Textile Trends

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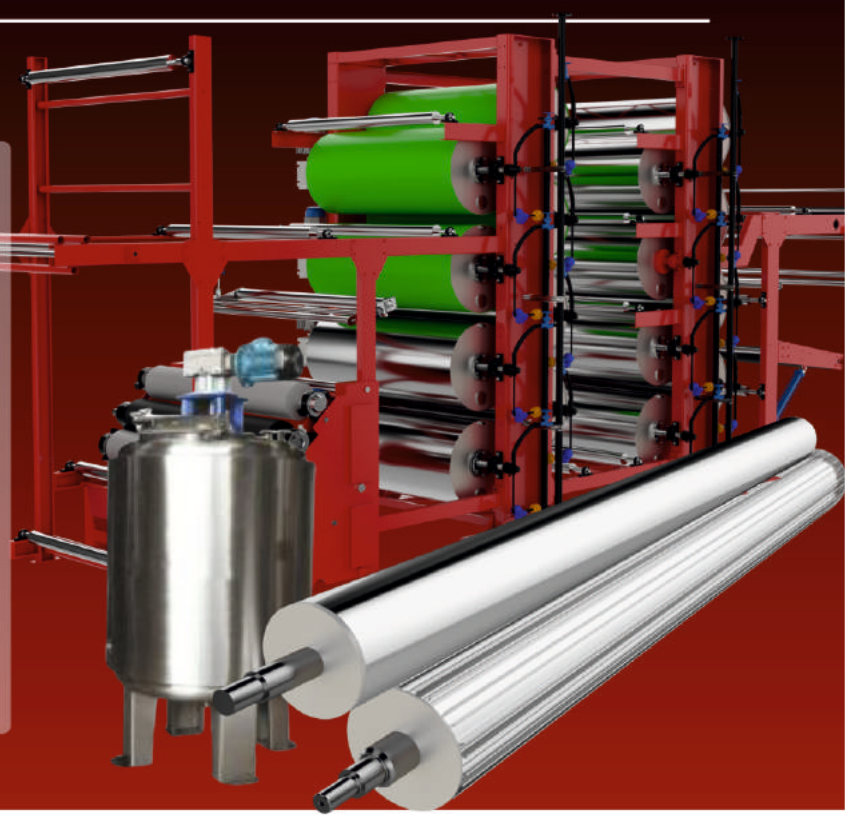

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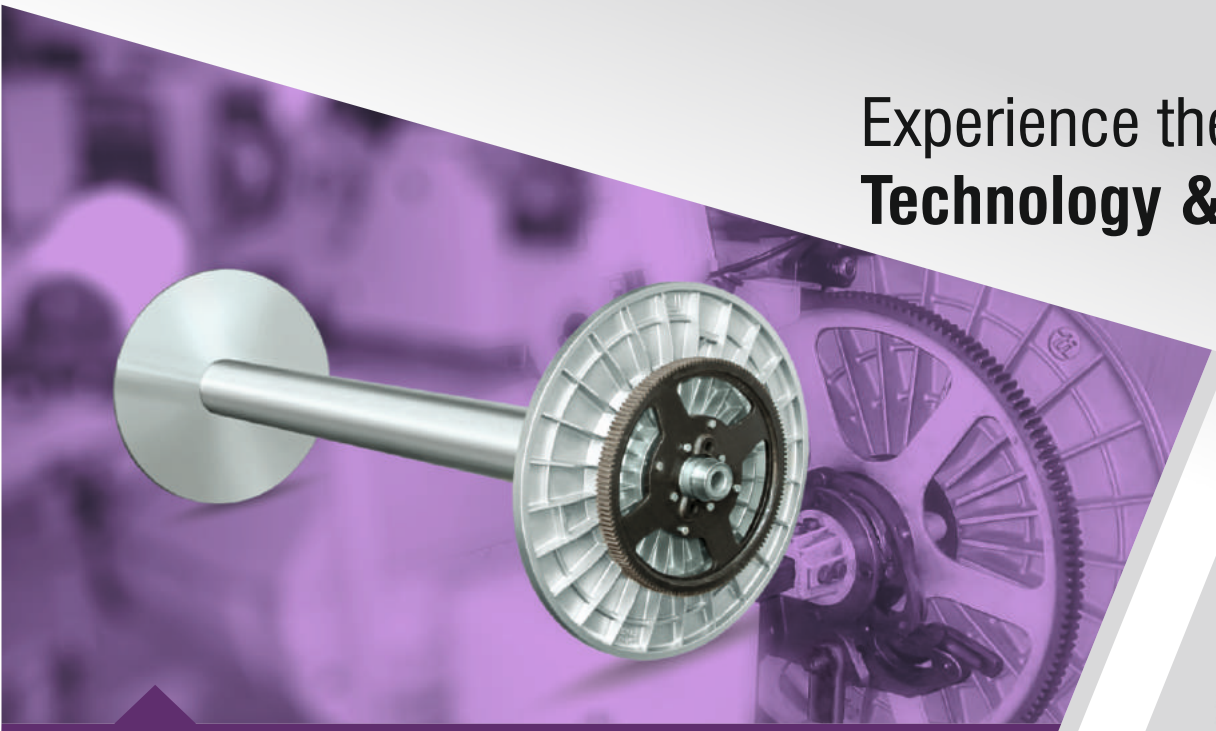

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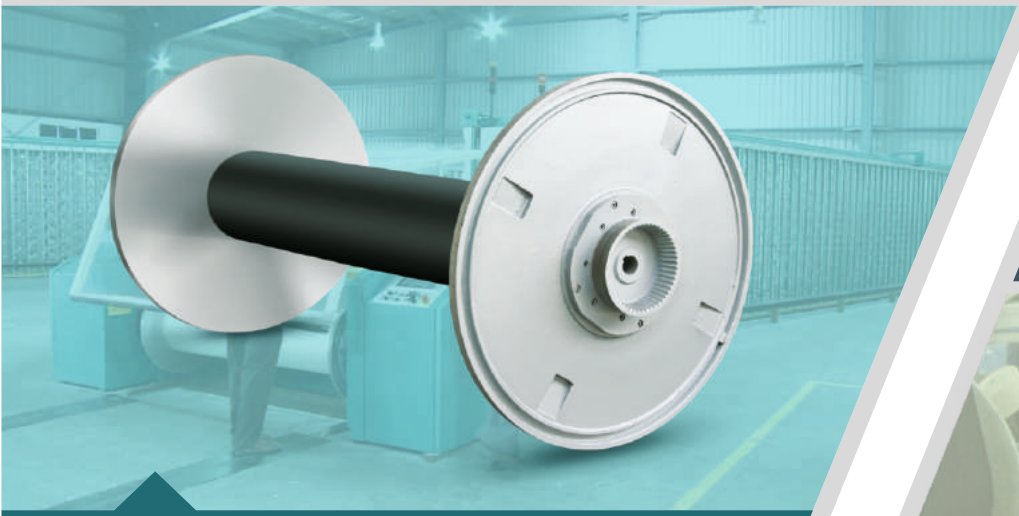

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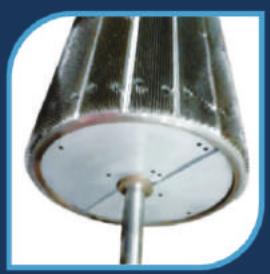
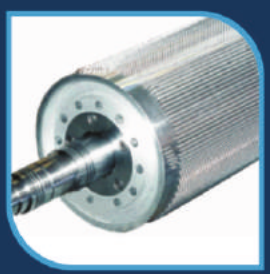



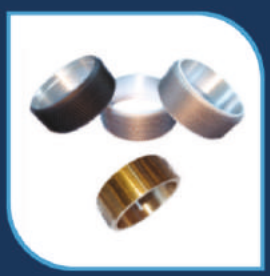

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EDITORIAL

Bright prospect of smart textile

The smart textile sector is becoming one of the promising field of expansion for the textile & apparel industry. According to Grand View Research global smart textile market will be worth $5.5 billion by 2025, this reflects a compound annual growth rate of 30.4%. Interest in smart textile for heated garments, health monitoring, performance improvement and injury prevention has raised popularity of smart textiles among the medical, workwear, military/defence and sports sectors.

By 2025, military and defence is expected to account for highest market share; the expansion of this market caused by geopolitical tension around Russia-Ukraine, Israel-Hamas war are escalating across the world. This situation raises defence budget of leading militarily powerful countries in the world, the countries emphasize on improving safety of soldiers. Technology such as sensor, detectors, actuators and data transfer modules can be used to enhance the security military uniforms in a number.

Another big growth area is smart sportswear. This sector has seen broad investment from start-ups and established companies. Sportswear is technologically being advanced with electronic components to sense and monitor different parameters and provide valuable insights about the wearer. Sports garment can be integrated with biometric sensors to monitor heart rate, breath rate and muscle activity. This information is very useful to improve performance and reduce risks of critical injuries.

Smart textiles are gaining momentum in the health care market due to the growing need for personalized, remote health care solutions. Wearable smart textiles are often equipped with sensors and actuators that can be used as a diagnostic tools for monitoring physical signs and patient activities remotely, in real-time. Research in smart textiles for energy generation and storage is likely to grow over next few years. The technology has received considerable interest from both the academic and commercial spheres as it could enable smart devices to be powered in a more suitable way.

This smart textile sector is obviously growing in maturity, with significant development being made in terms of technology and manufacturing methods. However, challenges are still ahead around reliability, cross-compatibility & standard data privacy, sustainability and overhead costs. In future increase involvement and partnership could help to lower some of these hurdles and enable commercial development of smart textile products.

More headroom needed to boost WB's capacity to support low and middle income countries: G20

The G20 finance ministers and central bank governors, under India's presidency, released a joint communique recently in the Moroccan city of Marrakech, calling for collectively mobilising more headroom and concessional finance to boost the World Bank's capacity to support low and middle income countries in meeting global challenges, and adopting the roadmap proposed in the Synthesis Paper as a G20 Roadmap on Crypto Assets. Addressing a press conference, Finance Minister Nirmala Sitharaman said the members appreciated the work of the Independent Expert Group (IEG) and welcomed the report. "Language with which reforms are being talked about IEG has found a comfortable place in every narrative involving multilateral development bank (MDBs) and their systemic reforms to make them better, bigger, and more efficient," she said. "In the spirit of #OneEarthOneFamilyOneFuture and following full consensus by the #G20 members, the fourth #G20 Finance Ministers and Central Bank Governors Communique was adopted on 12th October in #Marrakech, Morocco," the finance ministry said in a post on X. "Going forward, we call on the International Financial Architecture Working Group to deliberate on the IEG recommendations in consultation with MDBs and suggest a way forward for better, bigger, and more effective MDBs, including ways to work together better as a system, in our meeting in April 2024." On sustainable finance, Sitharaman said: "To achieve the goals of the Paris Agreement and Agenda 2030, we have developed recommendatioins for mobilising finance for climate action and Sustainable Development Goals. In addition, we are pleased to introduce an implementation mechanism for the G20 Sustainable Finance Technical Assistance Action Plan." The FMCBG has endorsed the G20/World Bank report on Enablers of Inclusive Cities: Enhancing Access to Services and Opportunities which analyses how inclusivity varies across cities globally and presents a policy compass for various stakeholders to better plan, connect, and finance the delivery of urban infrastructure services. About the Russia-Ukraine war, the communique acknowledged that while the G20 is not the platform to resolve geopolitical and security issues, these issues can have significant consequences for the global economy. "Today's era must not be a war," it said. The finance minister talked about how the recent crisis in West Asia is a worry that many counries hold. Three concerns for the near future, the FM said, were the impact of fuel prices on food security, inflation, and fragmentation of supply chains. The G20 Presidency will be passed on to Brazil at the end of one year of the Indian presidency. "The FMCBGs looked forward to continuing work on enhancing global economic cooperation to achieve strong, sustainable, balanced, and inclusive growth," Sitharaman said. ❐

Israel conflict unleasing a cloud over global outlook: IMF MD

The Israel-Hamas conflict is a new cloud darkening the global economic outlook, International Monetary Fund (IMF) managing director Kristalina Georgieva said recently, mooting smartly packaged reforms to lift growth experiencing severe shocks. "We are closely monitoring how the situation evolves, how it is affecting, especially oil markets," Georgieva said, terming the latest conflict as "heartbreaking". She noted that there had been some fluctuations in oil prices and reactions in markets, but it was too early to assess the economic impact. "Very clearly, this is a new cloud on not the safest horizon for the world economy, a new cloud darkening this horizon- and of course, not needed," Georgieva said in her opening press conference at the annual meetings of the IMF and World Bank. The IMF's flagship World Economic Outlook released recently projected the global economy to slow to 3% in 2023 from 3.5% in 2022 and further to 2.9% in 2024. The multilateral lender raised India's growth forecast for FY24 to 6.3% from 6.1% estimated earlier. "We are faced with a deepening divergence in the global economy," she said, adding there is a need to boost medium-term growth and "collective resilience". Georgieva said inflation had come down but was still above the target in many countries and so interest rates will have to remain higher for longer stressing on the need to safeguard financial stability. "Strong financial supervision is critical," she said, pointing out the rising yields. The IMF

is encouraging its membership to reach an agreement on the new quota reforms, she said, emphasising that it is essential to have more funds. India and other developing countries have been seeking IMF quota reforms for some time, and more say and representation for developing countries. Admiting that the Group of 20 Common Framework for debt restructuring of stressed low-income countries had been slow to deliver results, Georgieva said it was encouraging that the time for dealing with individual country cases was now getting shorter with each resolution. She said there was growing consensus on sovereign debt restructuring discussions and issues such as the comparability of treatment of private and public creditors. She cautioned that throwing out the common framework for debt resolution would put the world in a "much less predictable environment" but admitted creative approaches were also needed, including moves to better align debt restructuring with the climate crisis. ❐

WTO slashes 2023 world trade growth; to hit India's exporters

The WTO has slashed its projection for world trade growth in 2023 by half to 0.8 per cent from its April estimate of 1.7 per cent as the "abrupt" slowdown in world output and trade in the fourth quarter of the last year spilled over into the current year. "World trade and output slowed abruptly in the fourth quarter of 2022 as the effects of persistent inflation and tighter monetary policy were felt in the US, the EU and elsewhere, and as strained property markets in China prevented a stronger post Covid-19 recovery from taking root," said the WTO's Global Trade Outlook and Statistics Update for October 2023 put out recently. The continued disruption caused by Russia's war in Ukraine has added to the uncertainty and together these developments have cast a shadow on the outlook for trade, the report added, World trade growth has been declining steadily from the 2.7 per cent growth posted in 2022. On the positive side the WTO retained its previous growth estimate of 3.3 per cent for world trade in 2024. The lower trade projection for the current year poses a challenge for India's exporters who have been hoping for a bounce back in the Christmas-New Year season after seven months of continuous decline in shipments (year-on-year) since February 2023. In the first five months of the current fiscal, India's exports contracted 11.9 per cent to $172.95 billion while imports declined 12 per cent to $271.83 billion. In global trade the most notable development was the weaknening demand in manufacturing economies, according to WTO Chief Economist Ralph Ossa, "Import volumes in 2023 are expected to contract between 0.4 per cent and 1.2 per cent in North America, South America, Europe and Asia. Meanwhile, imports appear set to rise sharply in regions that export energy products disproportionately, as a result of increased revenues flowing from higher commodity prices," Ossa said. On the export side, trade volumes in Europe and Asia are projected to grow just 0.4 per cent and 0.6 per cent, respectively, whereas North America could see a more robust 3.6 per cent increase this year. Things are, however, set to improve for Asian economies in 2024 as Asia is ecpected to emerge the fastest growing region on both the export and import sides. "This growth (in 2024) should be driven by increased trade in goods closely linked to the business cycle such as machinery and consumer durables, which tend to rebound when economic growth stabilises," said Ossa. ❐

UK Inflation remains elevated at 6.7% in September

British inflation remained elevated in September, official data showed of late, prolonging a cost-of-living crisis and stoking fear that Uk interest rates could stay higher for longer. The Consumer Prices Index held at 6.7% in September, after unexpectedly slowing to the same level in August, the Office for National Statistics (ONS) said in a statement. The dashed market predictions for a further slowdown to 6.6%, as easing food and drink prices were offset by higher energy costs. The gloomy news came one day after upbeat data showed that UK wage growth was outstripping inflation for the first time in almost two years. Inflation has sunk from a 41-year peak of 11.1% in October 2022, helped by a series of rate hikes from the Bank of England. Yet Britain still faces a cost-of-living crisis, with inflation remaining at the highest level in the G7 grouping of rich nations, although Japan has yet to report September figures. ■

Hot, dry August raises core sector growth to a 14-month high

Output at the eight core infrastructure sectors rose by a combined 12.1% in August, the fastest pace in 14 months, with five reporting double-digit growth, spurring hopes of a healthy uptick in industrial production last month. This was the second straight month that all eight sectors, which constitute about 40% of the Index of Industrial Production (IIP), recorded an uptick, after a 14-month streak of uneven trends. Provisional core sector output measured by the Index of Core Indusries (ICI) rose 2.5% over July's level, the first uptick in three months. The core sectors collectively grew 8.4% in July, when IIP growth hit a five-month high of 5.7%. Cement output grew 18.9%, the largest uptick since November 2022. Deficient rains also lifted coal production and electricity generation, which grew 17.9% and 14.9%, respectively, their fastest rates of expansion in 14 months. "A truant monsoon helped to push up core sector growth to a robust 12.1% in August 2023," said Aditi Nayar, chief economist at rating firm ICRA. "Given the uptick in the core sector growth, as well as healthy performance of high frequency indicators such as auto output, GST e-way bills, rail freight, etc., we forecast the IIP to expand by 9%-11% in August," she reckoned. Steel production rose 10.9%, the slowest pace in a 10-month streak of double-digit growth, while natural gas output grew 10%, the most since February 2022. Refinery products expanded by 9.5%, also the highest pace in 14 months. Crude oil output grew 2.1% for the second successive month after a contractionary streak between May 2022 and June 2023. However, output levels were 0.6% below July. Coal and steel were the other sectors to record a sequential decline, dropping 1.5% and 0.8%, respectively. Fertilisers was the only sector to record the slowest growth in at least a year, rising 1.8% in August. "While higher cement production reflects demand from infrastructure sectors, power generation saw a massive and unusual growth in August due to a severe rainfall deficiency in large parts... and the consequent higher power demand from the residential and agricultural segments," said Suman Chowdhury, chief economist at Acuite Ratings and Research. The "numbers suggest the recovery in infrastructure industries is getting broad-based," India Ratings economists Paras Jasrai and Sunil Kumar Sinha observed. They see core output growing by about 8% in September, owing to "stable progress in economic activity supported by the festive demand". ❐

Indian ₹ becomes the best-perforing Asian currency interms of total returns

The Indian Rupee is among Asia's top contenders for carry traders, even though the currency is trading near its record low, according to curency strategists. The Reserve Bank of India's stranglehold on the currency has kept volatility low, while short-term rates have stayed high due to tight liquidity — ingredients that make the rupee a good carry currency choice. A carry trade involves exploiting interest rate differentials by borrowing a low-yielding currency and investing in a higher-yielding one. The absolute rate differentials and volatility expectations are key considerations in such trades. "The RBI, by a large margin, has reduced the exchange rate risk, making the rupee attractive compared to other Asian currencies in the sense of carry trades," said Dhiraj Nim, FX strategist and economist at ANZ. "Add to this the bias that RBI is showing for keeping short-end rates higher, which we are not seeing in other Asian central banks." The rupee of late appeciated 7 paise to settle at 83.18 against the US dollar amid robust buying in domestic equities and a weak American currency overseas. Though the currency recently witnessed volatility, the RBI's likely persistent intervention has kept such expectations fairly muted, relative to historical levels. The gauges of such expected volatility over the next three months and one year are at their lowest in more than a decade. These expectations rose around mid-August, when the rupee weakened past 83 for the first time this year, but soon eased. With the RBI adopting a stance of leaning against the wind — buying dollars when the rupee appreciates and selling when it depreciates — it improves conditions for players looking

to profit via carry, said Singapore-based Saktiandi Supaat, regional head of forex and strategy at Maybank. He highlighted that the rupee is the best-performing Asian currency, in terms of total returns, this year and said carry trades involving the yen and the baht were viable. However, ANZ's Nim pointed out that the high US yields made carry trades in any Asian currency less appealing. ❐

India among the top three fastest growing seller markets: Etsy

ETSY, the global market-place for unique and creative goods, has released its first ever report on items purchased globally from Indian sellers this year, rating India among the top three fastest growing seller markets. Etsy has tens of thousands of small business owners from every Indian state, who offer one-of-a-kind products. The market-place connects buyers from around the world with these sellers. According to the report, Indian sellers have sold over 40 lakh personalised products this year. In September, Indian sellers on Etsy exported products to 168 countries worldwide. "India is a core market for Etsy due to its rich artisanal and cultural heritage and a strong entrepreneurial spirit. We've observed a high demand for India-made products globally. As many as 64% of the sellers on Etsy export their goods outside India, and it is among the top three fastest-growing seller markets for Etsy globally," said Pankaj Jathar, VP and country head India at Etsy. ❐

Inflation declines to 5% in September

Milk inflation eased slightly from 7.7% in August to 6.9% in September, but some other key protein sources such as eggs (6.4%), mean and fish (4.11%) clocked higher inflation in September. The price rice in spices remained almost unchanged at 23.1%, while fruits inflation jumped from 4% in August to 7.3% in September, and sugar inflation accelerated to 4.5%. However, 13 of the 22 States for which the NSO releases inflation rates recorded a higher price rise than the headline figure of 5.02%, with Rajasthan and Haryana recording the steepest inflation at 6.5%. Inflation was the lowest in Chhatisgarh at 1.98% and below the 5% mark in eight other States, including Tamil Nadu (4.5%), Madhya Pradesh and West Bengal (3.7% each), and Kerala (4.7%). "The Khariff harvest will have a bearing on inflation along with the *El-Nino* effect in Asia, and the evolution of the Israel-Palestine crisis," said Madan Sabnavis, chief economist at Bank of Baroda. Morever, costs of sevices like health, up 5.9% in September, and personal care (8.5%) are still rising, while higher airline and hospitality costs will also get reflected in the months ahead, he pointed out. ❐

Structural reforms needed to achieve India's higher growth levels: IMF

The macroeconomic environment in India is pretty sound and it needs to do further structural reforms to exploit its 'significant' potential to achieve higher growth levels, a top International Monetary Fund (IMF) official said recently. "Overall, the macroeconomic environment is pretty sound in India and in terms of really exploiting the significant potential that India has, I think the need is for structural reforms," Krishna Srinivasan, director, Asia and Pacific Department (APD) at IMF said at a press briefing on the Asia-Pacific region. Responding to a question regarding the policy interventions that are needed by India to achieve higher growth, the IMF director said further reforms are needed to improve the business environment and investor confidence."India has been fiscally disciplined and the central bank has also acted fast to bring down the inflation, which makes macroeconomic fundamentals strong. The structural reforms will be the key to achieve further growth," Srinivasan added. On the impact of sharp increase in bond yields in emerging markets, Srinivasan said both public and private sector should be careful while borowing. "When interest rates are rising, I think it's important to keep in mind that sectors, which are highly leveraged, are likely to hurt more. That's true not just for India but for other countries in the region as well. So, it's important to borrow carefully," he added. Earlier 2nd week of October, the IMF, in its latest World Economic Outlook, had raised the FY24 growth projection for India by 20 basis points (bps) to 6.3 per cent. ■

The Uttar Pradesh Textile and Garment policy encompasses a slew of subsidies and incentives aimed at positioning Uttar Pradesh as global textile hub

Key Policy support has been instrumental in helping Uttar Pradesh emerge as the third-largest textile producer, home to 47 approved textile parks/clusters, of India—the world's second-largest textile and garment producer. Catering to the objective of making Uttar Pradesh a global textile hub and attracting investors in the handloom and textile sector is the Uttar Pradesh Textiles and Garment Policy, 2022, the draft of which was finalized in April 2022.

As one of the largest markets for apparel and textiles, Uttar Pradesh — boasts one of the largest pools of young and trained workforce and power supply, which favour the labour-intensive textile manufacturing sector to thrive.

In light of the growth potential that the state holds and to help it reap the benefits of the existing opportunities, the policy aims to promote and develop a sustainable and resilient textile industry that spawns employment opportunities and steers Uttar Pradesh to the pinnacle of being the most preferred destination for industries operating in the Textile and Apparel sector.

Both, new textile, garment units and the existing units that have taken up expansion or diversification activities entailing an investment greater than 25 percent of the existing Gross Value of Fixed Capital while raising their previous installed capacity by a minimum of 25 percent are eligible to access the incentives under the policy.

With its unwavering focus on etching Uttar Pradesh's indelible presence on the global map as a hub of textile manufacturing and steering the entire value chain's sustainable growth, the Uttar Pradesh Textiles and Garment Policy, 2022, encapsulates certain specific objectives. These include attracting investments in the Textile and Apparel sector amounting to Rs. 10,000 crores for the next five years, developing five Textile and Apparel Parks through the private sector, generating employment for five lakh people, ensuring a 50 percent increase in handloom and power loom weaver's earnings, modernizing power looms and running these on solar energy alongside increasing the state's silk yarn production.

In addition to the policy facilitating various types of arrangements to the state's entrepreneurs along with a capital investment subsidy of up to 40 per cent, it will offer extra benefits to the investors of Purvanchal and Bundelkhand. Furthermore, the policy covers reimbursement of a subsidy of 25 percent of the land's cost to the investors on the purchase of land from government authorities, except on land within the Gautam Buddh Nagar district.

With regard to stamp duties, any land purchased or taken on lease from government authorities, except in Gautam Buddh Nagar district, will be exempted from 100 percent of the stamp duty, whereas in the aforementioned district, 75 percent of the stamp duty will be exempted. The developers of private textile & appael parks and PM MITRA Park, in districts other than Gautam Buddh Nagar, are entitled to a 100 percent exemption of stamp duty. Furthermore, the policy also offers a 100 percent exemption of stamp duty to the first buyer of a plot in the PM MITRA Park and a 50 percent exemption of stamp duty to the first buyer of a plot in private textile parks.

The policy spans various capital subsidies on plant and machinery and interest subsidies on the same along with subsidies on infrastructure projects, power and employment generation and includes freight reimbursement. Moreover, special incentives for PM MITRA Park, incentives for private textile parks and the promotion of the silk industry alongside several financial incentives aimed at generating employment for the youth are an integral part of the policy that holds immense promise for boosting further the burgeoning textile sector of Uttar Pradesh. ■

Prolonged dry spell and pink bollworm meanace likely to hit cotton yield

The prolonged dry spell during August-September coupled with damages caused by the pink bollworm in North India could impact the cotton yields and quality of the 2023-24 (October-September) crop, according to the trade. The cotton acreage this kharif is lower by 5 per cent and the sowing was delayed by 15-20 days on account of delayed monsoon.

"While it rained in May, June was dry. July saw record heavy rains, while August was completely dry. The first half of September was dry while the second half rained heavily. October is to be watched carefully. The 45 days dry spell of August-September will reduce the yield and affect the quality," said Atul Ganatra, President, Cotton Association of India (CAI).

CAI has estimated he September end closing stocks of cotton for the 2022-23 season at 27 lakh bales (24 lakh bales).

The trade expects a clear picture on the 2023-24 crop to emerge by the end of November. Ganatra said, adding that the selling pattern of *kapas* (raw cotton) has been to be watched. "By slowing down arrivals last season, farmers got yearly average rate of ₹7,500 which was 20 per cent higher than the MSP of ₹6,380. This year's MSP is ₹7,020 and farmers will be targetting a 20 per cent higher rate like last year. They may prefer to wait and watch the market," Ganatra told an industry event recently. The daily arrivals, Ganatra said, are estimated at around 50,000-55,000 bales including both the old and new crop.

Ramanuj Das Boob, Vice President of National Cotton Brokers Association and a sourcing agent for multinationals in Raichur, said prices of old *kapas* is hovering around ₹7,200-7,300 per quintal, while the new *kapas* is around ₹7,000 levels, nearing the MSP. The decline in cottonseed rate is also exerting pressure on the new *kapas*.

The pink bollworm infestation, largely witnessed in North India, is also seen weighing on the crop size and quality. "This year recorded the highest degree of PBW infestation since first reported in North India in 2021-22. Early flowering of cotton coupled with survival of suicidal population of pink bollworms aggravated the situation resulting in completion of multiple life cycles of the devastating pest in kharif 2023," Bhagirath Chaudhary of the Jodhpur-based South Asia Biotechnology Centre, said. ■

Mega Textile and Handloom Park in Lucknow will become beneficial for upscale production

The third largest textile producer in India, Uttar Pradesh, is going whole hog to scale up the Textile and Handloom production with a mega textile park being developed at a place between Lucknow and Hardoi districts. The mega park is to be built on 1000 acres will be known as Sant Kabir PM Mitra Textile and Apparel Park.

The state has 47 approved textile parks or clusters, however, the new park is supposed to give a substantial boost to activities focused on increasing the production volume, variety and quality of traditional and contemporary textiles and handlooms.

This huge textile park complex will become the primary centre of all the activities of the textile industry in 15 districts of the state The Chikankari and Zari-Zardozi of Lucknow, Handloom of Hardoi and Barabanki, carpet of Sitapur, Zari Zardozi of Unnao, Hosiery and Textile of Kanpur, Block Printing and Zari Zardozi of Farrukhabad, Zari Zardozi of Shahjahanpur, handloom industry of Ambekkarnagar, Azamgarh, Gorakhpur and Rampur, Silk handloom and textile clusters of Mau and Varanasi and apparel clusters of Gautam Buddh Nagar will be seen contained in a single complex. Along with this, the textile park will be directly connected to these districts as well.

The park's proposed connectivity with eastern UP districts will also boost up the handloom sector in the state which has 15 major handloom production centres across the state to make it the 5th largest base of handlooms in India.

The park is strategically located near the National Highway 30 that connects Sitarganj in Uttarkhand with Vijayawadain Andhra Pradesh. This highway gives the park direct connectivity to Madhya Pradesh, Chhattisgarh and Telangana. Being close to Lucknow-Hardoi highway also gives it an additional advantage. Besides, Lucknow Airport is just 45 km away from the park. Malihabad railway station is just 16 kilometres from the park while Lucknow railway station is 40 kilometres. These facilities ensure smooth logistic facilities for the park. ■

Globally woman's wear sale higher than Men's wear

It has been a tumultuous seven years for D2C company start up FS Life, formerly Fable Street. After a good start in 2016 focussed on Western work wear for women with a USP of catering to all body types, a pivot was necessitated in the middle of its growth journey due to the pandemic, when people stopped going to work.

"It was very hard for us as we were completely focussed on work wear," says founder Ayushi Gudwani. "We had to transition. We changed ourselves to service different needs of consumers, and that's why we sustained and did well," she says. So Fable Street, which was purely focussed on Western work wear, started offering occasion wear, day wear and so on, sewing up new products and experimenting a lot.

Having tided over that crisis, FS Life, which now has an annualised run rate of ₹150 crore, and a year ago received a pre-series B round of ₹50 crore from Fireside Ventures, is stitching together an aggressive expansion plan. It has went offline from September with three retail stores for the Fable Street brand in Pune and Mumbai. It has already threaded its way into two new segments — Indian wear and jewellery — with two new brands. While its first brand, Fable Street, will stay true to its USP of Western wear, Pinkfort is a modern spin on traditional Indian clothing — the kurta sets are re-imagined, there are dresses, co-ord sets and more. March offers sterling silver and semi precious jewellery.

"During the journey of building growth, we realised that accessorising is integral. Jewellery is a space with a lot of unmet needs as our customers were craving minimal and high quality pieces," explains Gudwani.

The former Mckinsey executive, who traversed the familiar engineering-MBA route (she is an IIM-Calcutta silver medallist), ventured into entrepreneurship when she spotted the gap in women's wear. She wasn't able to find well-fitted Western wear for herself.

"Globally, in most countries, the share of women's wear to overall apparel sales is higher than men's wear. But in India it is men's wear that contributes more. Women as a core TG (target group) is underserviced," she says. A fact that is surprising to hear since the popular perception is that women are more dress and fashion focussed.

"The good part is that more and more brands centric to solving for women — and not just in apparel — have emerged in the last ten years," says Gudwani, who is clear that in all its expansions, the company will stay firmly focussed on its core goal of solving problems for women, since there are several unmet needs and the opportunity is huge.

A recent Bain and Company report says that digital disruptor brands are projected to outpace India's online fashion market growth with 35 per cent annual growth, to reach $10 billion by FY28 from its current size of $2.4 billion.

While that is encouraging news for D2C brands, the competition is intensifying. With two big players Aditya Birla Fashion and Retail and Reliance Retail Ventures in the fashion fray, gobbling up several brands big and small, how will FS Life hold up?

Gudwani seems unfazed by the competition, and the ongoing consolidation. "While there is a lot of clutter, especially as barriers to entry have come down, very few brands will be able to scale up," she says.

"Being in the industry for seven years, and scaling to the growth we have achieved, we have clearly realised that brands are built only if there is clear coherence on servicing a customer need. As long as your product stays relevant from a consumer point of view, and the brand association is great, you will win in the long term," says Gudwani.

She says that in her experience, women are very loyal customers if their needs are met. "Men will go and experiment here and there, but women are sticky," she says.

All three FS Life brands are following a classic playbook. Building their own websites, driving sales through them with aggressive social media marketing on Instragram, Facebook and so on, and then moving on to marketplace like Myntra. And, finally going offline. "An omni-channel approach is necessary," says Gudwani. Mall activations, touchpoint marketing and use of digital to drive consumers to stores will all be done.

On digital, more than influencer marketing, Gudwani says the focus on self content creation has helped FS Life. "Self creation allows us to control the content, and the brand voice," she says. Clearly Gudwani has it all sewed up. ■

Cotton prices dominates over MSP, says TNAU survey

Farmgate prices of good quality cotton during October-November this year will likely rule around ₹6,800-7,000 per quintal. Cotton sown during the current season will fetch ₹7,100 during January-February 2024, according to a survey carried out by the Domestic Export and Marketing Intelligence Cell (DEMIC) of Tamil Nadu Agricultural University (TNAU).

This is higher than the minimum support price ₹6,620 a quintal fixed by the Centre for this season (October 2023-September 2024).

The varsity, in a note, advised farmers in Tamil Nadu to take their selling and sowing decisions depending on the onset of North-East monsoon and arrivals from other States. In Tamil Nadu, cotton is grown both under irrigated and rain-fed situations. Sowing of the rain-fed crop in the Southern districts extends up to October.

The survey said cotton production in the North has been affected by Pink Boll Worm (PBW) infestations though the area under the natural fibre crop has increased in Rajasthan, Punjab and Haryana.

The Price Forecasting Scheme is funded by World Bank supported Tamil Nadu Irrigated Agricultural Modernisation project. Quoting the Ministry of Textiles, a press release from TNAU said cotton was cultivated across 130.61 lakh hectares with a production of 343.47 lakh bales during the 2022-23 season — up six per cent compared with the preceding year.

Cotton is largely grown in Gujarat followed by Maharashtra, Telangana, Rajasthan and Karnataka. In Tamil Nadu, cotton cultivations is expanded to 1.62 lakh hectares with a production of 3.56 lakh bales during the 2022-23 season, marking a 10 per cent increase in acreage.

The Price Forecasting Scheme has analysed the past 15 year historical cotton prices prevailed in Salem region and conducted market survey to facilitate farmers to take up selling and sowing decisions. ■

CAI estimates output at 295 lakh bales, lowest in 15 years

The Cotton Association of India (CAI), the apex trade body in its first estimates has pegged the 2023-24 crop size at 295.10 lakh bales of 170 kg each, the lowest in the past 15 years. The estimates for 2023-24 are down by 7.5 per cent over the previous year's 318.90 lakh bales.

"After 2008-09, this is the lowest Indian crop" said Atul Ganatra, President, CAI attributing the fall in output to the impact of prevailing El Nino and also the 5.5 per cent reduction in the cotton area. CAI expects the yields to reduce by 5-20 per cent across different production States due to the unfavourable weather conditions. The trade body finalised the crop estimates in its recent meeting. In its first advance estimates released recently, the Agriculture Ministry had projected the cotton output for 2023-24 at 316.6 lakh bales of 170 kg each, against the previous year's final estimates of 336.6 lakh bales.

CAI sees higher imports of cotton at 22 lakh bales over previous year's 12.50 lakh bales. Including the current crop size of 295.10 lakh bales and opening stocks of 28.90 lakh bales, the total availability of cotton during the 2023-24 season has been pegged at 346 lakh bales, lower than previous year's 355.40 lakh bales. The total domestic demand during the 2023-24 season is estimated by CAI at 311 lakh bales. This includes the consumption of mills at 280 lakh bales and consumption by the small scale industries (SSI) at 15 lakh bales. The non-mill consumption is estimated at 16 lakh bales.

CAI has estimated the surplus during the 2023-24 season at 35 lakh bales, while projecting exports of 14 lakh bales (15.50 lakh bales last year). As per the cotton balance sheet, CAI sees the closing stocks at 21 lakh bales for the 2023-24 season, down from previous year's 28.9 lakh bales.

In the North Zone that comprise of key producing States of Rajasthan, Haryana and Punjab, CAI has pegged the crop at 43 lakh bales, same as last year. In the Central Zone, comprising of Gujarat, Maharashtra and Madhya Pradesh, the production estimated by CAI is 179.60 lakh bales, down from last year's 194.62 lakh bales. Also in the South Zone comprising of Telangana, Andhra Pradesh, Karnataka and Tamil Nadu the output is seen lower at 67.50 lakh bales from previous year's 74.85 lakh bales. ■

SELF-MOTIVATION CHALLENGE IN ONLINE LEARNING IN FASHION EDUCATION

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Internet learning can be broken down into two main areas: content and guidelines. The content of online courses is crucial and should be engaging, using technology such as audio, video, animation, and simulation. The content should also be adaptable and tailored to the student's needs to help them understand the material and move on to new topics. Additionally, guidelines for online learning should be provided through web-based communication such as video conferencing or email and should be flexible to the teaching method, cooperation rules, and the availability of tools based on the institution's approach. The instructions should also be available from any location.

Online Learning during the Covid-19 Pandemic

The spread of COVID-19 has led to the cancellation of in-person classes and the shift towards remote learning through digital platforms. A report by the United Nations Sustainable Development Group (2020) states that while online learning is already a part of the education system, the lack of technology infrastructure is still a more significant challenge, especially for non-industrialized countries. The sudden shift to remote learning has also led to spontaneous changes in curriculum, with students being exposed to different learning applications and digital communication tools such as Zoom, Google Meet, Cisco WebEx, and Mikogo. Students have access to online learning materials, course books, and modules, as well as supplementary materials in the form of audio or video recordings.

Motivation:

Motivation for Online Learning

Specialists and instructors have been keen on student inspiration for quite some time since it is firmly associated with accomplishment and wanted results. Lumsden (1994) characterizes inspiration as students' ability to participate in language learning. Dörnyei (2015) sees it as a vital piece of the complex learning undertaking. Its nonattendance will bomb people regardless of whether they are furnished with the most remarkable capacities, and a vigorous inspiration will compensate for significant lacks. Inspiration is the principal condition to take on a learning task and is the motor that controls the interaction. Dörnyei (2020) recommends that inspiration is firmly connected with commitment and that inspiration should be guaranteed to accomplish understudy commitment. The author offers that any informative plan should mean to keep understudies connected no matter what the realizing setting, customary or e-realizing, which is a problematic situation thinking about the bunch of interruptions in the new century.

The review discusses the concept of motivation in internet-based learning and how it is a crucial aspect that can impact students' success in these types of courses. It references different definitions and perspectives on motivation and its relationship to student engagement. The review also highlights the challenges of internet-based learning, including the potential for distractions and the responsibility placed on students to participate in their knowledge actively. The study also mentions that motivation in internet-based courses is complex and influenced by internal and external factors, with internal factors such as personal attributes being identified as crucial to successful online students. Additionally, it is also mentioned that online students tend to be more motivated by intrinsic factors compared to their offline counterparts.

Theories of Motivation:

Maslow's needs of hierarchy theory suggest that human needs are arranged in a hierarchical order and that individuals must satisfy lower-level needs before they can attend to higher-level needs. The five levels of needs include physiological, safety, belongingness and love, esteem, and self-actualization. In terms of learning, this theory suggests that students must have their basic needs met (such as food and shelter) before they can focus on their educational needs. It also indicates that students who feel a sense of belonging and acceptance in their learning environment will be more motivated to learn.

Attribution theory which helps us understand motivation in learning, suggests that individuals attribute the causes of their successes or failures to different factors, such as effort, ability, or luck. According to this theory, students who attribute their success to their effort and capacity will be more motivated to continue learning and working hard. On the other hand, students who attribute their success to luck or external factors may be less motivated to continue learning.

Atkinson (1964) presented this theory based on the following formula:

Motivation (M) = Perceived probability of success (Ps) × Incentive value of success (Is).

In other words, expectancy multiplied by value equals the overall motivation for a student to engage in a particular task or activity. Expectancy theory suggests that students will be more motivated to learn when they believe that their efforts will lead to success and that success is valuable to them. This theory highlights the importance of setting clear and achievable goals for students and providing them with the necessary support and resources to achieve those goals. Additionally, it highlights the importance of making learning relevant and meaningful to students, as this can increase the perceived value of the task and ultimately lead to increased motivation and engagement. Overall, expectancy theory provides a valuable framework for understanding how students' perceptions of success and the value they place on their expectations can influence their motivation to learn.

These theories can provide insights into the complex nature of motivation in learning and help educators design and implement strategies to promote student motivation. However, it is essential to remember that motivation is a dynamic and multi-faceted construct and may be influenced by various factors.

Achievement Motivation:

It is a drive that pushes students to strive for success and choose goal-oriented activities with success or failure outcomes. This type of motivation is crucial in education as it affects the cognitive, emotional, and behavioral aspects of students' engagement in the educational process. Standards of excellence and competition can result in achievement motivation through performance evaluations. It is a form of inspiration characterized by a competitive drive and a desire to achieve high-performance standards. It can be increased by individual effort in all activities and helps reflect the individual's perspective of excellence.

Student's Goals and Motivation:

The section discusses the importance of setting goals for students to stay motivated in their education. Studies have shown that performance increases by setting goals and decreases when goals are removed or lowered. Dweck and Leggett have proposed two goals from a motivational perspective. The first type is learning, or personal growth goals focused on learning and personal development. This type of goal is called mastery or autonomy goal. The second type of goal is performance or external validation goals, which are focused on demonstrating capability and meeting external standards. This type of goal is called a performance or external validation goal.

Teacher's Expectation and Motivation:

The section discusses how teachers' assumptions and beliefs about their students can impact their students' academic achievement and motivation. Studies have shown that teachers' perceptions of students, particularly in early school years and when teachers have limited knowledge about their student's abilities, can influence students' performance. The study by Heyder and colleagues found that teachers who believe math requires innate ability may negatively impact low-achieving students' natural motivation. This suggests that teachers' beliefs about the innate ability being a requirement for mathematical success may hinder creating a classroom environment that promotes student engagement and learning.

Barriers to online learning:

Various barriers can impact e-learning and its connection to learning motivation and achievement. Two sets of barriers arerelated to technical facilities and support and those about pedagogy, belief, or personal preferences. These barriers can be classified as material, such as lack of ICT resources, or non-material, such as teachers' knowledge and skills. Research has shown that these barriers can significantly impact e-learning performance and student motivation and attitude, which can negatively affect academic achievement. Therefore, teachers and administrators must develop creative solutions based on best practices to ensure that educational learning objectives are met. The text also emphasizes the importance of understanding the underlying foundations of motivation to enhance it.

Student Motivation and Engagement:

In this manner, an individual who feels no catalyst or motivation to act is portrayed as unmotivated. However, somebody stimulated or enacted toward an end is thought of as propelled. This signifies that inspiration can be something that keeps us 'moving.' Inspiration is characterized as the 'want or ability to accomplish something. Understudy inspiration and commitment are related components of understudy discovery that can affect learning results. Lager et al. (2010) express that disregarding the way that there is no generally acknowledged meaning of what involves commitment, understudy, and school achievement, understudy maintenance, and

understudy inspiration are connected 100% of the time to commit. For example, a portion of the early investigations characterized commitment as far as viewpoints like revenue (Dewey, 1913), exertion (Meece & Blumenfeld, 1988), time on task (Berliner, 1990), and inspiration (Skinner & Belmont, 1993).

Motivation is the drive or desire to accomplish something. It is a crucial component in student learning, affecting engagement, achievement, retention, and overall motivation. Commitment and motivation are closely related and are often linked to student success. Studies have defined commitment differently, including through factors like interest, effort, time spent on tasks, and motivation.Online student commitment is characterized as understudies' active interest in e-learning exercises (for example, conversation strings and virtual homeroom) to accomplish learning objectives. Inspiration is a fundamental component to drawing in students and, in this way, upgrading understudy's opportunities for growth.

Motivation is the drive or desire to accomplish something closely related to student engagement and commitment to e-learning. Student engagement, or active participation in online learning activities, is crucial for achieving learning objectives, and motivation is considered a critical factor in promoting student engagement.

Factors affecting motivation:

Internal Factors:

Their expectations and satisfaction with the course content, communication needs, and level of self-determination were frequently implicated and emerged as sub-themes.

External Factors:

Participants generally believed that face-to-face education was better than online education due to external reasons. A common opinion stated by all the participants against online education was that they found face-to-face education, especially classroom environment, more motivating.

This suggests that traditional in-person education's social and interactive aspects significantly influence student motivation and engagement. Students may also prefer immediate feedback and interaction with their peers and instructors in a traditional classroom setting, which can enhance their learning experience. However, it is worth noting that online education has constantly been improving, and many universities and institutions are now providing an interactive and engaging online learning experience. This can help bridge the gap between traditional and online education for student motivation and engagement.

Learning Management System

Anderson et al. (2001) recommend that an 'Insightful plan of learning exercises is basic to achieving instructive results' (p. 15). The plan and how courses are organized can be crucial variables related to understudies' inspiration and positive/ negative encounters with learning on the web. The understudies also featured the significance of an organized course and liked that the teacher 'has been a generally excellent facilitator and his work is organized' (Christine, interview 2). Understudies additionally referenced that all the data is there, and they can peruse it, time permitting. Brenda recognized that the course has a legitimate association of materials and ideas that assist understudies with understanding the subject better. The consistent plan of the learning materials to give a comprehensive, organized course supported understudies' advantage and driven understudies to partake in learning exercises effectively.

It is important to note that while face-to-face education may be seen as more motivated by some students, it is not necessarily the only way to achieve motivation and engagement in learning. The design and organization of online courses play a crucial role in creating a positive and engaging learning experience for students. A well-structured course with clear goals and objectives, organized materials, and effective facilitation can support student engagement and motivation in online learning. Therefore, educators need to focus on designing and delivering online courses that are engaging and motivating for students.

Learner-to-instructor interaction:

Student-to-student cooperation is crucial for internet learning and prompts understudy commitment. To keep online understudies from encountering likely weariness and disengagement in the learning climate, it is fundamental to construct exercises that upgrade commitment. These exercises help understudies feel associated and can create a unique feeling of the local area. Adore, Kovach, and Banna et al. tracked down those customary innovations for connected learning,such as conversation sheets, visit meetings, web journals, wikis, bunch undertakings, or friend appraisal, which have served well in elevating understudy-to-understudy communication in internet-based courses. The creators enthusiastically suggest using electronic

applications, for example, Twitter channels, Google applications, or sound and video innovation like Wimba Collaboration Suite, to develop commitment in internet-based courses further.

The barriers to e-learning can be categorized as technical, pedagogical, and personal. Material barriers include a lack of ICT resources, while non-material barriers include a lack of teacher knowledge and skills. These barriers can hurt student motivation and achievement. Teachers and administrators should develop creative solutions based on best practices to overcome these barriers. Additionally, student-to-student cooperation is crucial for online learning and can be promoted through interactive activities such as discussion boards, group projects, and peer assessments. The use of technology such as social media, video conferencing, and collaboration tools can also enhance student engagement in online courses.

Banna et al. (2015) recommend videoconferencing or talking in simultaneous exercises and conversation sheets in nonconcurrent exercises as they improve understudy-to-understudy communication. Using web-based media in web-based courses gives a valuable chance to upgrade commitment through close collaboration. Student-to-teacher collaboration prompts higher understudy commitment in internet-based courses (Dixson, 2010; Gayton & McEwen, 2007). Numerous understudy teacher correspondence channels might be exceptionally connected with understudy commitment. Online educators recommend focusing on understudy teacher associations since they might influence learning results (Dixson, 2010; Gayton & McEwen, 2007). The creators tracked down compatibility and cooperation between understudies and teachers in an intelligent and durable climate, including bunch work and informative input, which are significant for understudy commitment bringing about learning achievement. Understudies regularly contact educators about tasks, course materials, and grades; yet to be more compelling, online guidance ought to incorporate open doors for understudies to interface with each other and teachers relating to what makes their learning significant. Furthermore, Gayton and McEwen stress that teachers'

Availability and responsiveness to student inquiries and concerns are crucial for building positive student-teacher relationships and promoting student engagement and commitment. Overall, it is essential for online educators to create opportunities for student-to-student and student-to-teacher collaboration and to use different forms of communication and technology to enhance these interactions. This can create a sense of community and promote student engagement and commitment in online learning environments.Dixson (2010) and King (2014) concur that there should be participation and joint effort among understudies and teachers in web-based courses to increment online understudy commitment. Research has noted that affinity and coordinated effort among understudies and educators in an intelligent climate are significant. Lord (2014) observed that understudies evaluated careful and opportune teacher criticism of their work as most important so they can improve their learning process. Smaller than usual recordings and screencasting are methods to build teacher believability that have been accepted to bring numerous instructive advantages. Venerate, and Kovach (2011) and Robinson and Hullinger (2008) recommend the utilization of new yet grounded advancements, for example, conversation sheets, talk meetings, websites,wikis, bunch undertakings, Twitter, Skype, YouTube, and Ning organizations, to cultivate understudy commitment.

Learner-to-content interaction

Student-to-content commitment is mentally collaborating with the substance, which can change a student's arrangement and viewpoints. Abrami, Bernard, Bures, Borokhovski, and Tamim (2011) express that an understudy-to-content connection can happen while watching educational recordings, collaborating with sight and sound, and looking for data. Both coordinated and offbeat conveyance are successful choices that help online understudies get to content for fundamental cooperation. Online educators are encouraged to contribute adequate time looking for insightful perusing and intuitive informative materials and planning thoroughly examined evaluations to urge understudy to-content commitment. Genuine use of tasks that improves subject authority and powerful reasoning abilities is one technique connected with cultivating student-to-content commitment. Venerate and Kovach (2011) suggest making the substance wake up utilizing true innovation, which upgrades understudy commitment. Online teachers should be primary in picking material and content when they wish to draw in understudies more in their courses. Online understudies ought not only to be given a rundown of assets but instead, teachers should plan simple exercises that give chances to analyze the errands according to alternate points of view and that urge understudies to be admirably involved

in pertinent data simultaneously. Dixson (2010) reports that understudies observed an assortment of exercises that caused them to feel connected, including course the executives' framework highlights, successful correspondence, and course assistance techniques.

Community of Inquiry:

The CIO framework emphasizes the importance of community and interaction among students and teachers in online learning environments. By fostering teacher presence, cognitive presence, and social presence, the framework aims to create a dynamic and engaging learning experience for students. Teacher presence refers to the ability of the instructor to guide and facilitate learning, cognitive presence refers to the ability of students to engage in critical thinking and problem-solving, and social presence refers to the ability of students to interact and collaborate with their peers. Together, these three elements create a sense of community and engagement essential for student success in online learning environments.

Instructor presence creates meaningful outcomes: curriculum design, active instructor facilitation, and integrating multiple pathways for the educational process's cognitive and social aspects. As students enter the depths of the course, instructors are engaged, present, and active and provide meaningful feedback. Cognitive presence, on the other hand, refers to the ability of students to construct and confirm meaning through sustained communication and critical thinking. This is achieved through active discussions, problem-solving, and reflection. Social presence, on the other hand, refers to the ability of students to establish and maintain a sense of community and belonging in an online learning environment. This is achieved through communication, collaboration, and the sharing of personal experiences. Together, these three elements of presence create an environment that encourages active participation, critical thinking, and a sense of community, all of which are critical for student engagement and success in online learning.

The community of inquiry (CIO) framework is a powerful tool for creating compelling online learning experiences by incorporating three essential elements: teacher presence, cognitive presence, and social presence. The intersection of these three elements creates a student-centered environment that fosters active discussions and understanding of different perspectives and challenges student assumptions. To achieve success in online education, it is essential for instructors to be engaged, present, active and provide meaningful feedback. Additionally, informal communication tactics can enhance social presence by encouraging student-to-student interaction and fostering a sense of community. For online education to be successful, administrators must also commit to supporting instructors through ongoing professional development.

Training, Feedback, and Support

Program administrators play a crucial role in supporting faculty to improve their online teaching skills and stay up-to-date with the latest best practices in online education. This includes providing ongoing professional development opportunities, resources, and support to help faculty create and deliver high-quality online courses that align with institutional, school, department, and program policies and standards. Additionally, program administrators should monitor and evaluate online courses' effectiveness and provide feedback and guidance to faculty to help them improve their teaching practices and student outcomes. Overall, the role of the program administrator in online education is to provide the necessary support and resources to ensure that faculty can deliver high-quality online instruction that meets the needs of students and contributes to the program's success.

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EFFECT OF FIBER AND RESIN PROPORTION ON TENSILE AND FLEXURAL PROPERTIES OF COMPOSITE

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Abstract

This study was focused to verify the suitability of composites for purpose of power transmission. Such attempts are already made for intermittent working machines. However, for continuous working machines it is yet to be done. Reviewing cited literature, it was decided to use Carbon and Glass fibers in different proportions. Epoxy resin was selected to use for making composite. Glass and Carbon fibers were used in fabric form for achieving better arrangement in composite. In this study composite samples were made by using different proportions of Carbon – Glass fibers in form of fabric and epoxy resin. Ten samples of composite plates were made by using hand ley method and subsequent curing was carried out at room temperature. The samples were tested for tensile and flexural strength followed by statistical analysis. Results of test carried out showed that tensile and flexural strength of composite depends on both fibers and resin properties and their proportions also. It is therefore important to engineer the elements and their proportions of composite so that it can be employed for specific task. In order to design the composite for power transmission purpose use of high-performance fiber in braided form alongwith Glass, Carbon fibers and epoxy resin may yield useful results.

Keywords : Composite, Carbon fibers, Glass fibers, Epoxy resin, Tensile strength, Flexural strength.

1. Introduction

During last few years there is pace acquiring trend in industrial and machine development related issues to make the system and components energy efficient. This need can be fulfilled by reducing moment of inertia of machine and its components. Design engineers are working accordingly to modify their machine parts. This activity is getting support by entry of FRC i.e. fiber reinforced composites, many composited are being used and tested to eliminate conventional metal and alloys. Suitably engineered composite makes the machine energy efficient and better stable from vibration and noise point of view. Composites are well adopted by industry general applications like covers, bearings andminor components but work is still in progress to make composites suitable for power transmission purpose. The fibers like Glass, Carbon and Kevlar have better scope for such end applications.

In composites fibers and resin are chief components which play their role to decide properties of composite. Machine part involved in Power transmission need adequate strength in tensile, bending and torsional shear. Obviously during designing fibers and resin having better strength and rigidity are preferred. In present study Glass and Carbon fibers are used in five different proportions and two proportions of epoxy resin are utilized to make ten samples. This article is related to results of tensile and flexural properties of these ten samples.

2. Materials and Methods

2.1 Material

Carbon, Glass Fibers and Epoxy resin were selected as components of composite after reviewing the literature. The proportion of resin was selected 15% and 40% on weight basis also same principle was followed for fiber proportion. It can be explained as – In case of sample made with 15% epoxy on weight basis was taken and remaining quantity of fibers were used. In order to make sample of 50:50 Carbon – Glass, both fibers were used in equal quantity that is summing up to 85%.

2.2 Methodology

Ten samples were prepared by varying two resin proportions i.e. 15%, 40% and five fiber percentages were decided as -

1. Carbon fibres 100% and zero percent Glass fibres
2. Carbon 60% and Glass fibres 40%
3. Carbon fibres 50% and Glass fibres 50%
4. Carbon fibres 40% and Glass fibres 60%
5. Carbon fibres 0% and 100% Glass fibres.

The samples were made by hand lay method and cured at normal temperature.

TABLE 1

Sr No.	Resin %	Carbon %	Glass %
1.	15%	85(100)	Nil
2.	15%	51(60)	34(40)
3.	15%	42.5(50)	42.5(50)
4.	15%	34(40)	51(60)
5.	15%	Nil	85(100)
6.	40%	85(100)	Nil
7.	40%	51(60)	34(40)
8.	40%	42.5(50)	42.5(50)
9.	40%	34(40)	51(60)
10.	40%	Nil	85(100)

EFFECT OF FIBER AND RESIN PROPORTION ON TENSILE AND FLEXURAL PROPERTIES OF COMPOSITE

Testing of the samples was done as per following standards –

Sr. No.	Test	Test methods/standards
1.	Tensile strength	ASTM D7914 M-21.
3.	Flexural rigidity	ASTM D7748

3. Results and Discussion

The composite samples were tested using INSTRON 5565 equipment and obtained results were analysed using two way ANOVA without replication.

The results of testing are presented in table given below :

Table No. 2. Results of samples with 15% resin proportions

Sr. No.	Carbon %	Glass %	Tensile strength (MPa)	Flexural strength (MPa)
1.	100	Nil	27.8	208
2.	60	40	31.1	317.4
3.	50	50	39.8	221.8
4.	40	60	25.6	232.368
5.	Nil	100	23.4	354.548

Table No. 3. Results of samples with 40% resin proportions

Sr. No.	Carbon %	Glass %	Tensile strength (MPa)	Flexural strength (MPa)
1.	100	Nil	49	353.6
2.	60	40	63	383.6
3.	50	50	60.8	564.444
4.	40	60	44.8	519.412
5.	Nil	100	45	411.374

Effect of fibre proportions and resin proportions on tensile strength of composite

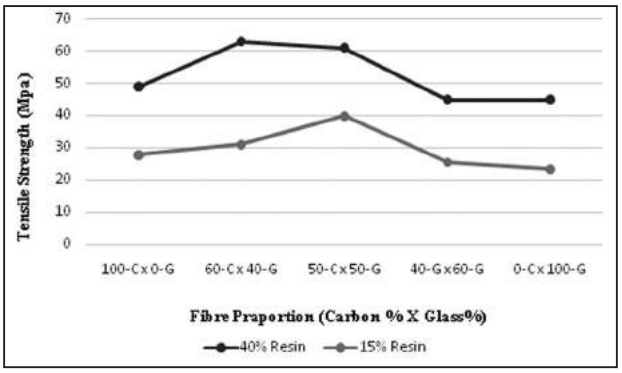

Fig.1 Tensile strength of composite

Fig. 1 is a graphical representation of tensile strength of composite samples. Different proportions of epoxy resins i.e. 15% and 40% epoxy remaining part of fibres (Carbon and Glass). In total with above formulation 10 samples were made and tested for tensile strength.

It is found that samples made with 40% proportions of epoxy have higher tensile strength than the samples made with 15% proportions of epoxy. The increment in tensile strength in 40% resin proportion is from 0% to 50% glass proportion in composite and then it almost steady.

In case of 15% resin proportion same trend is seen i.e. tensile strength increases from 0 to 50% glass fibres and it get stabilized. The difference in the tensile strength values of composites with different fibre proportions is statistically significant. The epoxy uptake capacity of glass fibres is greater than that of carbon fibres and strength of epoxy resin also high and hence this trend is might be seen. In terms of load carrying capacity, the comparison of these composite and steel drive shafts showed that the composite models have higher fundamental natural frequencies and lower masses than the steel drive shaft models. As a result, using composite drive shafts is considerably more appropriate than using their steel counterparts, which is in line with A Khalkhali's findings [7].

Effect of fibre proportions and resin proportions on flexural strength of composite

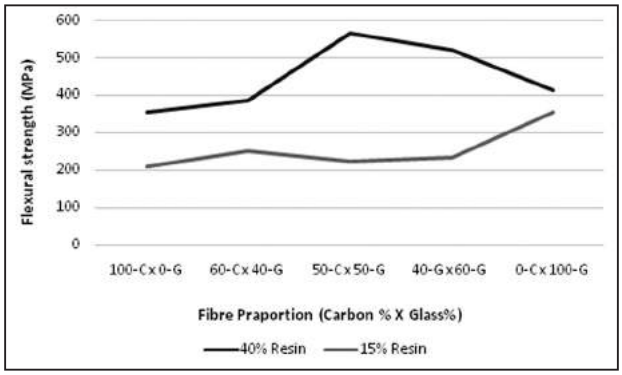

Fig. 2 Flexural strength of composite

Fig. 2 is graphical representation of flexural strength results of composite samples. Flexural strength made using 40% proportions of epoxy is found significantly higher than that of 5 samples made with using 15% proportions of epoxy. It is around 75% greater in case of samples made with 40% proportions of epoxy.

In case of samples made with 15 % proportions of epoxy flexural strength of samples made with 0%, 40%, 50%, 60% of glass fibres is almost same around 200 MPa and for 100% glass fibers, it is higher about 350 MPa.

Test results of composites made with 40% proportions of epoxy have shown different behavior. The flexural strength found slightly increasing from 0% to 40% proportion of glass fibres. At 50% proportion it has shown highest value 560 MPa and thereafter for 60%G:40%C and 100%G:0%C fibres it decreased gradually to 400 MPa.

The difference in the flexural strength values of composites with different fibre proportions is statistically significant. Resin uptake capacity carbon less than glass and hence as uptake capacity is high, it absorbs more resin and the resultant composite become stiff therefore flexural strength shows higher in nature from 0%G:100%C to 50%G:50%C of glass fibre proportions in both cases i.e. 15% and 40% resin proportions.

4. Conclusion

Considering results of testing and their analysis, it can be said that Tensile and Flexural strength of Composite is significantly higher in case of composite made from 40% i.e. higher percentage of epoxy resin.Percentage of fibers also plays important role in Tensile and Flexural strength of composites and in particular Tensile strength of sample 2 (i.e. 60% Carbon : 40% Glass) and sample 3 (i.e. 50% Carbon : 50% Glass) was found highest in case of both resin proportions. Flexural strength of samples 3 (50% Carbon : 50% Glass) and sample 4 (i.e. 40% Carbon : 60% Glass) was found highest

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AN REVIEW ON FABRIC FAULTS IDENTIFICATION IN CIRCULAR KNITTING MACHINES

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ABSTRACT

When carried out by human eyes, the quality control procedure for identifying fabric flaws results in a significant cost and time waste. The paper presents a comprehensive literature review of knitted fabric fault detection methods. It explains the fabric defects and online, manually inspection methods such as components of camera and camera lens. Defects identifications methods are categorized into four classes structural, histogram, co-occurrence matrix,mathematical morphology methods. Particularly lens and light sources are explained.

In this study mainly to identifying the fabric faults in circular knitting machines.

INTRODUCTION

Textile industry mainly in production of woven and knittedfabrics [1]. Fabrics are made from natural or manmade fibres. The characteries of fibres are natural and manmade fibres. Natural fibres are of cotton, silk, and wool [2]. And the manmade fibres are synthetic fibres.

It has durable and elastic nature [3]. The manmade fibre has the following demerits, it easily melts on burn, and it is a non-biodegradable nature [4]. It is generally textile fabrics are produced by natural and manmade fibres-based material. In the textile industry of knitting machine are produced a defect in the different parameters of the fibres [5]. In the knitting production have set of yarn to form an interlocking loop [6]. In the knitting had a two basis types are warp and weft knits [7]. Most of the textile material has a several defect in the fabric. In the knitting machine of defect are defecting automatically [8]. Quality is very must be important for the customer and satisfied the customer requirement. In the fabric have a certain requirement of defects are there [9]. And the defect is identified in the textile industry in different way [10]. The defect is identified in the different ways are manually and automatically [11]. Warp and weft, two sets of straight yarns that cross and interlace at right angles to one another, are what make up a weave [12]. A loom is the tool used to weave fabric. Several flaws in fabric develop throughout the weaving process [13]. There are various types of faults, defects, and issues in the weaving are warp streaks, Reediness, weft bar, weft crack, both thick and thin areas.Numerous flaws are found in knit fabric in the textile business, ranging from the production process to the completely unexpected dyeing finishing [14]. These kinds of fabric flaws lower the knit fabric's overall quality, which eventually has a big effect on the profit margin [15]. A textile engineer should be knowledgeable about all knit fabric flaws [16]. Difficulties, knitting mills must consistently create high-quality fabrics to prevent fabric rejection [17]. For better quality and productivity while producing knitted fabrics with circular knitting machines, fault detection is essential [18]. Any difference in the knitted process needs to be investigated and fixed [19]. Integrating suitable quality assurance would ensure excellent quality standards. According to industrial analysis, by keeping an eye on the circular knitting process, quality can be increased, and defect costs can be reduced [19]. For increased quality and productivity while producing knitted fabrics with circular knitting machines, defect detection is essential [20]. Traditional manual cloth inspection takes a long time and is ineffective and low output [21]. There are specific technical requirements for manual cloth inspection as well as inspector vision requirements [22]. Given the high level of labour intensity, prolonged vision concentration can easily lead to eye fatigue and occupational diseases [23]. They are roughly ten flaws. It is simple to overlook examination and make judgement errors if it exceeds this range [24]. Nowadays, functional, and high-performance fibre fabrics are utilised extensively in the fields of aerospace, aviation, military engineering, navigation, and other spheres of application [25]. As a result, the fabrics must be free of flaws and leaks. Inspection of cloth manually is challenging to accomplish. Inspectors' subjective manual cloth inspection.

Investigation and correction are required for any variations in the knitting process [26]. By implementing suitable quality assurance, the high-quality level may be ensured [27]. Numerous researchers have used computer vision to enhance the human visual inspection process for textile items [28], and in most of these studies, the image of knitted clothing was used to specify the flaws' characteristics [29]. Others have attempted to

categorise knit fabric flaws using image analysis, neutral network algorithms, or fuzzy logic [30]. In comparison to woven fabrics made up of tidy warp and weft yarns, image analysis of knitted fabrics presents challenges because of the loop structures and yarn hairiness [31]. As a result, none of these methods are totally reliable [32]. By looking at the yarn's input tension and loop, knitted fabric flaws can also be found, however these techniques are only effective for a select few flaws [33].The Traditional Cloth Inspection Machine offers a hardware environment, continuous segments expand textiles, and a sufficient light source; by sight of the operator, we can recognise cloth and colour flaws, and Inspection Machine autocomplete recall long and package completing job [34]. Intelligent Cloth Inspection Machine with intelligent defect detection device, real-time image acquisition and analysis system, images and detect defects circumstances collected is transmitted to analysis by the result of the Inspection Machine sends commands to control test boot volume machine, reverse, brake, and other operations. Using human inspection to examine knitted fabric [35]. The most common method for classifying flaws after knitting and after finishing is still human examination utilising knitted fabric inspection machines. In general, flaws in the examined knitted roll are categorised by type and frequency [36]. The inspection evaluation enables one to judge fabric quality [37]. The evaluation of a fabric's quality is dependent on the tolerance limits for flaws set by each knitter and may occasionally be subjective because it frequently just considers the quantity of flaws, rather than their size and heaviness [38]. Novel inspection technique was suggested to categorise flaws and assist knitters in more objectively appreciating fabric quality [39].

KNITTING DEFECTS

Vertical stripes are caused of defective sinkers or needle [40]. In solution are Needles and sinkers must be replaced after extensive use as looking over needle detectors of the employing a fabric fault detector [41]. Horizontal Stripes are Caused at all feeders, couriering or yarn consumption are not constant [42]. In horizontal stripes have a solution as Consumption of yarn and modification of couriering [43].Textile Spirality of the distorted fabric made of simple knit [44]. Wale is not parallel to courses. In the Causes are too much yarn twist and too many feeders are present [45]. A bad match exists between the direction of yarn twist and the direction of machine rotation [46]. some solution to controlling yarn twist (it shouldn't exceed 700 tr/m). In decrease in the number of feeders [47]. When using machines with needles, use Z-twist yarn and observe the direction of rotation the other way around [48]. Them to Finishing properly lessens cloth spirality [49]. Dropped stitches are when needles occasionally unhook the provided yarn, a local column of dropped stitches results [50]. Have a causes column of dropped stitches obtained when presented yarn is occasionally unhooked by needles [51]. And Yarn-guide not properly set as a defective needle latch are a yarn tension is not sufficient or too long stitches as take-down too high the cylinder-dial distance too high of wrong yarn threading [52]. In solution of the Consumption of yarn and modification of couriering as adjustability of the takedown in the dial position modification threading yarn through the proper bore [53]. And employing a fabric fault detector [54]. This error can be fixed by reconstructing the stitches using a basic needle [55]. HOLES are when a yarn splits during loop construction, little holes result [56]. In the some causes the yarn with knots present at the Weak spots in the yarn its high yarn tension has a too-dry a yarn are incorrectly placed yarn guides a build-up of yarn hair has obstructed the yarn guide [57]. In holes are incorrectly placed yarn guides [58]. So many solutions for using flat knots and they control of yarn regularity of consuming yarn and couriering as readjustment and humidification of air can resetting the yarn guide precisely to utilizing yarn with less hair, blowing bobbins and yarn guides, and using a protective filter creel as the employing a fabric fault detector [59]. In the deposit of yarn hair as whenknitting, yarn waste such as yarn hair accumulates on the needles and cloth [60]. In the defect have causes as the unsuitable air blowing of use of yarn with a lot of hair [61]. And a different machine using several yarn types in one location [62]. The Solution of this defect is CKM blowing frequency and intensity adjustments Using yarn with less hair, blowing bobbins and yam guides, and using a protective filter creel partition used for machine separation to the Knots not appearance on fabric [63& 64]. Some causes are unsuitable yarn knotting and the solution to using flat knots are employing a fabric fault detector [65]. Fabric shedding ismany sequential needles lose stitches [66]. As the causes are local dropped cloth results [67]. In the yarn-guide yarn rupture brought caused by weak spots in the yarn or yarn hair accumulation

[68]. Stitches break because of too much take-down or weak spots in the yarn in the investigator yarn feeder of the high yarn tension as incorrectly placed yarn guides to the defective sinkers or needles [69]. For the defect have a solution of before knitting, manage the yarn. Utilization of lower-haired yarn, blowing of bobbins and yarn guides, and the use of a protective filter creel [70]. And the adjusting the take down checking CKM elements Consumption of yarn and couriering adjustments precisely Resetting the yarn guide After extensive use, needles and sinkers alter regularly cleaning machines [71]. Oil smudges are they after fabric finishing, localised oil streaks from lubricating machines are apparent [72]. Some special causes in the insufficient oil are improper oiling circuit the Excessive oiling [73]. Solution to using sufficient oil and adhering to advice regarding oil cleaning (temperature, grey fabric storage duration) to routine circuit checking and oiling of the revising the amount of oil used [74]. Absent Yarn are the regular yarn tha absence yarn could be obtained when knitted fabric course is composed by more than one yarn [75]. Special causes are incorrect yarn stranding of faulty yarn feeder [76]. Yarn-guide yarn rupture brought caused by weak spots in the yarn or yarn hair accumulation [77]. And the solution of threading yarn through the appropriate bore a CKM element verification of the knit before controlling the yarn [78]. Utilizing yarn with less hair, blowing bobbins and yarn guides, and using a protective filter creel as the routine machine maintenance as they are employing a fabric fault detector [79]. Foreign Thread is a foreign yarn other than the yarn that is typically used is mistakenly introduced; regular-coloured stripes start to develop after dyeing [80]. As a employing a fabric fault detector to the workers' negligence of multiple yarn kinds with the same colour on the same creel are present [81]. In the solution are educating employees to recognise various yarn types of strict storage and sorting of yarn [82]. Misplacing of elastomers is typically no elastane yarn [83]. In the special Causes are the elastane yarn feeder with a defect of incorrect elastane roll-guide set [84].

MANUALLY INSPECTION

The fundamental level of fabric inspection is the manual inspection system [85]. It entails the visual examination of fabrics on flat or sloping inspection tables that are often top- and bottom-lit [86]. The inspector can manually locate, mark, and record the flaws on the inspection form by dragging the fabric over the table [87]. Product inspection is a crucial component of contemporary manufacturing sectors like those in the electronics, automotive, and medical sectors [88]. Determine whether a product deviates from a given set of specifications is the broad definition of this preventive process [89]. There are primarily two distinct methods for detecting fabric defects [90]. The first is the product or end (offline) inspection, which requires fabric inspection machines to check the created fabric [91]. The textile industry now relies heavily on quality control at every level of production to survive in the fiercely competitive global market [92]. Early and precise fabric defect identification is a crucial stage of quality control, yet manual fabric defect inspection has problems with accuracy and time consumption [93]. Inspection systems can guarantee the best quality of the goods on hand and assist in improving the product quality, helping to strengthen the company's reputation and make it more competitive in the market [94]. As a result, many manufacturers, particularly in the textile sector, focus on improving the inspection system [95]. Because it is so inexpensive, human inspection is frequently utilised in the textile business [96]. It uses low-cost off-the-shelf components and may be put on any inspection machine without requiring any modifications [97]. Additionally, it employs a powerful inspection technique that is based on binary image processing, statistical texture analysis, and neural networks [98]. The assessment of quality is crucial for lowering costs and enhancing the finished product, yet textile quality control represents a significant issue in the textile sector [99]. The fact that the testing sample represents the entirety of the factory's production is one of the key issues with textile quality control, which emphasises the necessity for an effective and quick technique of quality control [100]. Currently, a manual procedure is used to verify textiles after production, offline [101]. This is done by several human controllers [102]. Real-time processing needs and spatial resolution in the field of industrial quality control frequently result in input data rates that are many times greater than 10 million pixels per second [103]. An extremely high processing throughput is required by the high input data rate [104]. Quality control is now done at a workstation in the textile industry [105]. The textile roll is unwrapped in front of a back-illuminated console at this quality control workstation [106]. The inspector

examines the fabric visually while standing in front of it [107]. As product quality standards continue to rise in a climate of intense manufacturer competition, inspection of industrial items for product quality control plays an ever-increasing role in manufacturing processes [108]. Most of the time, visual inspection duties are still carried out by people [109]. This is true even though this type of activity needs intense, constant concentration [110]. The reliability of the detection of defective material is limited by maintaining weariness and inattention [111]. These reasons make it highly likely that management and labour unions will have little to no opposition to the implementation of automation in the field of inspection [112]. The intent is to show how texture measurements can be used to distinguish between different types of pictures [113]. Based on density in the various spectral bands, multispectral images collected from aircraft and satellites have successfully been divided into land use groups [114]. Spatial patterns, however, can contribute more details to boost classification precision.[115]

A circular knitting machine uses more than two knitting needles to create the fabric [116]. Different knitting equipment with varying yarn tension result in varying loop lengths and stitch durations [117]. In this study, an innovative intelligent method is used to regulate the loop length of stitches in various tools based on the ideal stitch shape and the actual thread direction angle, whereas varying stitch loop lengths result in deformed stitches and angle deviation [118]. Images of various materials with continuous front lighting were processed using image processing techniques to measure deviation of stitch direction versus variation of tensions [119]. The rate of distortion is then converted into the amount of loop length and cam correction required to correct the deformation of the stitches [120].

AUTOMATION IN FABRIC DEFECTS

In knitting production have some defect in the fabric. In the 1990s, the automation of inspection procedures within the textile sector has been studied [121]. This requirement exists in industry generally, and the textile. In this industry, defect identification is crucial to lowering costs and increasing customer satisfaction because it saves time and money [122]. Tested two image analysis-based methods for spotting slobs and knots in plain, solid-coloured woven materials [123]. To identify defects using to establish the nominal fabric repeat unit size and form, we employed autocorrelation in conjunction with grey level statistics [124]. System for automatically analysing woven fabrics' structures and performing objective evaluations [125]. Count, cloth cover, yarn crimp, fabric thickness, and weight per unit area are just a few of the fabric construction parameters that can be measured automatically by looking at fabric images that have been taken with a camera and then pre-processed with Gaussian filtering and histogram equalisation [126]. The evaluation of knitted materials for fuzz and pills using digital image analysis has been automated [127]. The process uses an automatically created Fourier mask to separate the background knitted stitch from the fuzz and pills on the fabric [128]. To tested two image analysis-based methods for spotting slubs and knots in plain, solid-coloured woven materials [129]. To identify defects using [130]. An image-processing system typically consists of three core components: an element for acquiring images, one for processing those images, and one for displaying the results [131]. An uninterrupted scene is turned into a digital image and kept [132]. The image-acquisition component's memory [133]. The image-display element presents this image in some way for human viewing. Image enhancement, image analysis, and image coding are the three main task categories that the image-processing element is intended to do [134]. Image analysis would support a visual evaluation and seems to be a reliable way to measure the properties of fibre cuticular scale patterns [135]. The method offers the capacity to precisely measure several new characteristics and their variability, which can help describe a fear pattern and may lead to a method of classifying fibres [136]. From the image analysis of a set of reference photos, a fully automatic method for pilling evaluation in wear-and-tear materials is devised [137]. To separating pills from the web's textured background, the approach employs operations in both the spatial and frequency domains [138]. It determines the sample image's overall pilling area and assigns a degree of pilling in accordance with the standard [139]. Using the visual estimation of the area of pilling carried out by a group of observers, two mathematical descriptions are assessed in accordancewith the fundamental rule set by the standard images [140]. Eventually, a logarithmic (in base 2) technique is used, which is in accordance with the principles of human visual perception and makes it easier

to optimise the procedure [141]. We have created a procedure that is impartial for assessing cloth pilling [142]. The technique uses operations in the frequency and spatial domain to combine image analysis of samples to produce a binary image in which the objects (pills) appear segregated from the backdrop (textured web) [143]. The primary tasks are periodic data filtering and patterning, blending, local binarization, and calculation of the total pilling area [144]. We used the technique on a collection of typical photos of pilling [145]. Image analysis can offer accurate, unbiased measurements of the textural characteristics of carpet design and look [146]. Now, subjective human observers are frequently used to assess changes in carpet look, which is a slow and extremely variable process [147]. In product design, performance improvement, quality control, and the evaluation of aesthetic changes with use, a trustworthy, instrumental texture analysis method will be crucial [148]. Discussion is held regarding the ideal lighting and camera focussing conditions for texture measuring. Additionally emphasised are the effects of substrate colour and sample orientation [149]. While basic shade carpets are the focus of this study, potential techniques for assessing the pile texture of coloured pattern carpets are also covered [150]. Image analysis is thought to have a bright future as a scientific technique for analysing carpet performance, as an impartial method of evaluating carpets, and for improving products and ensuring product quality in the carpet manufacturing industry [151]. While texture is focused on the spatial (statistical) distribution of grey tones, tone is based on the many shades of grey that resolution cells in a photographic image can exhibit [152]. The concepts of texture and tone are not independent; rather, they are intimately related to one another, much like a particle is to a wave [153]. Although one element may occasionally take precedence over the others, context, texture, and tone are always present in the image [154]. Image acquisition, feature extraction, comparison, and decision-making are the four processing steps that make up the operation of an automated visual inspection system [155]. It is significant to remember that the strategy employed determines whether an automatic inspection system is successful [156].

Visual inspection of textiles is used by both the detergent industry and textile manufacturers to assess their visual quality [157]. Most expert panels rate textile samples against one another or against predetermined reference samples to evaluate them [158]. The main problems with an expert panel evaluation process are two. First, the process extremely becomes time- and money-consuming because numerous experts are required to produce trustworthy results [159]. Second, the approach is subjective, and the outcomes will depend on the experts used and how they were trained [160]. To evaluate textile samples for fuzz and pills, it would be preferable to establish a system that is objective, quick, accurate, and automatic [161].

ONLINE CONTROLLINGOF KNITTED FABRICQUALITY

A Review is focused on presented an innovative computer vision mixed fuzzy control approach to regulate loop length deviation with reference to stitch deformation as an on-line quality [162]. control for a knitting machine with a circle. Based on the established deformation index of the vision system assessed, a method was developed and provided for readjusting the loop length cam of knitting equipment to regulate loop length and improve fabric regularity [163]. In this approach, measuring stitch deformation is based on computer vision and radon projection intensity matrix analysis of pictures of knitted materials [164]. This study provided a useful online tool to identify the most prevalent Jersey circular flaw Cloth that is knit and is laddering [165]. This system reduces the amount of waste and second-degree cloths because laddering is caught as soon as the fabric exits the machine and large lengths of fabric with this flaw are not produced [166]. As a result, the quality of the final product and the production process improve, and the cost of production decreases as a result. Real-time fabric inspection refers to a situation in which manufacturing and production control operate simultaneously or in real time [167]. This vision system is required because fabric inspection using current techniques (offline) is insufficient since thousands of metres of subpar fabric will be created before the issue is identified [168]. To prevent predictable fabric problems in mass production or at the at least to ensure that a remedial action is taken during the process, the primary goal of this vision system is to detect the defects at an early manufacturing stage [169]. This study has described a high-speed, intelligent inspection system with user-friendly software and hardware powered by clever microprocessors that is suited for a wide range of items [170]. Algorithms are used by cameras to communicate interesting

photos quickly. With the use of hubs, many cameras can be connected to a single PC using a single frame grabber [171]. It was demonstrated how to use a sample application for which this technology was created [172]. In this section of the investigation, the entire image capture, flaw identification, and classification processes were carried out online [173]. Two computers with comparable characteristics were utilised to record, store, and process the photos online at a rate of 13 frames per second (fps) [174]. Using two linked programmes (Lab-View for image capturing and MATLAB for image detection), the first computer received and detected images [175]. Two linked applications were used on the second computer to classify and grade fabric defects [176]. All textile manufacturers strive to create fabrics that are competitive [177]. The improvement of competition is primarily dependent on each industry's production and fabric quality [178]. There have been significant losses in the textile industry because of defective fabrics [179]. Here, we've shown how effectively and accurately the Textile Defect Recognition System can identify flaws in materials [180]. Our system attempted to employ the local threshold strategy in the research setting without using a decision tree [181]. Through its experimental and commercial phases, the entire system for fabric fault inspection has been established [182]. It consists of the unwinding device, lighting setup, hardware, and software for image processing [183]. The fabric feeding mechanism and mechanical setup with five degrees of freedom make up the unwinding machine, which mimics the cloth examination table [184]. It may be mounted on any inspection machine without needing to make any modifications and employs inexpensive off-the-shelf components [185]. Additionally, it makes use of an effective inspection method that is based on neural networks, statistical texture analysis, and the idea of binary image processing [186].

For both metal surfaces without defects and metal surfaces with six different types of defects, the LVQ technique was utilised to train the neural network and establish the reference-weight vectors [187]. Rust, laminations, roll marks, scratches, welds, and stains are the flaws of interest [188]. The dimensions of each weight vector are equal to the number of features calculated by the neural network plus one, and each hidden layer neuron has a weight vector produced by the neural network plus [189]. The subject of visual texture analysis and segmentation was specifically addressed regarding the detection of structural flaws in textiles[190]. In this study, an automatic inspection system was suggested and put into practise [191]. A description of the hardware detection system was provided, including information on system configuration, lighting strategy, cameras, and other system components [192].

The technique will be tested using a prototype in real time (on the weaving machine) One or more cameras take pictures of the fabric under a source of enough light [193]. To capture high-resolution, vibration-free photographs of the fabric being constructed, the camera is synced to the fabric action [194]. Our software is used to process the acquired images on a central processing unit [195]. The processing's outcomes are used to identify and classify fabric flaws [196]. It is also utilised to take action to replace or take these items off the production line after reporting and fixing these issues [197].

High-quality picture capturing for on-loom cloth presents certain challenges. The choice of camera is one of the challenges.Following the selection of the ideal camera, a proper lens choice is required. With a camera, the lens being utilised determines the viewing area and field of vision. the position of the camera in front of the fabric. Camera is mainly used to identifying the faults of fabric surface [198]. With a camera, the lens being utilised determines the viewing area and field of vision. Because of the dimensions of the image that will be created. For many images acquisition and machine vision systems, lighting is a critical concern [199]. The same location is chosen for the front lighting approach, which is typically employed for analysing thick materials.[200]

FABRIC DEFECTS APPROACHES

According to structural methods, texture is composed by textural primitives. By acquiring the texture features and deducing their replacement rules, texture analysis is carried out. Structural approaches are only reliable in segmenting fabric defects from texture whose pattern is very regular [201]. The mean, standard deviation, variance, and median are the histogram's most frequent attributes. Despite being straightforward, histogram techniques are often employed because of advantages like lower processing cost [202]. The co-occurrence matrix was obtained, and an online fabric defect detection method was used to detect

faults in knitted fabrics. Autocorrelation techniques are based on analysing the recurring patterns of fabric photographs. If an image has a flaw, the regular structure will decrease, and saddle or valley views will appear in response to the auto-correlation function [203]. To find knot and slob flaws, morphological operators and autocorrelation functions were integrated. This technique can withstand changes in structure's lighting and noise well [204]. Mathematical morphology is a feature extraction technique. An analysis of an image set utilising a tiny cluster known as a configuration element is referred to as a morphological operation. Expansion, erosion, opening, and closing are the fundamental processes of mathematical morphology [205]. Spectral methods are the subject of numerous studies on fabric fault identification. To pinpoint the location of the fabric problem, spatial techniques are necessary [206].

CONCLUSION AND FUTUREWORKS

In this paper a survey of fabric faults are approaches and about 206 references. The fabric defects approach methods are explained in this study. The main idea of this study is fabric faults are discussed. Online and manual inspection methods are discussed in the paper. Image analysing process is mainly used for this study. The cameras are mainly used to analysing the fabric defects in circular knitting machine. Easy to identifythe defects in circular knitting machines. The throughout the study is explained for fabric defects. This study is mainly contributing the textile industry.

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Weak Re makes garment exports more competitive

India's slowing exports could get a shot in the arm with the rupee weakening against the dollar. Exporters of labour intensive products such as readymade garments, carpets, leather and handicrafts expect a 2-10% rise in outbound shipments aided by the depreciating rupee.

However, they said that sectors with a low dependence on imports would gain while others will lose their benefits to higher oil and commodity prices.

"Rupee depreciation needs to be seen in comparison with our competing currencies. Any depreciation of the rupee will benefit labour-intensive exports except gems and jewellery because they have a huge import component," said Ajay Sahai, director general, Federation of Indian Export Organisations (FIEO).

The rupee is expected to remain under pressure, amid the rising crude oil prices stemming from OPEC production cuts.

Rising oil prices and elevated interest rates and inflation globally could lead to outflow of capital putting pressure on the rupee. The depreciation in rupee would benefit exports because majority of the costs are incurred in rupee except where raw material imports are involved. However, a weaker rupee would make imports more expensive.

The import component in carpets is around 9-10% such as wool, dyes and latex but the rest industry says it has seen a 40% decline in orders since the Russia-Ukraine conflict.

"The industry has begun making carpets of lower value to cater to slowing demand and also online sales have been picking up," Sidh Nath Singh, director of Mirzapur-based Carpet Handicrafts Export.

While carpets used to cost Rs 1,500-9,000 per meter till a few years ago, the average has now reduced to Rs 800-900 per meter.

A weaker currency makes US dollar-denominated imports such as raw materials including sulphur, ammonia and potash more expensive. In the pharma sector, large firms that are net exporters, tend to benefit from currency depreciation but small and mid-sized companies that rely on imported bulk drugs from China might get impacted adversely.

Industry estimates that a 1% fall in the Rupee's value increases garment exporters' profits by 0.25-0.5%, and it may make garment exports more competitive in the medium term as raw material cost falls and the benefits are passed on to the customer.

"A weak rupee is only a temporary relief and not a long term benefit because raw material prices have risen. However, we expect a 4-5% rupee depreciation to translate into a 10% growth in exports if the raw material prices don't increase further," said a representative of engineering goods industry.

As per Biswajit Dhar, professor, Council for Social Development, India's exports have been falling even before these headwinds have set in.

"The cost of exporting hasn't come down. We expect challenging times ahead and the focus needs to be on ease of doing business and export facilitation through fast tracking single window clearances," Dhar said. ❐

Cotton exports drop to 18-year-low in 2022-23

India's cotton exports are estimated to have dropped to a record low of 15.50 lakh bales (170 kg each) in the 2022-23 season that ended in September, the Cotton Association of India (CAI), the trade's apex body, said recently.

Cotton exports were projected to be 30 lakh bales initially by the Committee on Cotton Production and Consumption (CCPC) but with the global economy, particularly China, being affected, the shipments got hit.

This is the lowest since the 2004-05 season when India exported 23.05 lakh bales, data from the US Department of Agriculture show.

CAI said the estimate is based on the outcome of its crop committee meeting on October 7 and is equivalent to 16.27 lakh running bales of 162 kg each. During 2021-22, 43 lakh bales were estimated to have been exported by CAI as well as CCPC.

Imports, on the other hand, were also lower at 12.50 lakh bales (equivalent to 13.12 lakh running bales) against 14 lakh bales the previous season.

In view of the lower exports, the carryover stocks for the current season have been estimated at 28.90 lakh bales (equivalent to 30.33 lakh running bales of 162 kg each) against earlier estimates of 23.18 lakh bales. The carryover stocks last season were 24 lakh bales.

CAI at its crop committee meeting raised the cotton pressing estimate (crop projection) to 318.90

lakh bales against the previous estimate of 311.18 lakh bales. This is against the 2021-22 season production estimate of 299.16 lakh bales. However, the CCPC has pegged the cotton crop estimated for 2021-22 at 311.17 lakh bales and for 2022-23 season at 343.47 lakh bales. The Ministry of Agriculture has also pegged the crop for the 2022-23 season at 343.47 lakh bales as per the third advance estimate.

Trade sources said there is a difference between the estimates of CAI and others, particularly the government. While CAI goes by the arrivals in the markets, the Centre goes by reports from field assessments made by State governments.

Trade sources said there is a big difference between the estimates made by CAI and the government for the 2022-23 seasons as farmers held back their produce expecting better prices.

As farmers held back their produce and even stored them on their terrace and in their backyards, the trade, at one point in time, feared the crop was lower than expected.

However, growers brought more cotton between March 1 and September 30 as they feared prices could plunge. Arrivals during March 1-September 30 this year were a record 85.70 lakh bales against 36.14 lakh bales last year and 18.32 in 2021. During the Covid pandemic, the arrivals were about 60 lakh bales.

Growers held back cotton last season as they received record high prices in the 2021-22 season with prices for a candy topping ₹1 lakh per candy (356 kg) in May 2021.

However, last season prices hovered above ₹60,000 a candy for most part of the season. High prices in the domestic market were also a deterrent to exports. Currently, Shankar-6 cotton, the benchmark for exports is quoted at ₹59,200.

Though CAI has not estimated the crop for the current season yet, Coimbatore-based Indian Cotton Federation has pegged the output at 330-340 lakh bales.

According to the Ministry of Agriculture, the area under cotton is lower this season at 123.87 lakh hectates compared with 127.73 lakh hectares a year ago.

The crop estimate for the current season is due anytime now with the Ministry compiling the data. Usually, the first advance estimate is released at the end of the pre-rabi conference, which ended few weeks ago. ❐

Exporters of Home Textiles & Furnishings concerned

Hamas' attack on Israel has left Indian exporters of home textiles and furnishings worried about their orders getting deferred and margins getting hit.

While Israel is a small market, exporters said that the margins are 10-15% higher than supplying to the US especially on cotton textiles as the country prefers natural fabric over synthetic and hence, competition from China is limited.

"We get 10-15% higher margins on supplying to Israel viz-a-viz the US. Also, Israel's weather conditions are such that it prefers cotton textiles over synthetic and hence, there is less competition from China," said an Ahmedabad based exporter of home textiles.

"We added five-six buyers recently whose orders are nearing shipment day and were looking at more orders but the future potential growth is at risk now," the exporter said.

India exported textile products worth $160 million to Israel in FY23 of the total $8.4 billion of outbound shipments to the country with petroleum products, and gems and jewellery being the top exports.

As per an exporter, a slowdown in the US, and the EU buying textiles from Pakistan and Bangladesh has left it with only Israel for short term growth and that is also in a jeopardy. Stones and diamonds are India's top import from Israel but the exporters of gems and jewelllery, however, are in a wait and watch mode.

As per Colin Shah, Managing Director, Kama Jewelery, India is not dependent on Israel for rough diamonds as they come via Antwerp or Dubai or direct from the miners to the country. ❐

Goods exports declines, but August tally lifts outlook

Even though goods exports declined for the seventh time in eight months in September, India's weak foreign trade performance so far this year appeared to be turning around as per data released by the Commerce Ministry of late, which included revisions worth over $5 billion to August's trade tally.

While goods exports dipped 2.6% from last September to hit a three-month low of $34.47 billion, imports dropped by a sharper 15% to $53.84 billion, and were 10.4% below August's updated import bill of $60.1 billion, which marked an 11-month high.

EXPORT PROSPECTS AND MARKETS

August's goods exports were ramped up by a record $4 billion to $38.45 billion, the highest in five months and reflecting a 3.88% growth over last August. This was the first uptick after six months of contraction and Commerce Secretary Sunil Barthwal expressed hope that the second half of 2023-24 will bring sustained growth in goods exports.

The revised goods trade deficit in August stood at $21.65 billion, instead of the 10-month high of $24.2 billion reported earlier, and eased further to $19.37 billion in September. The overall goods deficit in the second quarter of 2023-24 is now $59.4 billion, just 5.6% over the first quarter tally, belying economists' fears that weaker trade balances orginally reported for July and August may exacerbate the country's current account deficit.

On a year-on-year basis, September's goods trade deficit was 31% lower and narrowed the tally for the first half of the year to $115.9 billion, 17.7% lower than a year ago. ❐

Huge support by US to its cotton farmers making exports of cotton from developing nation uncompetitive

The WTO is yet to address one of the unfinished agendas of disciplining the trade-distorting cotton subsidies in rich countries that push millions of poor cotton farmers into poverty. Despite the Hong Kong Ministerial Decision in 2005 to reduce the cotton subsidies "ambitiously, expeditiously and specifically", the WTO has failed to deliver on the promise even after 18 years. Sadly, the 12th Ministerial Conference marks yet another WTO conference with no solid outcome on this mandated issue.

Even with 13th Ministerial Conference approaching in 2024, there is no consensus on cotton subsidies between members. In this vein, it is important to revisit the role of cotton subsidies in international trade, especially in the context of sustainable development goals, a pivotal principle in guiding contemporary trade negotiations.

How would the cotton subsidies in rich countries affect the farm income of poor countries? When cotton produce is highly subsidised and subsequently exported, it caused a dip in international prices. It makes the cotton production and exports by poor countries uncompetitive in the international market against the subsidised cotton exports. The issue of cotton subsidies garnered global attention in 2002 when Oxfam published a report titled 'Cultivating Poverty'. The report found that enormous US cotton subsidies destroyed the livelihoods of cotton farmers in Africa by depressing international cotton prices and diminishing their prospects of cotton exports. While the African countries — namely, Benin, Burkina Faso, Chad and Mali (referred to as the 'C-4' countries), along with Cote d'Ivoire— were the most affected by the US' cotton subsidies, significant damage was also done to other developing countries. These enormous subsidies from rich countries confer an artificial competitive advantage to their farmers at the expense of poor farmers of developing and least-developed countries.

Currently, India, China, Brazil and the US are leading cotton producers. However, the US has been exporting more than 90 per cent of its cotton produce in the international market and is the largest exporter accounting for a 28 per cent share in global export in 2023. Similarly, the C-4 countries including Cote d'Ivoire are also exporting more than 90 per cent of their cotton produce reflecting the high level of dependence on the international market. On the other hand, India exported only 8 per cent of its cotton production in 2023.

The US has some 8,100 cotton farmers with an average farm size of 624 hectares. On the other hand, the number of people engaged in the cotton sector is massively higher in developing and least-developed countries. Moreover, the average farm size in India, China and African countries ranges approximately from 0.7 to 2 hectares. Besides, farmers from poor countries suffer from multiple challenges in terms of marketing problems, inadequate institutional support, low farm income, and farm distress, among others. Despite these challenges, the cost of cultivation is significantly lower in India and African countries in comparison to the US, which gives them a natural competitive advantage.

However, the US has been providing substantial support to cotton farmers through a wide range of measures including crop insurance, price deficiency like payments and market facilitation programmes

which essentially offset the natural competitive advantage of developing countries. The US has spent more than $40 billion on cotton subsidies between 1995 and 2020.

In some years, the cotton subsidies were more than 75 per cent of the value of total cotton production in the US. Furthermore, per farmer cotton subsidy is significantly higher in the US ($117,494) as compared to India ($27), and China ($295). In recent times, the level of support for cotton has also substantially increased in China mainly on account of direct payments. These high levels of trade-distorting subsidies have a disastrous impact on agricultural growth, export earnings and welfare of the millions of poor cotton farmers and eventually trap them in a vicious cycle of poverty.

Though both developing and developed countries can subsidise cotton production, there are limits on the amount of trade-distorting support a country can provide under the Agreement on Agriculture (AoA) at the WTO. As per the rules, most developing countries can provide support only up to a maximum limit of 10 per cent of their total value of cotton production. If the limit is breached, their policies can be challenged at the WTO. Whereas this limit is not applicable for the developed countries.

For instance, in 2001, the US provided a cotton subsidy that constituted 74 per cent of the value of cotton production and yet was compliant with the WTO rules. Meanwhile, the developing countries with a ceiling cap on their flexibility to support cotton farmers do not enjoy such benefits. The WTO thus curtails the flexibility of poor countries to support their cotton producers, while simultaneously conferring exclusive additional flexibilities for the developed countries.

In order to address the discrimination in the WTO rules, the C-4 countries along with many developing including least-developed countries have been consistently demanding a substantial reduction in the developed countries' flexibilities to provide trade-distorting cotton subsidies since the 2003 Cancun WTO Ministerial meeting.

Despite their best efforts in highlighting the discrimination in the WTO rules at various subsequent Ministerial meetings, their demands have not been met so far. The rich countries have been unwilling to yield to the requests made so far, and continue to maintain trade-distorting cotton subsidies that essentially displace exports from farmers of poor countries.

The collective demand of the C-4 and others to discipline trade-distorting cotton subsidies needs to be met expeditiously since it will reduce the elbow room available to the rich countries to depress international prices. It will raise the farm income of poor farmers by making their cotton produce more competitive. This would go some distance in reducing the inequalities embedded in the WTO rules and essentially help in achieving Sustainable Development Goals of eradicating poverty and hunger. ❐

Bed linen manufacturer Indo Count aims to double revenue in four years

Indo Count Industries, a leading manufacturer and exporter of bed linen in the home textile space, plans to double its revenue in the next four years to almost ₹6,000 crore.

K.K. Lalpuria, its ED and CEO, said the company has invested ₹1,100 crore in the past couple years and achieved 75% of capacity utilisation last year.

Indo Count gets 14% of its revenue via e-commerce and about 2.5% from domestic sales.

"As a company, we are finding product diversification within our complete product basket, to meet their (customer) expectation level," said Mr. Lalpuria. He added that "because retailers are selling not only sheets, but also, say, mattress protectors, mattress pads, pillow protectors, pillows and comforters... there is a lot of space to grow where China once dominated".

He recalled that the Indian textile industry began with supplying only bed linen sets, but the product mix has now expanded. ❐

Textile firm Lindstrom opens its 13th unit in India with lot of sourcing from India

Textile rental company Linstrom India, which is part of Finland's Lindström Oy, will soon open its 13th unit in India.

According to its MD Jayant Roy, the company has presence across India with 12 units at present and a unit in Mumbai for production-on-demand. It has a clean room in Pune and will open one more in Hyderabad soon.

About 70% of the garments are made at the Mumbai unit and the remaining are sourced from its partners. "At the group level, there is a lot of sourcing from India, mainly for Europe and Asia," he said. ■

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Curtain raiser event presided by Honourable Union Minister of Textiles, Commerce Industry, Consumer Affairs, Food & Public distribution, Shri Piyush Goyal, held on 21st October at Vanijya Bhavan, New Delhi

Union Minister of Textiles, Commerce & Industry, Consumer Affairs and Food & Public Distribution Shri Piyush Goyal lauded industry bodies of the textile sector for their initiative in organising Bharat Tex 2024- the largest ever textiles event. He was presiding over the curtain raiser event for the show at Vanijya Bhavan, New Delhi. Speaking at the event Shri Goyal emphasized that Bharat Tex 2024 Expo is not just an event but a testament to India's commitment to becoming a global textile powerhouse. "With innovation, collaboration, and the Make in India spirit at its core, this expo is the embodiment of our 5F vision - Farm to Fibre to Factory to Fashion to Foreign, making products not just for India but for the entire world", he added. He also hoped that the marquee event, Bharat Tex 2024 Expo would propel the industry's growth and showcase India's potential as a mature, competitive global sourcing destination in the global textile industry. The Minister also launched the fair logo, website and video at the event. He urged the industry to use this event to highlight India's global strengths, its sustainability initiatives as well as its strengths across the value chain.


Shri Piyush Goyal

The marquee event "Bharat Tex 2024" is scheduled to be held from 26-29 February 2024 at state-of-the-art, world-class iconic destinations Bharat Mandapam at Pragati Maidan and Yashobhoomi at IICC, Dwarka, New Delhi. Over 2,00,000 sqm exhibition area be utilised for organising this magnificent textile event.

Bharat Tex 2024 is envisaged to be the biggest textile event at the global level, with exhibitors and buyers from over 40 countries. Bharat Tex 2024 would be a comprehensive showcase of the entire textile industry value chain, from India's rich cultural heritage and textile traditions to the latest technological innovations. With over 1,000 exhibitors and more than 30,000 visitors from 40 countries, this mega event would include knowledge sessions, seminars and conferences, CEO roundtables, B2B & G2G meetings, besides strategic investment announcements, product launches and collaborations that would redefine the textile industry on a global scale. Live demonstrations, cultural events, and fashion presentations will provide an exceptionally creative and engaging environment, providing insights into the realms of textile, fashion, sustainability, and style originating from the heart of India. Designer as well as brand exhibitions, fashion shows, sustainability workshops and expert talks shall be the other highlights of the event. Bharat Tex 2024 is being planned as a consolidated and unique platform to position and showcase India's entire textile value chain and also highlight strengths in fashion, traditional crafts and sustainability initiatives.

Bharat Tex 2024 would not be just an exhibition, but an immersive experience. The expo will be a unique platform to bring together leading players from the Indian and Global textiles sector, besides highlighting the numerous existing and emerging opportunities, robust infrastructure, attractive incentives, and other benefits available in India for global investors and buyers. It would also represent a unique platform for global investors and buyers to explore India's strengths as a global manufacturer and consumer market.

The event is an industry led initiative and is proposed to be organised jointly by the 11 Textile related Export Promotion Councils (EPCs) and other industry bodies. Shri Naren Goenka, Chairman Apparel Export Promotion Council (AEPC) and Shri Bhadresh Dodhia, Chairman Manmade and Technical Textiles Export Promotion Council (MATEXIL) made detailed presentations on the activities proposed in the fair.

The curtain raiser event was attended by industry associations, textile sector industry leaders besides senior officers from the ministries.

For further information, please contact
Ms Viral Parekh, Ph : +91-9930837978
Bharat Tex 2024 Expo, www.bharat-tex.com ■

Indian Textile Accessories & Machinery Manufacturers' Associaion

ITAMMA bolstering it's SMART DATA Clinic with "Skilling and Lean Schemes" on 29th September 2023 at ITME Center, Mumbai

Mr. Nimesh Shah, President, ITAMMA, in his welcome speech said As per our normal practice we try to have presentations on multiple topics making an attempt to complete the value chain of textile industry during our most of the events. Today we will be strengthening ITAMMA's SMART DATA Clinic with "Skilling and Lean Schemes" through an informative presentations by Mr. Rajendra Aphale, Bachelor of Technology, IIT, Bombay & MBA, University of Bombay; while we will know the updating of our Business Enabler Platform from Mr Mehul Goswami, Director/ Digital Business Enabler, Sambuq.com India Pvt Ltd.

Mr. Nimesh J. Shah President, ITAMMA, delivering the Welcome Speech

During the 80th AGM Business session, Mr N D Mhatre, Director General (Tech) through a power point presentations gave a Glimpses of events organized during 2022/23. Where he mentioned about 20 members each at ITM 22 & DTG 23 will be getting benefit of MSME subsidy scheme and all the exhibitors during these International exhibitions were givenample of publicity and branding through ITMA Guides and Social media campaigns. It was also informed about the strategy of ITAMMA during Texfair 2022 at Coimbatore which registered a record winning enrolment of New Members. Catalogue shows at Solapur and Ludhiana as a business platform to members were followed by B K Mehta Technology Networking Mission giving an opportunity to Academicians, Industry Experts, Government authorities and Stake holders to know about the Projects available with the students for JVs / Technology transfers/contract research. He also mentioned about the year to be remembered for ITAMMA winning "6th Responsible BMO Award" under the category 'Innovation' at National level. Event Planner for the period Oct 23 to March 24 proposing about 16/17 activities was also shared. Thereafter the 80th Annual Report was released.

Mr. N.D. Mhatre, Director General (Tech.), delivering presentations on

During his presentations on " Latest LEAN schemes of MSME at Central level" by Mr. Rajendra Aphale, Consultant, Holistic Business Transformation gave a detailed information on these schemes along with the financials. During the Networking session it was learnt that ¾ ITAMMA Members of Maharashtra will be implementing this scheme with the help of the Consultant.

Release of 80th Annual Report

ITAMMA after having an MoU with SAMBUQ for the development of Business Enabler Platform with a SMART DATA Clinic, a Vision to Create a ITAMMA Specific One Stop Information Sharing and Market Research Platform. accordingly the

progress of the same was presented by Mr Mehul Goswami, Director/ Digital Business Enabler, Sambuq.com India Pvt Ltd. focused on Skilling and Vendor Development.

Mr N D Mhatre, Director General (Tech) gave details about the Opportunities in Skilling as below. He informed that "Government scheme -PMKVY-4.0 provides an opportunity to upskill and reskill their employees and recognize their skills through formal certification. This scheme is termed as " Recognition of Prior Learning." The scheme provides an opportunity where existing workers gets trained /upskilled in the job roles as attached (shorter customised duration program (Minimum 30 hrs and maximum 120 hrs, with 70% practical on the job training and 30% classroom training). The member company infrastructure will be utilized within shop floor and Industry experts (supervisor) as a master trainer /trainer delivers the training. Once the training is completed CGSSC will conduct the assessment and certify them. The training cost as per government prescribed norms shall be paid @2000 Rs per trainee for 30 hrs and certificate cost shall also be borne by the government.

Mr. Omprakash Manrty Hon Treasurer offering the Bouquet to
Mr. Rajendra Aphale, Consultant, Holistic Business Transformation

SN	Cost Head		Amount per candidate
1	Training payout to Industries /PIA	RPL at Camps	@Rs 1800- 2000 per worker
		RPL at Industry premises	@Rs 1700 PER worker
2	Assessment		CGSSC COST
3	One-year Accidental Insurance		Rs 10.62
Minimum batch 15- max batch size -30			
30 hours of training. The payment will be made basis actual training duration and job role category.			

"M/S MAG SOLVICS PVT LTD. wins ITAMMA`s Special R & D/ Innovation Award 2021-22 under " Precitex-ITAMMA Innovation Fund" For their R & D and Innovation work on Fully Automatic Cotton Fibre Tester (HVT Genius 2)".

JURY mentioned that " After detailed deliberation, and to the best of my knowledge and understanding, I could find the product and process for all of them, from a user perspective, quite innovative.

NETWORKING-DINNER

However, looking at various other features like a qualitative advantage, background, and profile of the R&D activities, its Techno commercial approach, and its value proposition, I have a conclusion of placing M/S MAG SOLVICS PVT LTD for R & D and Innovation work on Fully Automatic Cotton Fibre Tester(HVT Genius 2) the top of R&D /Innovation among all the Nominations in the sequence".

Vote of thanks was delivered by Mr. Purvik Panchal, Immediate Past President, ITAMMA, where he thanked all Speakers, Award winner, Press, delegates and India ITME Society for making the venue available on complimentary basis.

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ITME Africa 2023 guiding a new era of self-reliance, socio-economic advancement through textile technology & engineering in Africa

India ITME Society, organizer ITME Africa & Middle East 2023 hosted a Preview & Curtain Raiser program on 11th October 2023 at the brand-new facility ITME Center, Nariman Point, Mumbai. This networking presentation was to showcase a glimpse of the upcoming international exhibition ITME Africa & M.E 2023 from 30th Nov to 2nd Dec 2023 at Nairobi, Kenya. This is the 2nd event of the series hosted for global audience; The 1st event was hosted in Nairobi, Kenya on 3rd October in the presence of Senior Kenyan Govt. Officials & Embassy participation.

Balvinder Singh Sawhney, Asst. Secretary General, FICCI, Views on Technical Textiles & the future by Mr. Pramod Khosla, Chairman & Managing Director, Khosla Profil Pvt. Ltd. Increase in business Engagement between India and Africa since 2020 in Textile Segment by Mr. Avinash Mayekar, Managing Director, Suvin.

ITME Africa & Middle East 2023 promises to offer an unique and valuable experience for all participants. Whether it is to gain insights, network with industry leaders, Business interactions or Joint Ventures, this event will provide ample networking

Left to Right : Ms. Seema Srivastava, Executive Director, India ITME Society; Mr. Ketan Sanghvi, Chairman, India ITME Society; Mr. Pramod Khosla, Chairman & Managing Director, Khosla Profil Pvt. Ltd.; Mr. Updeep Singh, Textile Industry Expert; Mr. Balvinder Singh Sawhney, Asst. Secretary General, FICCI; Mr. S Senthil Kumar, Hon' Treasurer, India ITME Society

The highlights & topics at this Mumbai edition's Curtain Raiser & Preview covered by eminent Dignitaries & Speakers, included Strength of Indian Textile & How Africa can collaborate with India to lead the Textile Industry by Industry expert & experienced Textile professional Mr. Updeep Singh. Africa a land of Opportunities for India & how Exhibition can be a gateway for bilateral trade for the Textile Industry promotion by Mr.

opportunities, and direct connect with professionals and peers.

Apart from the 3-day Exhibition, ITME Africa & Middle shall also host multiple concurrent programs such as panel discussions and interactive sessions on Technical & Financial topics that will enhance knowledge and skills. These interactive & focused sessions by renowned Speakers & Industry stalwarts shall bring best opportunity to listen,

interact & learn from experts doing groundbreaking work in the textile & textile engineering industry:

- **Investment & Technology Joint Venture :**
  - Kenya as a business destination Gateway to Middle East, EU & US Markets.
  - Africa- The Next Big Destination for Textile Manufacturing.
- **Financial Solutions for Investments & Technology upgradation :**
  - Funding for; Investment & Sourcing capital goods from India
  - Start-ups, Entrepreneurs in Textile Segment
  - Domestic Financial Schemes for Kenyan Textile Industry
  - Kenya – A Success story Textile Business & Investment.
- **Technical & Technological Seminar**
  - Good Practices of cultivating quality cotton fibre | Importance of Physical properties of cotton in textile industry by Cotton Expert.
  - Technological advancement for cotton ginning & high production by Ginning Expert.
  - Ideas & Best Practices for spinning profits in Textile Industry by Spinning Specialist.
- **Panel Discussion**
  - Textile Technology empowering complete textile value chain of African continent & M.E. (Participating Countries – India, Italy, China, Switzerland)

Addressing the media, Mr. Ketan Sanghvi, Chairman, India ITME Society said "ITME Africa & Middle East 2023 is an important milestone in enhancing bilateral trade relations and promoting industrial cooperation between Kenya and India. This partnership aims to leverage the business potential of both the countries and build on the innovation, economic growth and sustainability goals of their respective textile technology and engineering industries. With as many as 23 countries taking part in the India ITME Society exhibition in Kenya, Africa is sure to derive the immense benefits of investing in future partnerships and building successful business ventures in the entire African region."

In the press conference Mr. Updeep Singh, Textile Industry Expert "India possesses a robust textile engineering foundation and boasts the world's second-largest textile industry, featuring manufacturing facilities. With this being the focus, the efforts of the ITME society by hosting their quadrennial event ITME Africa & Middle East 2023 in Nairobi Kenya will attract more attention towards the Kenyan textile industry and also showcase the business potential of the country, globally. This will increase visibility and business inquiries and widen opportunities for India's exports in Textiles and Machinery businesses leveraging an untapped customer base of the African continent." He also added "Now, with the addition of the African Union in the G20 Summit conducted in New Delhi, the trade volumes with India is expected to rise in the Continent and Textile machinery companies should capitalize on this."

Mr. Pramod Khosla, Chairman & Managing Director, Khosla Profil Pvt. Ltd. said "ITME society has taken the right steps to promote trade relations between India and Africa that will help the textile industry and allied ventures by generating demand and boosting production in the African Continent. Indian companies can look at exploring Weaving machines, generating business opportunities from Yarn and Cotton industry in addition to the dominant spinning machines."

About ITME Africa & Middle East 2023

ITME Africa & Middle East 2023 is designed to foster a conducive business environment, promote textile & technology exchange and provide necessary infrastructure support to facilitate the same This International business & technology exhibition shall bring together whole lot of possibilities to Textile businesses, Institutes, Students, Associations, Banks, Investors, Technology Consultants, & Trainers, Exporters / Dealers & Agents. A new set of Supply chain can create many Entrepreneurship / Start-up opportunities. As on date Business visitors from 20 countries Australia, Bangladesh, Botswana, Cameroon, Congo, Egypt, Ethiopia, France, Germany, Ghana, India, Indonesia, Kenya, Nepal, Nigeria, Poland, South Africa, Switzerland, Tanzania & United Arab Emirates have registered creating an unique and most promising event of 2023 for Textile Industry hosted in Kenya bringing plethora of opportunities to the doorstep of African Continent.

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In the event of Textile Exchange Conference in London held from 24-26 October, 2023 a unique opportunity availed to extend an exclusive interview with Daniel Rufenacht, CEO of bluesign®

With over 25 years of experience in corporate sustainability, institutional marketing, and public relations, Rufenacht has worked for the public and private sectors. With a background in business management and communications, he began his career with the Swiss government, identifying new market opportunities for sustainable trade from developing countries, and overseeing the development of the first sustainable label in Switzerland for the textile industry. Following that, Rufenacht worked for 8 years as Operational Director of CSR, Compliance and Integrity, Marketing and Communication for a famous textile company where he transformed a traditional clothing company into what is now a widely recognized sustainable brand that offers product traceability throughout the lifecycle. Before joining bluesign technologies ag, he worked as Group Vice President, Corporate Communications and Sustainability at SGS for more than 10 years. As CEO of bluesign he has developed a new service portfolio and extended the bluesign partnership and services to new market segments and geographies.

Daniel Rufenacht

Why speak with Daniel Rufenacht at the Textile Exchange Conference?

- bluesign Denim Initiative: Explore bluesign's groundbreaking Denim program, a pioneering effort in sustainable denim production. Rufenacht will provide valuable insights into how this new bluesign label is revolutionizing sustainable denim, contributing to cleaner and more responsible fashion. Partners already include Madewell, ISKO, and SAITEX.
- Responsible Chemical Management with bluesign, the industry leader: Gain insights into bluesign's leading role in responsible chemical management, including their participation in ZDHC (Zero Discharge of Hazardous Chemicals). Rufenacht will elaborate on how bluesign is shaping the future of denim by ensuring safe, sustainable, and environmentally friendly chemical practices.
- Holistic Sustainability Approach: Explore bluesign's holistic system, offering human, environmental, and chemical assurances. Discover how this approach benefits workers, the planet, and consumers, setting new standards for ethical and eco-conscious denim production.
- Expertise and Legacy: For 5 years, Rufenacht leads a team of experts with a cumulative experience of over 500 years, making bluesign a true authority in the field. Founded in 2000, bluesign has a legacy of innovation and sustainability. Learn how they continue to pioneer positive change.
- Renowned Brand Clients: bluesign's client roster includes renowned brands like Patagonia, Eileen Fisher, Nike, and Adidas (full list here). Hear how these industry leaders are partnering with bluesign to elevate their sustainability efforts.

Daniel Rufenacht presents a unique opportunity to gain insights into the evolving denim landscape and the pivotal role of responsible practices. We eagerly anticipate facilitating a conversation that will enrich your coverage of sustainable denim and textiles. To schedule an interview with him during the Textile Exchange Conference or for additional information, please respond to this email or contact Kenneth Loo at ken@chapter2agency.com.

About bluesign

bluesign® is a full-service sustainability solutions system for the fashion supply chain with a focus on responsible chemistry. Through on-site assessments, Input Stream Management, and chemical inventory verification, the bluesign® team uses an holistic approach with their system partners, including brands, manufacturers and chemical suppliers, to develop unique solutions to improve environmental performance, working conditions (OH&S), and resource consumption to create the highest level of safety for people (workers), planet and consumers.

About Textile Exchange

Textile Exchange is a global non-profit driving positive impact on climate change and nature across the fashion and textile industry. We guide and support a growing community of brands, retailers, manufacturers, farmers, and others committed to climate action toward more purposeful production, right from the start of the supply chain.

Birla Cellulose launches new groundbreaking Circular Yarn Blend

Birla Cellulose, the division responsible for pulp and fibers within the Aditya Birla Group, stands as a prominent producer specializing in environmentally conscious Man-Made Cellulosic Fibers (MMCF), proudly announces the launch of its new groundbreaking Circular Fiber Blend. This innovative blend significantly enhances the proportion of mechanically recycled fiber to 50% while maintaining high-strength yarn, making it ideal for fabric and garment production across diverse categories.

The Circular Yarn Blendpromises exceptional sustainability credentials, including recognition from the Global Recycle Standard (GRS) for PCW (Pre-& Post-Consumer Waste) materials, the Recycled Claim Standard (RCS), FSC certification, and High Index certification. It also incorporates blockchain technology, enabling full traceability of the yarn blend. Which also ensures the transparency and accountability throughout the supply chain. Furthermore, the mechanical recycling process used to convert PCW waste into fiber is chemical-free and the most energy-efficient process for sustainable yarn production.

This Circular Yarn Blend innovation offering by Birla Cellulose addresses multiple environmental concerns in the textile industry. Through mechanical recycling, the process minimizes energy consumption, making it highly energy-efficient. Additionally, it is eco-friendly and this method also have the lowest greenhouse gas emissions, significantly reducing their carbon footprint.Moreover, the process ensures minimal water usage throughout its lifecycle. An added environmental benefit is in-situ coloration, where recycled dope-dyed/mélange yarn negates the need for additional dyes or pigments, further lessening its environmental impact. This comprehensive approach underscores Birla Cellulose's commitment to sustainable and environmentally responsible textile production.

Mr. ManMohan Singh, Chief Marketing Officer, of Birla Cellulose adds “Birla Cellulose takes great pride in introducing an innovative approach to recycle mechanical textile waste, utilizing cutting-edge technology for both pre and post-consumer textile waste. As a team, we are deeply committed to fulfilling our social responsibility by addressing critical issues, minimizing water consumption, reducing energy usage, lowering greenhouse gas emissions, and embracing eco-friendly practices. Our goal is to create a sustainable environment, fostering eco-friendly practices. We are confident that this initiative will encourage the textile industry to adopt more sustainable options, meeting consumer demand while upholding the highest quality standards and sustainable practices.’’

Birla Cellulose's approach involves recycling mechanical textile waste, utilizing state-of-the-art technology to recycle pre and post-consumer textile waste. The resulting recycled fiber is expertly blended with Birla's proprietary cellulosic fibers, including VSF, Birla Modal, Excel, Reviva, and Dope Dyed, in a unique proportion. This innovative recipe produces a yarn blend containing an impressive 50% pre or post-consumer waste (mechanically recycled) fiber and 50% proprietary cellulosic fiber.

About Birla Cellulose

As a pioneer in the field of sustainable fibres, Birla Cellulose, a part of the Aditya Birla Group, sets new standards for innovation, quality, and environmental responsibility. The company is always pushing the limits of what is possible in fibre technology, developing new, cutting-edge ways to meet the changing needs of the fashion and textile industries.

The sustainable fibres offered by Birla Cellulose's extensive product line allow the company to serve various markets. Their fibres, like Viscose, Modal, and Lyocell, are known for being soft, comfortable, and easy to work with. It prioritizes environmental

protection and strives to leave as little carbon imprint as possible. Birla Cellulose is steadfast in its commitment to environmental governance, which extends from the ethical procurement of raw materials to the use of environmentally beneficial methods of manufacturing.

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Launching Radilon®Chill-fit, the new RadiciGroup yarn that optimises fabric comfort and freshness

The Group displays functional and sustainable solutions at Performance Days

Radilon® Chill-fit is the new RadiciGroup solution to maximise the breathability and freshness that a fabric can offer. It is the result of extensive research and development that has led to the creation of a highly functional nylon yarn capable of ensuring thermal regulation of the fabric without the need for additional treatments.

Radilon® Chill-fit provides the wearer with a pleasant feeling of comfort and freshness for an extended period, while offering high protection against UV rays. Visitors will be able to touch and feel the yarn for the first time at the autumn edition of Performance Days, the reference trade fair for trends and innovations in yarn, fabric and accessories, to be held in Munich (Germany) on 4 and 5 October. Group specialists from the Advanced Textile Solutions Business Area (Stand L17) will be on hand over the two days to demonstrate the Group's comprehensive range of functional and high-performance yarns, as well as its line of sustainable products that contribute to an innovative and circular textile sector.

Marco De Silvestri, Sales & Marketing Manager of the Advanced Textile Solutions Business Area, explained: "Our efforts have always been focused on optimising the technical performance of yarns, as in the case of the new Radilon® Chill-fit, but we also strive to improve the environmental performance of the various sectors we work with, such as sportswear, athleisure, workwear, and many others, thanks to our specialised, traceable and low impact products".

Here referring to yarns from the Renycle®, Repetable® and Biofeel® ranges, brands that offer recycled nylon, recycled polyester and fibres made from renewable materials, respectively. Solutions that contribute to a responsible and sustainable textile supply chain by significantly reducing CO2 emissions.

"Of course, to improve the performance of the textile sector, we have to work as a team," continued De Silvestri, "everyone has a part to play. In recent years, the RadiciGroup has made a series of investments in cutting-edge technologies aimed at making processes more efficient and optimising products from a technical and environmental point of view, starting with the chemistry of the materials, over which we have direct control because we are integrated upstream with our own plants."

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TENCEL™ and Kaihara launch premium denim capsule collection, achievingnew partnership heights

- Kaihara sees growing interest and demand from overseas markets for premium Japanese denim offerings with unique craftmanship coupled with aesthetic, innovative and functional designs
- Three-decadepartnership of combining traditional Japanese denim artistry and TENCEL™ branded Lyocell and Modal fibers set the foundation of Kaihara's international expansion to capture new growth opportunities

- "Kaihara x TENCEL™ Denim Week" during October 16–21, 2023in Tokyo highlighted the recent collections with different denim innovations.

Lenzing –Lenzing Group, a leading global producer of wood-based specialty fibers, and

Kaihara, the world-renowned Japanese denim manufacturer, elevate three decades of partnership towards new milestones. Leveraging the versatile applications of TENCEL™ branded fibers, the latest collaboration is setto propel Kaihara'stime-tested craftsmanship to the international markets as part of its overseas expansion strategy.The collaborative innovation will debut at the "Kaihara x TENCEL™ Denim Week" in Tokyo, Japan, October 16–21, 2023.

Honoring craftsmanship through fiber and fabric innovation

Since TENCEL™ fibers were first introduced to the Japanese market in 1994, Kaihara has masterfully woven these fibers into their commercial collections. Together with TENCEL™'s excellence in fiber performance and responsible fiber production, Kaihara transcends the traditional boundaries of denim fabric manufacturing with innovative designs, authentic aesthetics and diverse functionality. As premium denim fashion continues to evolve, Lenzing and Kaihara embark on the next chapter of their progressive partnership – developing new fabrics with TENCEL™ fibers that cater to the demand of brand partners and consumers worldwide, capitalizing on the new frontiers of shared success.

"Kaiharais a well-respected and long-standing mill partner along our journey of denim fabric innovation," said Dennis Hui, Global Business Development Manager, Denim at Lenzing. "The adoption of botanic and biodegradable materials like TENCEL™ fibers in denim fabrics allows innovative creators like Kaihara to expand into new application categories traditionally dominated by synthetics while enabling their brand customers to achieve their sustainability goals. We share a commitment to excellence anda vision for creativity, offering brands and consumers worldwide limitless design possibilities through the versatile applications of TENCEL™ fibers. We are excited to continue our close partnership towards the future of global denim fashion."

HIROFUMI Inagaki, Executive Officer, General Manager of Sales Departmentat Kaihara, said, "Consumer demand for premium, sustainable fashion is stronger than ever globally. As we broaden our international reach, our long-standing partnership with Lenzing will prove pivotal to advancing our commitment to responsible practices, such as incorporating water-saving TENCEL™ Modal fiber with Indigo Color technology . To tailor specifically for luxury and high-end segments seeking superior quality and kindness to the planet, we have also been crafting denim fabrics with zero or reduced cotton leveraging TENCEL™ fibers for their sustainability, softness and performance benefits. We are confident that our strengthened, multidisciplinary collaboration with Lenzing will distinctively position Kaiharaas a

world-leading company in developing boundary-pushing innovations addressing diverse tastes and needs while preserving denim as a time-tested trend, whether in our Japanese home market or abroad."

Denim fabrics made with TENCEL™ branded fibers enable a versatile design with an authentic look and feel, creating soft and comfortable textures for the finished product that also comes with the inherent benefits of enhanced breathability and color retention. Such versatility caters to the different needs of global brands and consumers who seek variety in aesthetics, performance and functionalities. Incorporating TENCEL™ branded fibers also helps mills and brands that constantly seek ways to scale up their use of wood-based materials to meet their sustainability goals.

Envisioning the future of premium denim fashion

Lenzing and Kaihara will be unveiling a specially curated capsule collection of seven new denim fabrics using Jeanologia's finishing technology, embodying the myriad possibilities brought to life by TENCEL™ Lyocell and Modal fibers in high-end, high-quality denim applications. As an extension of the Tokyo showcase, this curation will take center stage at the Lenzing booth during Kingpins Hong Kong on November 6–7, 2023.

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Italian Textile Machinery: 2023 second quarter confirms decline in order intake

During the second quarter of 2023, the orders index for textile machinery, as complied by the Economics Department of ACIMIT, the Association of Italian Textile Machinery Manufacturers, dropped significantly compared to 2022 April-June 2022 period (–30%) in absolute terms, the index stood at 85.1 points (basis 2015=100).

This drop is the result of a reduction in the collection of new orders recorded by manufacturers both domestically and on foreign markets. The decrease in orders in Italy amounted to 21%, whereas a 31% downtrend was observed abroad. The absolute value of the index on foreign markets setteled at 81.9 points, while in Italy it stands at 117.2 points. New orders for the second quarter amounted to 4.1 months of guaranteed production. ACIMIT's data also shows that the use of production capacity by Italian manufacturers was 70% for the first half of 2023. This percentage is expected to remain stable for the second half of the year.

ACIMIT president Marco Salvade stated that, "The orders index for the second quarter elaboraed by our Economics Department clearly shows a decline in new orders both in Italy and abroad compared to the previous year. The decline that usually precedes an even such as ITMA, the international textile machinery exhibitionn held last June in Milan, however, is part of a negative trend that has been going on for several quarters".

Uncertainty appears to be weighing heavily especially on markets abroad, where foreign trade statistics updated to the first quarter of 2023 are marked by a slackening in Italian sales in some important reference markets, such as Turkey, China, and United States and Pakistan. Salvade added that, "Feedback from over 400 Italian companies that took part iin ITMA is positive. It's now necessary for the many contacts made during the event to materialize and for the demand for machinery in the main textile machinery markets to resume a path towards growth."

ACIMIT appointed Giorgio Calculli new Managing Director

Giorgio Calculli has been appointed new managing director of ACIMIT, the Association of Italian Textile Machinery Manufacturers. A law graduate with a Master's degree in training and employment policies, he has been on staffat ACIMIT since 2006 as head of the Association's training,

internal relations and technical department. Calculli takes over as ACIMIT managing director from **Federico Pellegata**, who after 25 years managing the Association has been appointed CEO of ACIMIT Servizi srl, the company set up by ACIMIT to provide services in support of associated member companies for the promotion of the Italian textile machinery industry in Italy and abroad.

"It has been a truly enriching experience," asserts **Federico Pellegata**, "for which I am grateful to our associated members, ACIMIT's Board, and the Association's presidents who have served during my yearsin ACIMIT. However, my commitment to continue to promote the Italian textile machinery sector by no means ends here. As CEO of ACIMIT Servizi, I will continue to work relentlessly to ensure that ITMA, the world's primary textile machinery trade fair, remains a representative showcase for the success of Italian manufacturers in the sector, as has been the case for the editions of the exhibition held in Italy in 2015 and 2023."

ACIMIT managing director **Giorgio Calculli** comments: "I wish to thank the Board of ACIMIT for the appointment and for the opportunity to lend continuity to the work carried out by Federico Pellegata, for whom the success enjoyed at the latest edition of ITMA is only the most evident expression. I will work to further develop the membership base and ensure member companies receive maximum support from the Association in their business activities."

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Renewcell ramps up the CIRCULOSE® Supplier Network to 116 members, increasing the marketplace for textiles made with CIRCULOSE®

Renewcell, the leader in textile-to-textile recycling at scale, announces the expansion of the CIRCULOSE® Supplier Network (CSN) to 116 members, marking a significant milestone in the journey toward a circular textile industry. This expansion brings an infusion of innovation, diversity, and global reach, increasing the number of materials made with CIRCULOSE® that are available to source now.

The CIRCULOSE® Supplier Network, initially composed of 47 yarn and textile producers, has now evolved to include a diverse range of 116 members. Particularly of note is the geographical expansion, with new members joining from regions such as Vietnam, Taiwan, and the Czech Republic. The extension into the Southeast Asian region reaffirms Renewcell's commitment to advancing circular fashion on a global scale.

In addition to the geographic diversification, this growth includes onboarding a dozen knitters and more than thirty yarn spinners, enhancing the variety of qualities made with CIRCULOSE® that are available for all brands to source. This expansion signifies a considerable step forward in ensuring that brands worldwide have access to a wide array of materials made with CIRCULOSE®.

A significant development within this expansion is the inclusion of home textile suppliers for the first time, including Sharadha Terry Products, The Kadri Mills, and Yang Tsu. This strategic addition opens up new possibilities for integrating CIRCULOSE® into various facets of the textile industry, reaffirming the network's adaptability and potential.

CORPORATE NEWS

Patrik Lundström, CEO at Renewcell, emphasizes the importance of this expansion: "The CIRCULOSE® Supplier Network plays a pivotal role in scaling up the availability of yarns and fabrics made with CIRCULOSE®. With a more diverse network across the textile supply chain, fashion brands now have a broader range of sustainable options to incorporate CIRCULOSE® into their designs."

"Right now, Sustainability is not just a trend. It's our need to make the future green," states Shakaib Nazim, General Manager Marketing at Indigo. "Indigo Textile mill isn't just a place of production; it's a hub of innovation for sustainable denim. Our CIRCULOSE® denim fabric range is the perfect fit for style and sustainability. Our next step towards sustainability growth is to convert our core line fabrics with CIRCULOSE® fiber."

Hatice Ates, Product Design and Development Manager at Ekoten, explains, "At Ekoten Fabrics, we are aware that circularity is the key to the fashion industry's fight against climate change. We believe that the circularity of the fashion industry will be achieved through timeless designs and sustainable material selection. In this direction, we attach great importance to the use of cellulosic raw materials from secondary raw materials with low environmental impact. We are delighted to join the CIRCULOSE® Supplier Network, which carries out disruptive innovation endeavors in this field."

"The expansion of Renewcell's Supplier Network is exciting! It makes CIRCULOSE® even more accessible for brands and retailers," said Nicole Rycroft, Founder and Executive Director of environmental not-for-profit Canopy. "Renewcell is showing that take-make-waste production is a relic of the past as the market moves to low-carbon Next Gen alternatives. Congratulations to Renewcell and their supply partners for leading the charge. We look forward to supporting them as they continue to scale up their disruptive production."

Priyanka Khanna, Head of Asia Expansion, Fashion for Good comments, "Renewcell's strides in growing the CIRCULOSE® Supplier Network are instrumental in our collective pursuit of a circular textile industry. This growth is not only significant in driving the adoption of textile-to-textile recycled output but also in providing reach and accessibility to suppliers who are the first customers of these materials. By expanding across industry verticals and manufacturing regions, Renewcell is educating and enabling suppliers to easily access and test the output, which they can then develop and offer to their customers, the brands. Renewcell has been a part of Fashion for Good Cohort since 2020, participated in projects such as Full Circle Textile Projects, and we continue to support them in their journey to scale. We see them as a pioneering force in the textile-to-textile recycling arena, redefining industry standards and driving the transition towards a circular textile industry."

With the expansion of the CIRCULOSE® Supplier Network to 116 members, with operations in fifteen countries, the availability of materials made with CIRCULOSE® is even more accessible to fashion, lifestyle, and home brands worldwide. The network continues to grow and evolve, driving positive change in the fashion supply chain.

The list of the newest CIRCULOSE® Supplier Network members is below:

China: Advance Denim, AIT Apparel, Binkang Printing, Black Peony, Blue Diamond , Deyao, Free Silk, Freedom Denim, Gangjia, Gaosheng Wool, GKL Denim, Grace Textile, Great United, High Fashion, Honor, Houzheng, Jimay Printing & Dyeing, Jin Xiang Hui, Long Run Eco Melange Yarn, Long Run Textiles, Mizuda, Nansin Bleaching & Dyeing, New Dynasty, New Wide, Oushang Textile Co., Rawtex, Shilead, Stella Blu, Tian Ying, Titan, Xufeng, Yang Tsu.

Czech Republic: NIL Textile.

India: Kadri Mills, Shahi Exports, Sharadha Terry Products.

Italy: Ghezzi , ICA Yarns.

Pakistan: Al Karam, Artistic Denim Mills, Artmill, Azgard 9, Crescent, Diamond Denim, Indigo Textile, Kassim Denim, Siddiqsons, US Denim.

Sri Lanka: Hela Apparel Holdings.

Taiwan: A&A Textile, DJIC, Ecoinn, Far Eastern, Formosa Taffeta, Goang Li, Kingwhale, Laka Enterprise, Paradise/Alpine Creations, Tung Ho Textile.

Turkey: Artesa, Aster, Barutcu Tekstil, DNM, Ekoten, Elyaf Tekstil, Kara Fiber, Pameks.

Vietnam: Bros, DanX.

About Renewcell

Re:NewCell AB (publ) ("Renewcell") developed a patented process that enables the recycling of cellulosic textile waste, such as worn-out cotton clothes and production scraps, transforming it into a pristine new material called CIRCULOSE®. Founded by innovators from Stockholm's KTH Royal Institute of Technology in 2012, the awardwinning, Sweden-based sustaintech company's vision is to make fashion circular.

Through its patented process, Renewcell is able to recycle cellulosic textile waste, such as worn-out cotton clothes and production scraps, transforming it into a pristine new material called CIRCULOSE®. Fast Company named Renewcell one of the World's Most Innovative Companies in 2021, as well as World Changing Idea in 2023. CIRCULOSE® was also included on TIME Magazine's list of the 100 Best Inventions 2020.

Renewcell is a publicly listed company with shares traded on Nasdaq First North Premier Growth Market with the ticker name RENEW and ISIN code SE0014960431. FNCA Sweden AB is Certified Adviser, +46(0)8-528 00 399, info@fnca.se.

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Renewcell and the CIRCULOSE® Supplier Network, circulo.se.
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SOKTAS unveils its First Exclusive Outlet in Bengaluru as the city accredited in ahead of styling

Soktas, an Aditya Birla Group brand, is poised to elevate the sartorial pursuits of fashion-forward men in Bengaluru with exquisite designs in myriad weaves.

Soktas, a luxurious cotton fabrics brand by Grasim Industries, part of Aditya Birla Group, today announced the opening of its first ever exclusive brand outlet in India at Jayanagar, Bengaluru. The store was inaugurated byactor and director of Kannada Cinema -Darling Krishnaand Mr. Jasvinder Kataria, COO –Domestic Textiles, Grasim industries, Aditya Birla Group.

Speaking on the launch, Mr. Jasvinder Kataria, shared his excitement saying, "The launch of SOKTAS' first ever exclusive retail outlet in Bengaluru is a significant milestone for us. Our fabrics are not just textiles; they are expressions of elegance and sophistication. We are thrilled to bring a world of premium luxury cotton fabrics to the city's fashion-forward men. With our Turkish heritage and unwavering commitment to quality, SOKTAS is set to redefine the way Bengalureans experience fine fabrics."

Soktas is poised to redefine the world of fashion with its exceptional range of premium cotton shirting fabrics, made with 100% premium cotton and natural blends. Each piece of fabric is meticulously created using super-fine, high-quality yarns, resulting in an impeccable finish and a luxurious feel. Encompassing over 1000 square feet space which is spread across two levels, the outlet in Jayanagar is designed to provide customers with an immersive shopping experience, showcasing an exquisite range of fabrics that cater to diverse fashion preferences and providing a bespoke solution for every custom tailoring need.

While inviting Bengaluru to shop at Soktas, actor Darling Krishna shared, "As an actor, I have always been captivated by the spirit of Bengaluru. The city consistently stays ahead in all fields ranging from sports to technology to entertainment. Now, there will a brandin Namma Bengaluru that shares my vibe of being ahead in life. I am thrilled to personally experience Soktas and its exceptional range of luxurious cotton fabrics and elevate my style game."

Mr Kataria further added, "With this inaugural store, we lay the foundation for an ambitious plan to establish Soktas as the go-to brand for bespoke solutions, preferred by today's discerning and fashion-forward men. What makes this moment even more electrifying is the launch of our new brand campaign, 'Always Ahead.' This campaign embodies our commitment to constant reinvention, pushing boundaries with limitless possibilities in patterns, textures, and designs, echoing the spirit of our ambitious and discerning consumers who appreciate life's finer things. The Soktas Man challenges conventions, values quality and

sophistication, and embraces individuality in style choices."

SOKTAS believes in responsible sourcing and ethical practices, ensuring that every fabric tells a story of quality and consciousness. The brand's commitment to sustainability is reflected in its certifications, including GOTS, OEKOTEX, and ISO – 9001.

SOKTAS sells through 3000+ multi-brand premium fabric retail outlets across India. The grand opening of SOKTAS' exclusive outlet in Jayanagar promises to be a landmark event in the world of luxury fabrics offering its customers multi-weave patterns such as premium jacquards, fil-coupe jacquards, and clip dobby fabrics, among others. Visit at SOKTAS, Shop No. 22/136, 9th Main Road, 3rd Block, Jayanagar, Bengaluru, Karnataka 560011 to experience the touch of luxury that is SOKTAS.

About Soktas

Grasim Industries has been involved in the manufacturing and distribution of Soktas fabrics in India for around 14+ years already and acquired Soktas India from its Turkish promoters in March 2019. Today, Grasim Premium Fabrics exclusively manufactures and services premium cotton shirting fabrics under the brand name Soktas in India.

SOKTAS sells through 3000+ multi-brand fabric retail outlets across India. Now, Soktas is opening its 1st ever exclusive brand outlet in one of its key geographies - Bengaluru.

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Heberlein success story continues: new Swiss owners for long-established company

After sale of its business the company will run under the name Herberlein Technology AG

Heberlein, founded in 1835, successfully completed the sale of its business on 31st of October 2023. The new joint ownership comprises the company's management, alongside industry expert Daniel Lippuner and the Renaissance investment foundation. From November 1, 2023, the company will operate under the name "Heberlein Technology AG".

The owners are committed to investing in the long-term success of a business that already combines traditional valueswithinnovative power. The brand is known for its high level of expertise, as well as its tailor-made solutions for the textile business. As the world's leading supplier of jets for synthetic yarns, Heberlein develops, produces, and distributes key components for the man-made fibre industry. Around 80 employees and an efficient infrastructure in Wattwil, Switzerland, ensure that international customers can continue to rely on quality and reliability.

The Renaissance investment foundation was established by pension funds, for pension funds, and has been investing in unlisted Swiss SMEs for over 20 years.

Under the new ownership, the Heberlein business will continue unchanged at the current location in Wattwilwith the current management and all current employees.

The board of directors and management of Heberlein AG welcome this solution and are convinced that the existence of the company and its traditions will now be secured in the long term and that it will continue to develop successfully –positive news also for the business location of Toggenburg and the canton of St. Gallen.

Martin Zuercher, CEO of Heberlein, says of the transaction: "With this sale, we are opening a new, positive chapter in the company's long history. With the Renaissance investment foundation, we found an owner who is focused on long-term success. Together with the energetic management team, I look forward to continuing to make a significant contribution to Heberlein's success in the future."

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With the update of its powerful software for the digital creation of jeans, the Spanish firm positions itself as a partner of reference for eco-efficient digitalization

Launch of Jeanologia's new eDesigner software:

Jeanologia transforms denim design with the newest version of eDesigner

This jean-design software marks a milestone in the virtual creation of garments.

eDesigner promotes eco-design through the digitization of the collections, reducing samples by 80% and ensuring perfect reproducibility of production designs.

With a more intuitive interface, the latest version improves usability and enhances hyperrealism, while incorporating both fabric digitalization and access to Jeanologia's know-how.

Designers are connected to wash developers, and brand namesto manufacturers, creating a fluid and agile channel for design validation and accelerated production and marketing.

Jeanologia, a leading Spanish company in the development of eco-efficient technologies, is boosting digitalization in eco-design with a new version of itseDesignersoftware.

Since its development in 2020, this innovative software for the digital creation of jeans has situated itself as the creative and eco-efficient technological alternative to traditional denim design, shaping the future of garment finishing.

The perfect editor for denim design

The new version of eDesigner offers a more intuitive user interface, as well as tools specific to jean design, providing a unique design experience. Worth highlighting is the "Trace" tool, which uses artificial intelligence to generate hyper-realistic designs from a single image.

It also features the possibility of working with digitized fabrics, thus enhancing hyperrealism with high-definition renders to ensure that the design seen on the screen is what will be obtained in production: "What you see is what you get"

Access to Jeanologia's know-how

eDesigner also provides designers with a valuable source of inspiration and expertise through its Lightbrary, which gives users access to an extensive gallery of laser designs, vintage designs, wash effects, textures, tear and fray gallery, as well as a "Discover" section with trends and inspirational designs.

Jeanologia thus will share its know-how with designers, who will be able to create things from scratch or build on previous designs as a starting point for new creations.

Digital wash

The new eDesigner takes digitization to the next level, enabling the digital creation of patterns and garments and in doing so, reduces physical samples by 80%. This not only means significant savings in terms of resources, but also a substantial reduction in the carbon footprint generated by the transportation of samples.

The user can create digital cufflinks, combining digital patterns (eFit) with digital fabrics (eFabric), and partake in a truly authentic experience, as he or she will be able to analyze the results of wash applications on the fabrics.

All these innovations make it possible to shorten product development times by months, eliminating significant sample quantities and the now-unnecessary costs of shipping them around the world.

The perfect partner for the digitization of the development process

eDesigner acts as a fluid and agile two-way communication channel that connects laser designers with wash developers and brands with manufacturers. In this way, it speeds up the production and marketing of collections.

Once the design is finalized and the collection approved, the tool provides final digital files, which can be sent to production centers around the world to be converted into actual jean production.

As Jeanologia'sMarketing Director, Carmen Silla, explains, "Thanks to this tool we'll enable infinite iterations at zero cost and impact, while standardizing formats and communication. We'll improve production processes by making them more efficient and accelerate time-to-market, since we go from design, to sample and approval in a very short time."

More than simply software, eDesigner is an eco-efficient digital transformation tool, destined to revolutionize the textile industry and contribute to its transformation into a more competitive, productive and sustainable industry.

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Invitation to Visit ITME Africa & Middle East

30th Nov – 2nd December 2023,

Kenyatta International Convention Centre, Nairobi, Kenya

It is our pleasure to invite textile fraternity to visit the 2nd edition ITME Africa & Middle East 2023, from 30th Nov – 2nd December 2023 at Kenyatta International Convention Centre , Nairobi, Kenya. This unique and exclusive business event with the theme "Prosperity through Textile Technology & Engineering" is a gateway to emerging Textile Industry of African continent & Middle East.

Date	Program	Time
30th November - 2nd December 2023	Textile Machinery & Technology Exhibition	9.00 am - 5.00 pm
30th November 2023	Inaugural Program	10.00 am - 11.30 am
	Session I - Investment & Technology Joint Venture	12.30 pm - 1.00 pm
	Session II - Financial Solutions for Investments & Technology upgradation	2.00 pm - 3.30 pm
1st December 2023	B2B, B2G, B2F & Meetings with Legal Consultants for Business Visitors	10.00 am- 2.00 pm
	Session III - Technical & Technological Seminar	3.00 pm - 4.15 pm
	Panel Discussion	

First time ever hosted in Kenya

Textile Technology Exhibition & Business Meet to Interact with 36 countries.

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Seema Srivastava, Executive Director
India ITME Society ❐

7th Bangladesh Int'l Garment & Textile Machinery Expo 2023, held from October 26-28, 2023

Int'l Convention City Bashundhara (ICCB)
Dhaka, Bangladesh

Redcarpet Global, in association with BGMEA (Bangladesh Garment manufacturers & Exporters Association) invited textile community to visit 7th BIGTEX 2023 – Bangladesh Int'l Garment & Textile Machinery Expo 2023.

Date: 26 to 28 October 2023

Venue: International Convention City Bashundhara - ICCB, Dhaka, Bangladesh.

BIGTEX connects all kinds of garment & textile machinery, equipment, technology & accessory manufacturer, dealers, suppliers & importers from Home & Abroad. Targeting the entire Textile, Garment & Apparel industry of Bangladesh, BIGTEX has 3 concurrent expos named as Bangladesh Int'l Fabric & Yarn Expo, Bangladesh Int'l Dyes, Pigments and Chemicals Expo & Bangladesh Int'l Printing, Packaging and Signage Expo.

Our premium exhibitors with over 200 booths from more than 12 countries waited to witness over 9,000 potential visitors during these expos.

Be a part of this expo to showcase new technologies & catch the industry trends.

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IGMACH INDIA

1st International Garment Machinery Textile & Accessories Exhibition

21 to 24 February 2024
Helipad Exhibition Cenre
Gandhinagar, Gujarat, India

ITMACH India exhibition has a proven track record of connecting machinery and technology marketers to entrepreneurs as well as supported the expansion and development of the textile industry. The upcoming show, after a span of four years, is hosted within and near to growing garment & textile markets when the industry is planning for unprecedented capacity growth backed by new Central Govt. initiatives like PLI, PM-MITRA scheme as well existing supportive state textile policies.

Both ITMAC Hand IGMATCH exhibitions are being organized simultaneously at the same venue

due to which the garment and textile industries will get great benefits. Garment manufacturers, Textile manufacturers, Start-up industries and fashion designers will have a great opportunity to get to know the industry with new technology, new design fabrics. As a large number of garment manufacturers are confirm to visit this exhibition, garment machinery manufacturers, dealers, distributors, fabric manufacturers and suppliers as well as accessories industries will benefit greatly.

It is a matter of pride for us that the event grown in size backed by the successful past event as well as improved quality of services. IGMACH India would help its exhibitors and visitors discover the market and current trends in the garment & textile industry. It lays out the opportunity to meet technical experts of the leading garment & textile machinery, technology suppliers, industry professionals and thinkers, and the finer tune of ideas and network.

The IGMACH India 2024 would be participated by 200+ exhibitors from India and overseas as well as attract over 25,000 business visitors from domestic as well as from neighbouring countries at a picturesque Exhibition Centre.

FASHION THE GROWTH OF FABRIC

India's economic health is growing stronger and well poised to leapfrog to a $ 5 trillion economy by 2025. "Make in India" initiative has gained remarkable momentum leading to significant investment in capacity building and achieving economy of scale. For textile sector, the Government has adopted the 5F Mantra of "Farm to Fibre to Fabric to Fashion to Foreign" and introduced policies and incentives for sustainable growth of the industry.

India is among the world's largest producers of Textiles and Apparel

The domestic apparel & textile industry in India contributes approx. 2% to the country's GDP, 7% of industry output in value terms. The share of textile, apparel and handicrafts in India's total exports was 11.4% in 2020-21. India stands as the 3rd largest exporter of Textiles & Apparel in the world.

India is one of the largest producers of cotton and jute in the world. India is also the 2nd largest producer of silk in the world and 95% of the world's hand-woven fabric comes from India. The Indian technical textiles segment is estimated at $16 Bn, approximately 6% of the global market. The textiles and apparel industry in India is the 2nd largest employer in the country providing direct employment to 45 Mn people and 100 Mn people in allied industries.

India has also become the second-largest manufacturer of PPE in the world. More than 600 companies in India are certified to produce PPEs today, whose global market worth is expected to be over $92.5 Bn by 2025, up from $52.7 Bn in 2019

EXHIBITOR PROFILE

- All type of Textile Fabric
- Suiting, Shirting, Dress material, Denim
- Uniform Fabrics
- Technical Textile
- Garment & Apparel Machinery
- Automation and Robotics in Apparel Industry
- Digital Textile Printing Technology
- Home Furnishing Machinery & Materials
- Leather Garment & Shoe Manufacturing Machinery
- Yarns & Yarn Processing Machinery
- Printing & Dyeing
- Apparel Fabrics
- Accessories, Trims & Embellishments
- Allied Products & Services
- Laundry & Finishing Equipment
- Pre & Post Processing Equipment
- Knitting Machinery
- Sewing Machines
- Embroidery Machines
- Hosiery Machinery
- Quilting Machines
- Intimate Apparel Manufacturing Machinery
- Heat Transfer Machines
- Laser Machines
- Packaging & Labeling Solutions
- Needles & Threads
- Fusing Machines
- Automation & Software
- Testing Equipment & Services
- Mannequins & Display Racks

TEXTILE EVENTS

- Spares & Consumables
- Cutting & Laying Machines
- Tufting Machines
- Denim Finishing & Washing Technology
- Denim Garment & Apparel Machinery
- Dyes & Chemicals
- Wet Cleaning & Ironing Equipment
- Dry cleaning & Dyeing Machines
- Water Heating Systems & Industry Boilers
- Dryers, Steamers & Irons
- Measuring Instruments for Environmental Protection,
- Water Treatment & Recycling
- Washing & Drying Machines
- Laces, Fibres, Fabric, Elastics, Embroidery,
- Trimmings and others
- Raw Materials used in Inner wear Industry
- Socks Manufacturing Machinery
- Zippers, Button and All Accessiories of Garment

AN IDEAL LOCATION FOR A PROFILIC EVENT

India, being strategically located between South East Asia and Middle East, is one of the largest player in textile & apparel manufacturing and trade. It is also the destination for future growth and investment in textile & apparel industry. Within India, Gujarat is the epitome of success when it comes to economic development and industrialisation. The growth and development of its textile sector is even more deep rooted. Ahmedabad, which was known as the Manchester of the East' in the past for its booming textile industry, is today a well-developed business hub & financial centre. Thus, IGMACH India 2024 will be held in capital city of Gandhinagar at The Helipad Exhibition Centre, Helipad Ground, Sector-17, from 21 to 24 February 2024.

The Helipad Exhibition Centre is so far the largest venue in India and holds the pride of hosting most reputed and largest trade shows of the country. The venue has been designed with advanced technology and amenities to facilitate business meets, convention, conferences & exhibitions of both national and international levels.

PARTICIPATION COST

Foreign Exhibitors:

Shell Scheme: US$ 250 per Square Meter + 18% GST

Bare Space: US$ 225 per Square Meter + 18% GST

Note: Foreign Exhibitors MUST pay Participation Fee in US Dollar

Domestic Exhibitors:

Shell Scheme: Rs 12000 per Square Meter + 18% GST

Bare Space: Rs 11000 per Square Meter + 18% GST

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SaigonTex 2024 (34th year)

Vietnam Saigon Textile & Garment Industry Expo

(Including textile equipment machinery, garment machinery, non-wovens, dyes and chemicals)

10-13 April, 2024, SECC, Hochiminh City, Vietnam

Why SaigonTex ?

- The biggest and the leading event in Vietnam's textile and garment industry since 1991.
- The only expo organize 2 times a year (April in Hochiminh City, October in Hanoi).
- Only UFI approved textile and garment industry exhibition in Vietnam.
- Only event with the full support from all Vietnam Textile & Apparel Association (VITAS), Vietnam National Textile-Garment Group (VINATEX) and Association of Garment Textile Embroidery Knitting in HCMC (AGTEK).
- The exhibition size is at least 100% more than the oher competing events.

The last SaigonTex/SaigonFabric attracted over 1,350 exhibitors from 21 countries/regions (Increased 360% compare to 2022), covering 35,000 sqm exhibiting space with 2 main halls plus 3 temporary halls. To secure a good location, many exhibitors confirmed their next participation immediately.

Register now to apply your booth!

Exhibition space was filled up very quickly in SaigonTex 2023. With limited space in the exhibition hall, SECC, please make reservation now to secure your booth.

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Wechat: cpexhibition
www.sgntex.com ❐

Uniform & Sportswear Expo (USE) 2023 Gears Up for Even More Impactful Sequel

Industry stakeholders from across India and overseas are eagerly looking forward to the second edition of Uniform & Sportswear Expo (USE) 2023, India's leading B2B expo on uniform & sportswear industry, being organised by Aditya Expositions from November 23-25, 2023 at Nehru Exhibition Centre, Worli, Mumbai. This unique platform for the B2B industry, conceptualised with an aim to create in interactive market, will have noteworthy dignitaries at the inauguration. M. B. Raghunath, CEO, Mafatlal Industries, Mumbai will be the Chief Guest and Naveen Sainani, Jt. Hon. Gen. Secretary, CMAI will be the Guest of Honour at the exhibition's opening ceremony.

With sustainability being is the new industry buzzword, some of the leading players will focus on sustainable uniforms and textiles, highlighting the latest offerings. USE 2023 will witness a convergence of 40-45 exhibitors from industry segments linked with uniforms and sportswear will be coming from all over India and exhibiting their products. Many of these are MSME units exhibiting for the first time and they look forward to showcase their range at the exhibition.

To enhance the knowledge quotient, 3 seminars are planned during the exhibition, covering all aspects from technical to management side. Vinay Nichani, Sales Director, DCC Group will cover 'Sublimation - Enhance Profitability Through Value Addition' while Suresh Kumar Rajbhar, CEO, Polocraft Sportswear Industries will highlight how to go about 'Building a Brand' and Dharmesh Jethmalani, Creative Business Communication Consultant will conduct an interactive session on 'Do You Want to Grow Your Business 10X.'

The venue for USE 2023, Nehru Centre, Worli, Mumbai is centrally located and easy to reach. Visitors are expected from all over the country, primarily from the western, southern and central zones of India. Leading trade publications are also supporting the expo and building awareness in the industry about the show. This industry gathering will ensure that the flag of India's uniform and sportswear industry flies high in the export markets, thereby improving the business volumes.

Following the successful debut and excellent response received from the Industry in 2022, the second edition of this well-planned and structured three-day exhibition promises a rewarding B2B interface yet again along with the freedom to interact in a focused manner with the target audience, while showcasing varied products and related services in an enabling environment.

All stakeholders will gather again to meet leading manufacturers, distribution chain stakeholders, resource business partners, clients, consumers and products & services providers. The second edition will raise benchmarks even further and highlight the scope for tapping exponential growth opportunities not just within India but beyond borders as well.

Trade shows are an essential component for business interaction and networking and this concept fits the industry requirements precisely. This customised initiative is contribution to enable manufacturersfrom this country to export all over the world; facilitating the 'Make in India' efforts as they progress and achieve a level of true success.

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Oerlikon

Oerlikon Polymer Processing Solutions to be showcased at ITMA Asia + CITME 2022

Oerlikon technologies will enable to transform virtually any raw material into an ecologically attractive end product

This year's ITMA Asia + CITME 2022 trade show appearance of the Oerlikon Group will focus on current challenges that the entire textile industry has to deal with: creating a circular economy within the textile value chain, providing energy efficient technologies, using digital solutions to support a sustainable production, processing new materials, and finally the traceability of all products and the recycling of raw materials used. And there are certainly many more subject areas that the visitors of the ITMA Asia -CITME 2022 will have questions about. Oerlikon therefore invites all trade fair visitors to engage in a dialog with all its experts at its booth in hall 7, A55. On more than 225 m², Oerlikon will give answers to the urgent questions of the present and the future.

Georg Stausberg
CEO of Oerlikon Polymer Processing Solutions Division

"At Oerlikon, we contribute with our innovative technologies for resource-saving use in almost all manmade fiber spinning mills in the world. Our promise for the future is to continue to expand the zerowaste production approach and thus take care of achieving our customers' and our own sustainability goals", says Georg Stausberg, CEO of the Polymer Processing Solutions Division and Chief Sustainability Officer of the Oerlikon Group. This sets out the claim of one of the world's leading suppliers of machinery and plant solutions for manmade fiber production not only for this show: In the future, it will be solely a matter of sustainable innovations.

Circular Economy and recycling? Enabling customers to achieve more with less

Textiles are becoming an increasingly big polluter. To tackle the growing mountains of used clothing, it is above all European politicians who are developing a comprehensive strategy for a regulating circular economy. And the textiles industry is also making its mark with innovative technologies for recycling manmade fibers. However, there is still a long way to go before we have a sustainable textile world.

According to the European Environment Agency, the consumption of textiles is already the fourth-largest source of negative environmental and climate change impacts within the European Union (EU). A major reason for this is relentless textile growth: the Ellen MacArthur Foundation states that the global production of textile almost doubled between 2000 and 2015. And the annual consumption of apparel and shoes is expected to further rise by 63 percent by 2030 – from currently 62 million to 102 million tons – adds the European Environment Agency.

With this market development in mind, Oerlikon is intensively involved in Worn Again Technologies. The British partnership is focusing on a solvent-based recycling technology, with which both end-of-life textiles comprising polyester and polycotton blends and PET plastics can be converted into circular raw materials and fibers (polyester and cellulose). For this, a large demonstration system for upcycling 1,000 tons of textiles per annum is being created in Switzerland. "We are supporting technological innovators such as Worn Again Technologies because we believe their solution is extremely promising and because they are driving cooperation between the individual producers within the value chain. Recycling only works when all players cooperate in a circular system", emphasizes Stausberg. He is already looking to the future: "The time for closed-loop strategies and the corresponding sustainable technologies is now – let's talk about it at ITMA Asia + CITME 2022."

In terms of sustainability, however, Oerlikon also sets itself high goals. Stausberg: "It is no surprise that we have applied high standards of innovation to our own operations and practices. For several years, Oerlikon has been creating pilot initiatives that we intend to implement company-wide to the greatest extent possible. For example, we are committed to achieving CO2 neutrality in all our locations by 2030 as we have already done at our site in Liechtenstein that provides our blueprint for meeting this commitment. Our goals also include obtaining 100% of our electrical energy from renewable sources and achieving the standard of 'Zero Harm to People'".

In addition to regulatory initiatives, technical innovation is required to connect the beginning and the end of the linear textiles industry and to close the loop. One decisive circular technology here is fiber-to-fiber recycling. Only a few years ago, this process was used to recycle around just one percent of used clothing worldwide into fibers for new apparel. McKinsey market researchers are now talking about 18 to 26 percent being recycled by 2030 – if the full technical recycling potential is utilized and more textiles are collected. For this, manual processes will have to be automated, clothing waste qualitatively sorted, buttons and zips removed, and fiber compositions unambiguously identified – and all less expensively. Separating mixed fibers still represents an obstacle as well. Finally, the recycled materials must be suitable for the spinning process, provide a usable yarn quality and be able to be further processed, i.e., dyed. Despite these challenges, there are promising solutions on the horizon, even though some processes are not yet ready for commercial exploitation.

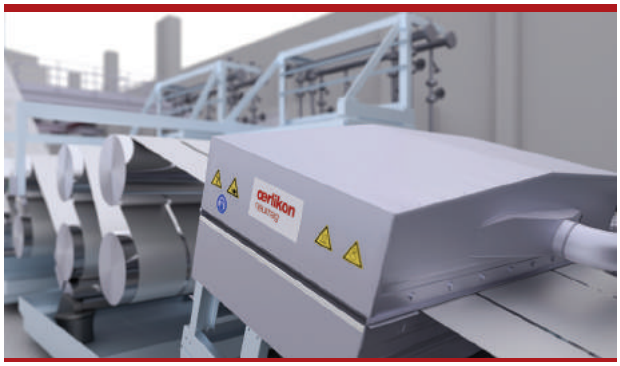
Oerlikon Barmag is offering technological solutions for rPET that enable customers to save million tons of CO_2 per year. In 2022, Oerlikon Barmag introduced, a homogenizer recycling line specifically for customers in China and Asia where bottle flakes and film waste can be agglomerated, extruded, homogenized and melted to produce polymer melt or chips. It enables the polymer quality of recycled bottles or film waste to be precisely adjusted to the requirements of different downstream extrusion or injection molding processes.

Another rPET solution is the VacuFil system from the Oerlikon Barmag joint venture, BB Engineering. VacuFil is a unique and innovative PET recycling line, uniting gentle large-scale filtration and targeted intrinsic viscoscity (IV) regulation for consistently outstanding rPET melt quality. In 2022, BB Engineering launched a patented key component of the VacuFil system, the Visco+ filter as a separate and easily integrable upgrade component that enables precise IV setting and pure melt with the help of vacuum. IV is the central quality characteristic in PET recycling and rPET processing. It determines the melting performance in the production process and the properties of the end products and is thus essential in the recycling process. The Visco+ process is reliable, verifiable and 50% faster than conventional liquidstate polycondensation systems.

Energy Efficiency? EvoSteam process revolutionizes polyester staple fiber production

There is a huge demand for textile fibers: population growth of around 3% per annum, fast fashion and many other factors are fueling this demand. According to international studies, global demand for staple fibers made from polyester will total 20 million tons in 2025 – this is approx. 33% more than the production volume recorded in 2013. In view of noticeable climate change and its impact on people and the economy, resource- and environment-friendly manufacturing methods are absolutely crucial for the future. High production costs are currently eating into the margins of fiber producers. Noteworthy here are above all massively increased energy and polymer prices, but water is also an important resource today – very frequently scarce and consequently expensive. At this year's ITMA Asia + CITME 2022 in Shanghai, Oerlikon Neumag will be unveiling its new EvoSteam process to interested trade visitors, viewed by many process experts as an enabler for more sustainable staple fiber production in the future. The objective of the new development is to lower both operating expenses (OPEX) and the carbon

footprint with minimal consumption of energy, water and polymer – simultaneously with the excellent fiber qualities demanded by downstream processes and high production volumes.



Innovations at ITMA Asia + CITME 2022: the revolutionary new Oerlikon Neumag EvoSteam staple fiber process

New Materials?

Looking back at the regulations of the European Union, among others, there are also major challenges for new materials. In that regard the Green Deal can only be realized if new European Union policy frameworks create certainty for future investments.

"In the polymer processing industry, we have to come to a sustainable, closed circular economy for packaging materials and textiles, for example, while simultaneously intensively expanding the recycling of the materials used. Here, new materials also offer opportunities – opportunities that we as a machine manufacturer and plant engineering company will exploit. However, compared to non-biodegradable, petrochemical-based polymers such as PE, PET and PP, the prices for bio-based polymers like PA 5.6. and biodegradable polymers like PLA, PBAT and PBS are not yet competitive. In contrast, the properties of bio-based materials used for consumer products, especially those used in the packaging industry, are already competitive. It appears compostable textiles will remain a niche market", explains Stausberg.

"But one thing is certain: utilizing current Oerlikon technologies and future innovations, we will be able to transform virtually any raw material into an ecologically attractive end product. The economic questions will ultimately be answered by consumers. Technology is once again enabling us to create a better world", says Stausberg.

Digitalization and Traceability?

With its sustainable and closed loop-compatible textiles strategy, the EU plans to become a pioneer for the global circular economy as well. By 2030, textile products marketed within the EU are to become more durable and recyclable, predominantly comprise recycled fibers, contain no hazardous substances and be manufactured in compliance with social rights and in a manner that protects the environmental. This also includes the introduction of a digital product passport and the amendment of the European Textile Labeling Act: To implement the closed-loop principle and other important environmental requirements, players along the value chain must also fulfill new information obligations about the composition of textiles. At the show, Oerlikon will present own digital technology solutions and those that have been tested in collaboration with various partners for the use in Oerlikon technologies.

Looking into the future with the Oerlikon Barmag Digital Twin

The term "digital twin" was coined in 2014 by Michael Grieves and John Vickers (NASA) and is used and interpreted for different scenarios: The simplest digital twins map a digital inventory list of a real machine, for example, in order to be able to supply exactly matching spare parts for a customer-specific plant. At the other end of the complexity scale are digital twins that map the kinematics and/or dynamics of a machine or plant. At ITMA Asia + CITME 2022, Oerlikon Barmag will present a complete WINGS POY winding head as a kinematic model as a digital twin. For this purpose, all essential machine components were modeled as rigid bodies and connected to each other via joints and contact bodies. The actuators present in the real world were simulated by forces and moments. Analogously, the sensors are simulated by contact bodies and corresponding collision bodies. With this kinematic model, it is now possible to map all the processes that occur during the operation of a winding head in virtual space. Customers can thus be offered faster and more cost-effective production solutions.

Digital Academy – its just the beginning

Interactive and customized, modular and flexible in terms of time – all features of a modern training concept. Adapted to the needs and general conditions of the respective student, training sessions should be independent of time and place and the contents should be tailored. This concept is being implemented within the Digital Academy at Oerlikon. The digital online training center, available through the my Oerlikon.com e-commerce platform, comprises a collection of role-based e-learning modules on such topics as operation, maintenance and repairs – currently for the Oerlikon Neumag BCF S+ and S8 machines. Training is targeted at operating staff, process engineers and technicians, and quality assurance officers. The Digital Academy learning contents are available for the Oerlikon Neumag BCF S+ and BCF S8 systems. Further contents will be continually expanded and made available to all customers.

Oerlikon Barmag ACW WINGS

How can an upgrade increase Oerlikon Barmag POY yarn manufacturing process quality while simultaneously cutting energy consumption, waste, time and personnel? At ITMA Asia + CITME 2022, Oerlikon will show its long-awaited upgrade: ACW WINGS drawing fields. Established technologies can always be made better. When the Advanced Craft Winder (ACW) was launched in 1998, it was truly convincing with its sophisticated modifications for initial string-up and yarn transfer. WINGS replaced it as the new benchmark in 2007. However, because Oerlikon Barmag technology last for decades, many ACW and WINGS winders are being operated practically side-by-side in some places. Customers asked Oerlikon: please build a WINGS drawing fields over our ACW winders! At ITMA Asia + CITME

2022 it will be shown in hybrid way – a WINGS drawing field in combination with virtual ACW Winder.

Oerlikon Barmag ACW WINGS upgrade

Oerlikon Barmag Wiping Robot

Regular wiping of the spin packs is important for process stability and yarn quality. Automating the process with Oerlikon Barmag's wiping robots, which can be retrofitted to numerous spinning plants, delivers considerable benefits, as it reduces the yarn break rate by up to 30%, improves process stability and reduces downtime. In addition, wiping robots help to indirectly reduce waste as a result of a 90% decrease in the use of silicone oil spray cans and a 15% to 20% decrease in total silicone oil consumption.

Oerlikon Nonwoven HycuTEC

Oerlikon Nonwoven's HycuTEC inline charging technology is used to create high-end charged meltblown filtration media. Introduced in March, it went on to win the 2022 FILTREX™ Innovation Award. One of the reasons HycuTEC won the award was that the meltblown media treated with the technology requires 40% less polymer (fabric weight) to achieve the same filter efficiency than the nonwoven material that was not treated. In other words, filter specification is easier to achieve while reducing waste in production. Compared with other hydro-charging concepts, the unit significantly reduces water and energy consumption due to the elimination of an additional drying process and the lower pressure drop in the filter material. HycuTEC is the first industrially manufactured hydro-charging solution that can be easily retrofitted to existing systems as a plug-and-produce component.

About Oerlikon Polymer Processing Solutions Division

Oerlikon is a leading provider of comprehensive polymer processing plant solutions and high-precision flow control component equipment. The division provides polycondensation and extrusion lines, manmade fiber filament spinning solutions, texturing machines, BCF and staple fiber lines as well as nonwoven production systems. It also develops and produces advanced and innovative hot runner systems and multi-cavity solutions for the injection molding industry. Its hot runner solutions serve business sectors, including automotive, logistics, environmental, industrial applications, consumer goods, beauty and personal care and medical. Moreover, Oerlikon offers customized gear metering pumps for the textile, automotive, chemical, dyes and lacquers industries. Its engineering competence leads to sustainable and energy-efficient solutions for the entire polymer processing value chain with a circular economy approach.

Oerlikon Polymer Processing Solutions Division serves customers through its technology brands – Oerlikon Barmag, Oerlikon Neumag, Oerlikon Nonwoven and Oerlikon HRSflow – in around 120 countries with production, sales, distribution and service organizations.

The division is part of the publicly listed Oerlikon Group, headquartered in Switzerland, which has more than 13 000 employees and generated sales of CHF 2.9 billion in 2022.

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Mimaki Europe B.V.

NOPINZ finishes with flying colours

NOPINZ UK-based cycling attaire manufacturer has ramped up its product by combining Mimaki's textile dye sublimation solution and Early Vision's apparel customisation software capabilities

Founded in 2013, NOPINZ is a renowned UK-based manufacturer of clothing for cyclists and triathletes. The company's first product was the

'SpeedPocket', a product that allows competitors to attach their race numbers more easily (and with 'no pins') while improving the all-important aerodynamics. Soon recognising the customer demand for premade attire with incorporated number pockets, the company embarked on a mission to manufacture these new product lines itself. Today, NOPINZ boasts a diverse portfolio, with 60% of its products made in-house, catering to a growing customer base across the UK and international markets.

Gearing up to grow

"We tested out a few printers, before we ultimately settled on Mimaki," Blake Pond, the founder of NOPINZ explained. Now the company's line-up entirely consists of Mimaki's textile dye sublimation solutions, purchased through Mimaki Authorised Partner, Xpres.With an initial investment in two TS300P-1800 in 2016, NOPINZ later upgraded its technology capabilities with a TS55-1800in 2022.

NOPINZ now runs the majority of their production out of its microfactory based in Devon, UK.

"During our search we prioritised the ability to produce fluorescence and accurately replicate colours. Customers often come to us with existing kit made by other manufacturers, which they want to match, so accurately replicating colour is extremely important. And even without existing kit, customers occasionally ask for specific pantone colours. When it comes to cycling kit, colour is often pivotal when considering where to buy from."

As two flagship dye sublimation printers, both the TS300P-1800 and TS55-1800 are equipped to print on the various technical fabrics that are needed for cycling attire and faithfully reproduce colours to meet customer expectations.

NOPINZ places a strong emphasis on sustainability and is committed to minimising its environmental impact. Using a microfactory approach gives better oversight and control of the manufacturing process, including sourcing materials sustainably and locally where possible, reducing transportation, and improving access to recycling. "Our 'zero to landfill' policy, means that we reduce our wastage where possible and either recycle or donate excess product to charity," Blake adds. "We hope to become a B-Corp company in the future."

Early.Vision software has helped NOPINZ eliminate existing bottlenecks in the design & production processes.

Making the production aerodynamic

With a steadily growing customer base across the UK and abroad, NOPINZ began to look for ways to finetune its processes. "Preparing orders for print was done manually and the time needed to do so had become a significant bottleneck in our production process," Blake explained, "As we looked to scale up, we knew something needed to change. We got a recommendation for Early. Vision, which offer software solutions for the apparel industry, in May 2022 and since then, it's been smooth sailing!"

Early.Vision supports in streamlining the design to production workflow, allowing designers to focus on design and create nesting ready files that are prepared for production automatically based on eCommerce orders. It integrated its software to work seamlessly with Mimaki's RIP software. "We immediately saw significant improvements, in both time and cost," explained Blake. "It used to take us 36 hours to print 150 items, we can now do the same in 90 minutes!"

Beyond the printing process itself, NOPINZ have seen other benefits to taking on Early.Vision's

technology. "While we endeavour to produce mostly in-house (about 60%), when we do need to outsource, it's much easier to send these print runs to other locations to be made. As we look to scale up our own production, this will also be a huge help."

Bespoke cycling kits are created to the exact colour and sizing of the customer for optimal performance.

High-tech, high-accuracy

NOPINZ creates speed suits for some of the world's top cycling teams, as well as competitive amateurs. "A World Tour team is like a Premier League football team, winning and losing by very fine margins. A lot of the kit we make for them is custom fitted, completely bespoke, not just in terms of the print but the whole fit of the item. We even look at minute details such as the material placement to further improve the aerodynamics. We then use 3D scanning to get the measurements of the athlete exactly right. For this, the athlete stands in a booth, and are scanned, with those precise measurements being used in the creation of the kit," explained Blake.

Global expansion with Mimaki

As NOPINZ eyes expansion into new territories, Blake expects that Mimaki dye sublimation solutions will remain the company's printers of choice: "We're looking to further expand in the USA and Australia and because we want to manufacture local to the market, that means setting up microfactories in those new locations. Considering its importance to our customers, we really want to keep colours consistent no matter where they order from, so we wouldn't consider moving away from Mimaki as our preferred supplier."

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Krsna Group

A brief profile of Krsna Group

Krsna Group Textile Machinery Manufacturing is First Generation Family Enterprises made a humble beginning in Mumbai Apartment, by Technocrat Turned Entrepreneur VJTT Mumbai Graduate Mr. M.D. Shah (Fellow Institute Manchester UK) Krsna Engineering Works move in 1990 to present location of 2000 square yard plot 45, GIDC Naroda, and Ahmedabad India. Well response from Market for Krsna younger brother P.D. Shah joined at initial stage followed with young Techno Savy Family Members helped Krsna Expaned its activities & form new venture under leadership of Mr. Chandresh Shah (Managing Director President of the Indian Textile Accessories & Machinery Manufacture Association) Business & Law Graduate with help of uncle Mr. H.D. Shah Electrical Engineer, Krsna Engimech Pvt. Ltd. B4, GIDC, Phase 2, Naroda, Ahmedabad-328330.

Manufacturing

- Krsna an innovator of Dyeing Technology introduced 1st time in India soft/over flow dyeing machines.
- 5 to 7 soft flow dyeing machines fully automatic month Krsna Krantz soft flow dyeing machine.
- Krsna continuous open width washing ranges for knit fabric & woven.
- Krsna open cum rope washing range.
- Krsflow continuous rope washing & bleaching range 1st time in India.
- Tumble dryers for woven & knit terry towel.
- Merceriser Mini & Regular.

Krsna Group concept to reality

- Krsna with its zeal to protect environment always tried to design machineries to save water chemical energy.
- Krsna range of soft-flow & other textile processing machineries fundamental are accuracy in manufacturing using top quality materials. Krsna ranges of machines are well known for reliability, robust construction & ease in operation.
- Krsna in operation.
- Krsna with reinvent obsession could.
- Introduce first time in India
- Krsna soft-flow dyeing
- Krsflow multipurpose washing cum bleaching CBR

- Krsna open width tensionless vibro drum washer for bio wash & after print wash of knit fabric.

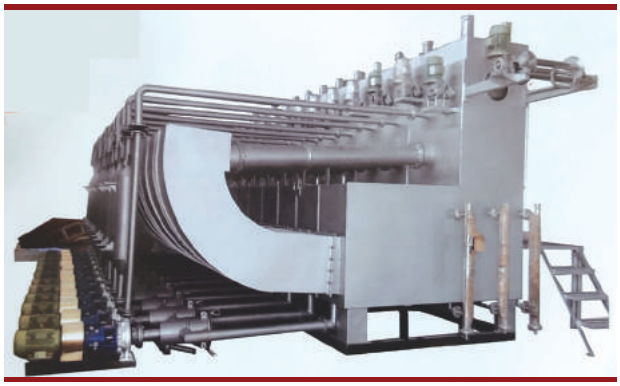
What Adopted at Krsna

Lean manufacturing completeness system & 5s +

- Safety rules
- Sort
- Straightens
- Shine
- Standardisation

This system adoption helped in

- Mfg. best performing machines
- Consistency in quality
- Repeat performance with excellent quality
- Produce user friendly machines
- Get 90% repeate order



Today Krsna is name to reckon with Krsna Operating all over India & 23 countries worldwide.

The highlight of Make in India efforts by Krsna Group

Krsna Krantz softflow dyeing machine 1st time Germen Technology Made in India

First Indian manufacturer to offer atmospheric soft flow and high temperature soft flow in various capacity 5 kg to 2000 kg.

First Indian manufacturer to offer sample soft flow atmospheric & high temperature 5 kg to 50 kg. First Indian manufacturer of double nozzle long tube (twin nozzle) combination of soft flow & jet long tube soft flow.

First Indian manufacturer of Krsflow continuous rope washing/bleaching range.

This noven machine developed by the company is an import substitute & help to same water, energy, as well as dyes and chemicals.

First manufacturer of soft flow dyeing machine from India displayed at international exhibition itme '99 Paris.

First manufacture to export soft flow to MEXICO in South America in 1998.

First universal soft flow machine to dye all types of fabrics. Silk / Polyester / Cotton / Viscose / Lycra / Terry Towel / Knits / Woven / Loosely Woven Fabric & Blend.

First Indian manufacturer of DOUBLE Nozzle Long tube (TWIN Nozzle). The combination of soft flow & jet long tube soft flow.

First and the only manufacturer to offer long tube soft flow designed to process lighter fabric of 20 meters/kg. & heavier fabric 2 meters/kg. variety fabric.

More than 2500 machine are in operation in India & 23 countries worldwide.

Krsna soft flow dyeing machines are eco-friendly & greater market acceptance by all over India by the user industries.

Special Features

Krsna group's tradition of solid design excellent manufacturing tradition help us to build this new concept of continuous washing/bleaching of all kind of textile in rope form like woven/terry towel/knits — hosiery/loosely woven (woolly georgette chiffon).

Krsflow with unique features help to save water/save chemical/save energy & help to protect environment.

Krsflow continuous rope washing & bleaching range krsna pioneer manufacturer of soft flow in India, with constant synergetic relation customer helped us to introduce the unique design, special purpose continuous rope bleaching range.

Krsflow continuous rope bleaching/scouring washing range.

Krsflow continuous washing range encompasses all the principles of efficient washing. This range has an intelligent combination multi tube (few) soft flows running in tandem.

SCIENCE IN INDUSTRY

The fabric is being process in rope form with use of highly acclaimed krsflow (over flow) system the 8 to 16 soft flows process the fabric together to accelerate the process of after print fabric washing or scouting bleaching.

Actual working of krsflow processing on krsflow fabric enters 1st train (soft flow) through squeezer enters soft over flow section & being gently carried at rear side through transport tube on return path fabric is being squeezed in squeezer of next train (soft flow tube) & enters soft over flow section of next train & then gently pushes to rear side likewise cycle continue.

Fabric enters 1st soft flow section then enters second section of soft flow then continue to exit in last soft flow at working speed of 20 to 30 meters/minutes depends on quality of fabric. Water consumption: 1 kg of fabric needs 10 to 15 liter from gray to bleach.

Sample Soft Flow for all types of Fabrics

Technical Specification

- Robust Reliable Construction of SS 316 L material. High volume low pressure pump (with AC variable inverter drive).
- Variable driven inside reel with silicon strip to avoid abrasion mark.
- Liquor ration 1:4 with 100% moist fabric.
- Teflon sheet at rear side for entangle free fabric movement.
- Water flow meter (Optional).
- Fully Auto Operation (Optional).
- Seam Detector (Optional).

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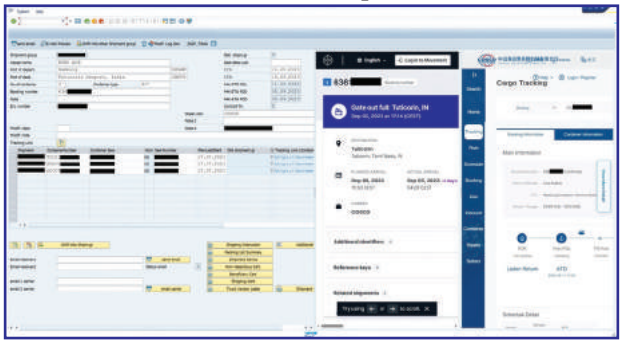
Lenzing Group

Lenzing adopts supply chain transparency to next level by combining real-time shipment tracking and carbon visibility

- Collaboration with supply chain solutions company project44 aims to enhance transparency and efficiency along with improving visibility of carbon emissions
- The new real-time shipment tracker addresses the fiber industry's rising supply chain complexities over the past couple of years
- Enabled by AI and predictive analysis technology, the tracking system is Lenzing's latest move in harnessing the power of digital technology for agile, interconnected, and sustainable supply chains

Lenzing Group, a leading global producer of wood-based specialty fibers, is taking an important step in enhancing the transparency and efficiency of the global fiber supply chain with the launch of a pioneering real-time ocean shipment tracker in collaboration with digital supply chain solution company, project44. Adhering to Lenzing's sustainability goals, the tracker also offers capabilities to improve the visibility of carbon emissions among partners and elevate the customer experience.

Christian Platzer



To address the industry's increasing supply chain complexities, Lenzing has incorporated a fully integrated real-time application programming interface (API) between its systems applications and products (SAP) and the project44 platform, Movement. Combine this with advanced artificial intelligence (AI), GPS sensors, and machine-learning technologies, and Lenzing can now empower customers with accurate real-time insights on fiber orders, ranging from shipment status, container location, to vessel route tracking and estimated arrival times at ports around the world.

Powered by real-time data and predictive insights

"Over the past couple of years, supply chain disruptions have highlighted the importance of advanced ocean shipment tracking. Our real-time shipment tracker is a testament to Lenzing's 'Better Growth' corporate strategy, which reinforces our commitment to digitally transform and ensure transparency in the textile and nonwovens supply chain. With supply chain transparency and sustainability becoming increasingly more important, our ability to implement groundbreaking carbon emission tracking at shipment and container level demonstrates that we are ready and eager to collaborate with our valued customers in jointly crafting ambitious carbon reduction targets," said Thomas Panholzer, Vice President Global Supply Chain, Lenzing.

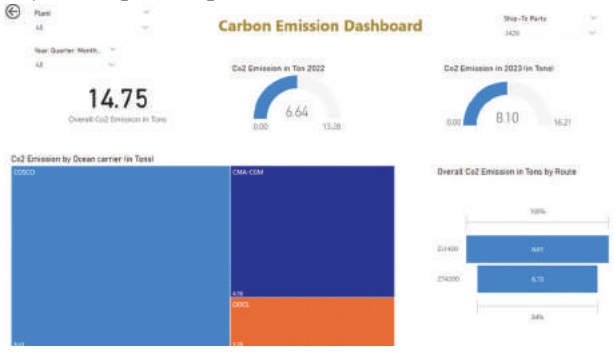
Thomas Panholzer

Partnering to achieve the shared goal of greater carbon emission visibility

As part of Lenzing's sustainability commitments, the real-time ocean shipment tracker provides improved solutions which empower value chain partners to achieve their carbon emission targets, by providing customers with access to Scope 3 carbon emission data accredited by the Global Logistics Emission Council (GLEC) framework on shipment and container

Jett McCandless

level. This real-time data allows Lenzing and its customers to collaboratively establish goals and adjust shipment plans to reduce carbon emissions.



"Supply chain visibility continues to depend on successful collaborations," said Jett McCandless, founder and CEO of project44. "Lenzing's shipment tracker, powered by project44's unique data and insights, gives unprecedented customer access to real-time information that locates shipments across the globe. We are continuously seeking partnerships with pioneers like Lenzing who strive to incorporate new solutions and technologies into their offerings."

"This new carbon visibility solution is a pivotal milestone for Lenzing. As our partners intensify their efforts to minimize their carbon footprint, we stand ready as a trusted collaborator to empower them with crucial insights to drive further reductions," affirmed Jayaraman Sethuraman, Vice President of Global Sales Textiles at Lenzing.

"We value Lenzing's ongoing commitment to supporting our journey towards reducing carbon emissions. Our unwavering dedication to sustainability is evident in our use of green energy for spinning and weaving production processes. At the Pallavaa Group, we are well-prepared to deliver carbon-neutral solutions up to the grey fabric stage," shared Durai Palanisamy, Executive Director of the Pallavaa Group.

Durai Palanisamy

Driving digitalization to enhance efficiency and transparency of the global fiber value chain

"Lenzing IT's vision is to accelerate our ambition to change the world for the better by unlocking the power of information and technology. This project is one of the many fantastic examples that brings our vision to life. We are committed to fostering digital collaborations that will further enhance customer satisfaction and supply chain transparency," said Christian Platzer, Vice President Global IT & Digital Innovation, Lenzing.

Lenzing's real-time ocean shipment tracker will be accessible to all Lenzing customers worldwide starting September.

About the Lenzing Group

The Lenzing Group stands for ecologically responsible production of specialty fibers made from the renewable raw material wood. As an innovation leader, Lenzing is a partner of global textile and nonwoven manufacturers and drives many new technological developments.

The Lenzing Group's high-quality fibers form the basis for a variety of textile applications ranging from elegant ladies clothing to versatile denims and high-performance sports clothing. Due to their consistent high quality, their biodegradability and compostability Lenzing fibers are also highly suitable for hygiene products and agricultural applications.

The business model of the Lenzing Group goes far beyond that of a traditional fiber producer. Together with its customers and partners, Lenzing develops innovative products along the value chain, creating added value for consumers. The Lenzing Group strives for the efficient utilization and processing of all raw materials and offers solutions to help redirect the textile sector towards a closed-loop economy. In order to reduce the speed of global warming and to accomplish the targets of the Paris Climate Agreement and the "Green Deal" of the EU Commission, Lenzing has a clear vision: namely to make a zero-carbon future come true.

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Kornit Digital

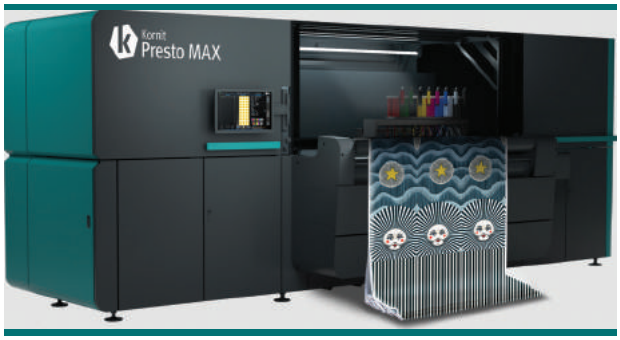
Kornit Digital Uninterruptedly Reinvent and Reimagine Textile Decoration with Enhanced Presto MAX

- Taking on-demand digital decoration to new heights, single-step solution transforms virtual concepts into brilliant custom fabrics for fashion, home décor, and key textile applications
- Built with industry requirements in mind, Presto MAX helps designers, producers, and creators deliver superior performance, best available range of applications, and widest capabilities for color and graphic designs
- First-ever solution offering white prints now with enhanced performance envelope reaching above 300 SQM/hour with a reduced ink laydown of up to 25% on colored fabrics
- New NeoPigment™Vivido ink set breaks barriers for quality with darker blacks and vivid colors, reduced ink laydown, and improved hand-feel to elevate fashion quality and detail standards with one dry, patented single-step process

Kornit Digital LTD. (NASDAQ: KRNT) ("Kornit" orthe "Company"), a worldwide market leader in sustainable, on-demand digital fashion[x] and textile production technologies, today announced the Company is taking the power of digital fashion to new heights with enhancements to the Kornit Presto MAX system for digital fabric decoration on demand.

Designed with the fashion and home décor industry in mind, the enhanced solution presents breakthrough capabilities for transforming virtual concepts into brilliant custom fabrics, supplementing best-in-class digital efficiency and quality with industry-first brilliant white printing on colored fabrics. The new NeoPigmentTM Vivido ink breaks barriers to achieve darker, deeper blacks and colors and establish new fashion standards with a pigment-based process. Kornit's patented solution offers a streamlined and completely dry process for the most sustainable fabric decoration. Bringing together richer, deeper blacks with lower ink usage and better hand-feel is the unique combination necessary for sustainable fashion fulfillment – which Kornit pioneered and continues to lead.

At ITMA 2023, Kornit also showcased an end-to-end partner ecosystem – underscoring how integrated solutions ensure a smooth transition towards a digital infrastructure and enable long-term business growth. Highlighting the power of partnership alongside Kornit is Greentex.co, a top supplier of textiles and apparel leveraging digitally enabled, eco-friendly waterless printing. The company has displayed Presto MAX with fabrics highlighting the depth of black inks. Working alongside Kornit, Zünd will demonstrate how its modular cutting systems is the foundation for an end-to-end "eco factory," completing top-of-the-line fashion decorated by Presto MAX with their digital cutting solutions. Pentek Textile Machinery joins to display the possibilities for inline, sustainable softening of fabrics for unique and demanding applications.



According to recent Kornit Impact Reports, fashion production is plagued by wasteful practices. The industry is responsible for severe ecological damage with over production of approximately 30 percent of manufactured garments andnearly 20 percent of global wastewater. Presto MAX is designed to address these challenges, offering a sustainable, single-step process meeting the highest quality standards of the world's top fashion and home décor brands. Powered by Kornit MAX technology, the sustainable, on-demand textile decoration system allows producers to create more with less, shrink carbon footprints, and tap into new markets.

"When we first unveiled our industry-leading Presto MAX in 2021, the intent was to change the world of fashion and textiles forever – tapping into the power of on-demand digital decoration to set new standards for sustainability and creative fulfillment," said Ronen Samuel, Chief Executive Officer at Kornit Digital. "We're proud to highlight how Kornit anticipates the needs of

an industry facing new opportunities sparked by digital transformation, while addressing mandates to cut waste and over production. Continuous innovation across our production systems, as well as supporting automation technologies, software, and partnerships, ensure customers achieve the highest possible return on investment, receive best-in-class support for their operational and business needs, and prepare to capitalize ontrends shaping fashion and textiles for years to come."

About Kornit Digital

Kornit Digital (NASDAQ: KRNT) is a worldwide market leader in sustainable, on-demand, digital fashionx and textile production technologies. The company is writing the operating system for fashion with end-to-end solutions including digital printing systems, inks, consumables, and an entire global ecosystem that manages workflows and fulfillment. Headquartered in Israel with offices in the USA, Europe, and Asia Pacific, Kornit Digital serves customers in more than 100 countries and states worldwide. To learn more about how Kornit Digital is boldly transforming theworld of fashion and textiles, visit www.kornit.com.

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Uster Technologies AG

Data can scaleup spinners' profits-margin: here's the proof

Uster shares raw material management know-how

Raw material management has a high priority for Uster Technologies. That's clear from FiberQ– part of the new Uster 360Qsuite of pioneering solutions for excellence in textile manufacturing. And it's underlined by a second webinar pointing the way from raw material data to profits, scheduled for early November.

Fluctuations in raw material prices and quality are constant headaches for spinners. And volatile market demand for yarns adds to the pain. Market conditions are unpredictable, so the big challenge is to implement reliable planning for cotton sourcing and yarn production, to cover all scenarios.

Raw material management challenge

Efficient raw material management can be the basis for profitable mill operation. The recipe involves minimized raw cotton inventory to combat price fluctuations, combined with the state-of-the-art raw material management to make maximum use of those valuable stocks. And the vital ingredient is reliable data.

Of course, reliable data comes only from accurate measurement. It then requires proper analysis and decision-making. Until now, this was a human task – usually time-consuming, with a high risk of mistakes and a low level of optimization. Increased sampling could enable better visualization of cotton quality, but that likely requires even more data analysis and interpretation. This is no longer a problem, since Uster FiberQ solution allows cotton classification data from HVI to be automatically uploaded to the Uster 360Q Platform. From there it's easy to create optimum laydowns. "Even without large raw material inventory and with basic textile know-how, mills can achieve consistent and reliable laydowns for long-term quality consistency and trouble-free production," says Stratos Fragkotsinos, Head of Product Management for Mill Management Solutions at Uster Technologies.

The FiberQ solution

One of the general issues is the lack of objective measurement data to start making sound decisions on purchasing or utilization of cotton. Despite the high impact of instrument data, not all mills invest in this valuable equipment. In order to address the investment priority challenge, Uster HVI is now more accessible in selected countries through a subscription model, subject to conditions. With Uster HVI, higher sample testing and achieving objective, data-driven raw material sourcing and utilization will now be possible for a wider segment of the market.

Once the instrument is available and testing of incoming material is established, spinning mills face a delicate balancing act to ensure optimal stock levels without compromising quality or profitability. FiberQ can lead to higher quality consistency with minimum waste and mixing costs. The fact is that 65% to 75% of production cost is for raw material. So, spinners will readily understand the impact of the Uster raw material management solution.

Spinning mills need to adopt innovative techniques and technologies to meet cotton-related challenges and ensure long-term sustainability and profits. Until today, raw material management was largely based on the experience of mill personnel, with available tools at the level of Excel files. This resulted in low utilization of data, because of the complicated and time-consuming processes which ultimately could not offer optimum results.

Data-enabled software is the key to progress and success with raw material management. Uster FiberQ works with powerful software, analyzing fiber data from available inventories and creating consistent and reliable laydowns for optimum yarn quality and performance, every day.

Comprehensive and convincing

"I was askedby several mill managers about the advantages in choosing the Uster solution for raw material management," says Fragkotsinos. He acknowledges that simple worksheets or own tools might be used by mills to support the work, but they are unable to handle the complexity and the deep knowhow required to achieve and sustain raw material management in spinning mills. "Uster offers a complete solution, starting from measuring the cotton parameters with the HVI, leading to big data analysis with know-how integrated software and including expert services from Uster technologists to ensure maximum and continuous value creation for the customer," says Fragkotsinos.

The Uster 'Think Quality' approach makes FiberQ unique and it's the central theme of the Uster raw material management webinar series. Uster's second webinar is titled 'How raw material data can boost profit in spinning'. It focuses on how spinners can apply Uster solutions to address today's raw material management challenges and boost their profitability. The webinar will explain how data can be translated into insights for improvements in raw material procurement and production. For more information and registration seehttps://event.eu.on24.com/wcc/r/8000049289/AACF0C9A4AD829C4322AB914F32F9AEF?partnerref=cd The first webinar on the subject 'How to optimally manage cotton as a raw material' is available on demand from the linkhttps://event.eu.on24.com/wcc/r/8000041407/FCCF6F220DEA316BDCAB8DA7CBDEC1B3?partnerref=cdThe Uster webinars are in English and free of charge. Like the FiberQ solution, the Uster webinars are developed with the goal of supporting spinners and quality managers to improve the overall process – from fiber to yarn.

About Uster Technologies

Uster Technologies is the world's leading provider of quality management solutions from fiber to fabric.

High-technology instruments, systems and services cover quality control, prediction, certification and optimization. The portfolio comprises quality management, laboratory testing and in-line process control instruments for fibers, staple fiber, and filament yarns, fabrics and nonwovens.

Uster Statistics, the unique global benchmarks for textile trading, complement a portfolio of value-added services that includes training, consultancy and worldwide after-sales.

The Uster philosophy aims to drive innovation forward by meeting market needs – always with 'quality in mind'.

Uster Technologies is headquartered in Uster, Switzerland and operates worldwide. It has sales and service subsidiaries in major markets and Technology Centers in Uster (Switzerland), Knoxville (USA), Suzhou (China) and Caesarea (Israel).

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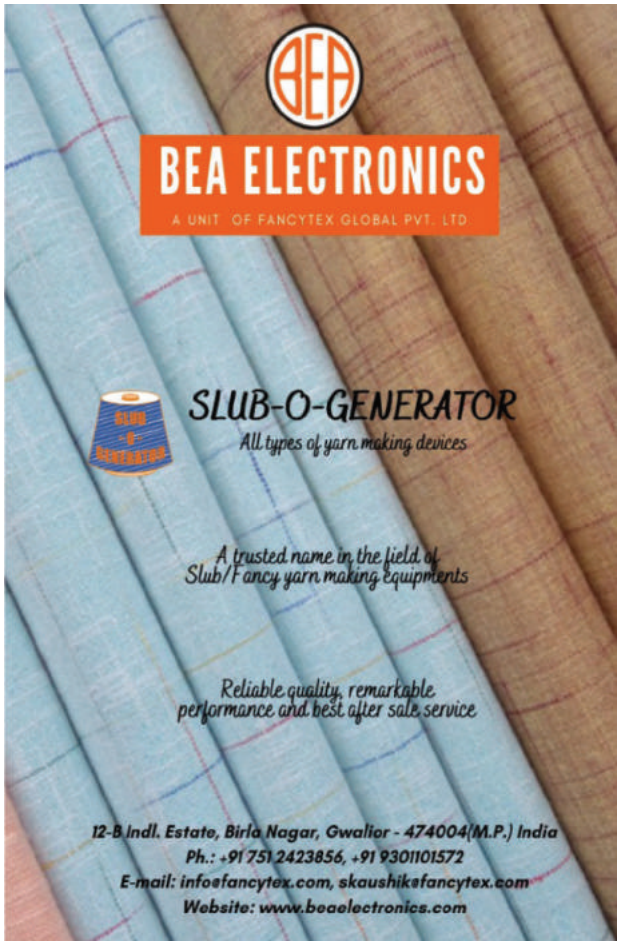

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KRSNA HIGH TEMPERATURE
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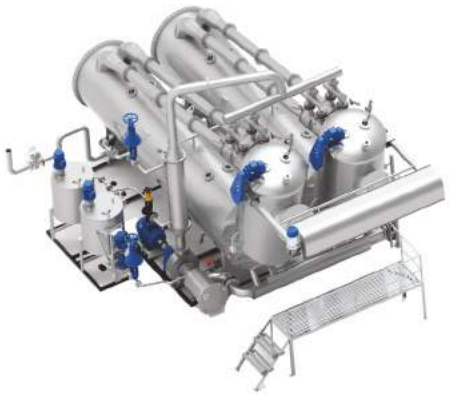
DYEING MACHINE







KRSNA Prism SYNERGY

AQUA - FINISH


WE ENGINEER REALITY KRSNA

MAKE IN INDIA

We reserve right to change specifications
Design to change without prior notice

Estd 1990

KRSNA Group

CONCEPT TO REALITY

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