycling the Oceans project, Santanderina is also introducing Seaqual high quality recycled polyester yarns into its denims.

These are made from materials such as PET bottles and other plastic captured from the Mediterranean of the coast of Levante in eastern Spain by voluntary fishermen who are part of the project, which was initiated by the Ecoalf Foundation in September 2015.

Santanderina has established a responsible and fully-traceable production process for turning carefully-selected and graded amounts of this waste into its Seaqual yarns. At the weaving phase, Seaqual polyester yarns are blended with other sustainable fibres including Tencel, organic, recycled or BCI cotton and recovered linen. The resulting denim fabrics are then treated with ecological dyes and finishes in the latest water and energy-saving processes.





# Catching up on the laundry



“We are at an advanced stage in our fabric manufacturing in terms of sustainability – with the latest technology, including lines from Monforts.”

*Adnan Feroz and Hasnain Lilani of Rajby.*

between the brands and the textile industry. It's like we're just waking up to it and have got a glimpse of what's possible. We need to embed traceability along the supply chain right back to where the fibres are sourced. Everybody needs to be sharing.” ■

**Sustainability is at the top of the agenda for Karachi-headquartered Rajby Industries, which with a 10,000-strong workforce has a monthly production of 3.2 million metres of denim and 1.3 million finished garments.**

“There is simply no room for companies who are not adopting the latest sustainable processing techniques,” says the company’s head of marketing and promotion Adnan Feroz. “We are at an advanced stage in our fabric manufacturing in terms of sustainability – with the latest technology, including lines from Monforts – and are now looking at what we can do in terms of the laundry for our garment making up department.”

There are new technologies in the laundry area, he adds, that will allow the company’s garment manufacturing to be as eco-efficient as its fabric manufacturing.

“We have made great strides in minimising our water usage and recycling the water in our fabric finishing operations and now want to do the same in garment manufacturing,” Adnan says.

## Challenge

“Water use will be the biggest challenge of our lifetimes,” adds head of design Hasnain Lilani. “We also generate our own power and have solar power and natural gas, and heat recovery is also very important to us. All of these initiatives are not about marketing but about moving nearer to closing the loop. That will take ongoing combined efforts





Image: © Ian Allenden | Dreamstime.com

# Positive influencers

**Generation Z – young people born between the mid-1990s to mid-2000s – have used the internet since a young age, and they are generally comfortable with technology and with interacting on social media.**



Pascal Montfort of REC Trends

In his talk at Denim PV in Paris, *'Denim through the Eyes of Generation Z'*, Pascal Montfort of the REC Trends marketing agency made a wide range of observations on appealing to this consumer group via successful brand campaigns, including:

- Influencers are more than ever a crucial part of successful branding. The high-end brand Fear of God's denim collections sell out immediately at around \$1,000 per pair of jeans, while bringing no particular innovation to the market. The endorsement of high-profile celebrities such as Kanye West, Rihanna and Justin Bieber have contributed significantly to this demand.
- Everything is normal. Diesel's highly successful 'Go with the Flaw' campaign plays with the idea that 'flawless is forgettable'.

The models in its ads have unibrows, mouths full of braces, big ears or crossed eyes but are all stunning in their own ways. Unconventional models and artists such as Arvida Byström and Chloe Wise are reinforcing this idea. Go with what you have, even if it isn't ideal, is the positive message, and positive messages resonate most with these consumers.

- Gender is an 'old school' vision – as exemplified in campaigns such as that for Calvin Klein starring the gangster rapper Young Thug wearing a dress. The general trend is a move from unisex to post-gender.
- Hip hop is the new rock and roll, with 1990s rap nostalgia as relevant as the Beatles and Elvis were to the 1990s. There is no real link in the minds of

Generation Z to the 1960s. "The 1990s is the new 1960s."

- 'Eco friendly' is not a brand value but expected as a minimum. Monki is a brand which knows how to promote this well. "Wash your clothes differently," it advises. "Sometimes the lazy option is the most eco option."
- There are right and wrong ways of incorporating all of the above elements into campaigns – Generation Z does not like to be patronised.
- The next generation will be even more media savvy and self-aware. They are "too late to be young". CoCo is a Japanese Instagram modelling sensation with over 53,000 followers. "She has discovered by herself how to be an influencer," Montfort said. She is six years old. ■





# Back to nature

**As a 70-year-old company, which now has its manufacturing in Changzhou, China, Hong Kong-headquartered Black Peony makes full use of a Monforts heat setting range to meet denim market demands.**

With an annual output of 60 million metres of denim and eight million pairs of fully finished jeans, the company's integrated manufacturing plant also produces some 21,000 tons of yarn, all complying with ISO9001 quality management and Oeko-Tex 100 standards.

The company's denims are exported to over 50 countries, with key markets being the United States, Japan, Russia and Australia.

## Soft touch comfort

For Alfred Cheung, assistant manager of development and merchandising, soft touch denims for comfort are currently in high demand from buyers, with not as much emphasis on stretch as has been the case in the past two or three years.

"There's a move back to the natural," he says, "and customers and consumers alike now expect eco-friendly credentials. We are employing



“ Customers and consumers alike now expect eco-friendly credentials. ”

*Alfred Cheung  
of Black Peony*

recycled cotton and polyester whenever possible, and our finishing processes are optimised for achieving savings in the water and chemicals we employ.”

Black Peony's innovations were extensively featured within the Denim Trends showcase at Denim PV, including the soft and creamy fabrics achieved through blends of lyocell, recycled elastane, cotton and linen and looser and wider denim styles employing cupro and viscose. ■





## The light fantastic

US Denim can always be relied upon to come up with an intriguing denim concept or two at Denim PV shows.

In the past these have included jeans incorporating spider silk and others with poultry feathers.

At the latest show, the company's eye-catching display referenced the Day-Glo fad of the 1970s, with the self-illuminated denim designs of the Cosmic collection.

These have been created by building fluorescence actually into yarns, rather than as a coating as in the past.

US Denim's Spring-Summer 2019 Authenticity Collection meanwhile demonstrates how new technologies are allowing dramatic improvements to be made to denim, while retaining its iconic characteristics.



# Functionalized Denim 4.0 by Monforts

## Proven success.



THINKING AHEAD  
FOR SUSTAINABLE SOLUTIONS

The Monforts range combinations for denim finishing are now even more cost-efficient and eco-friendly: The Monforts ECOApplicator 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/yd<sup>2</sup> 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/yd<sup>2</sup> 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.

A. Monforts Textilmaschinen GmbH & Co. KG  
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