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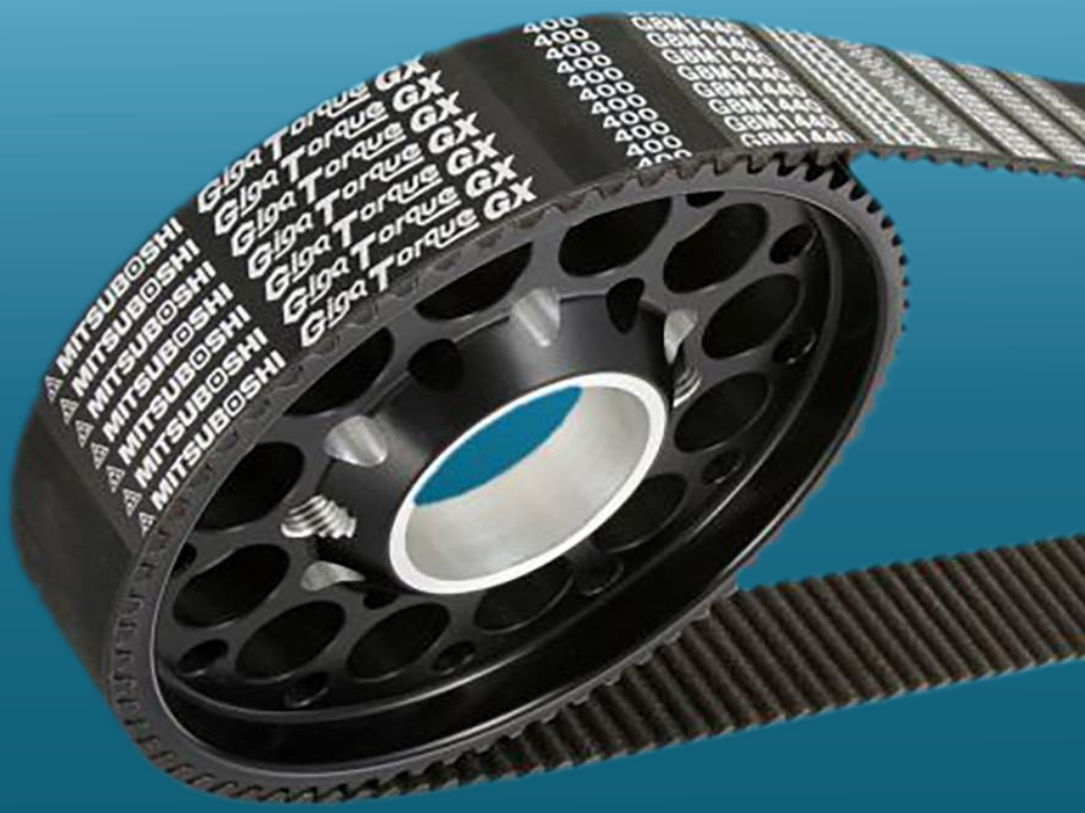

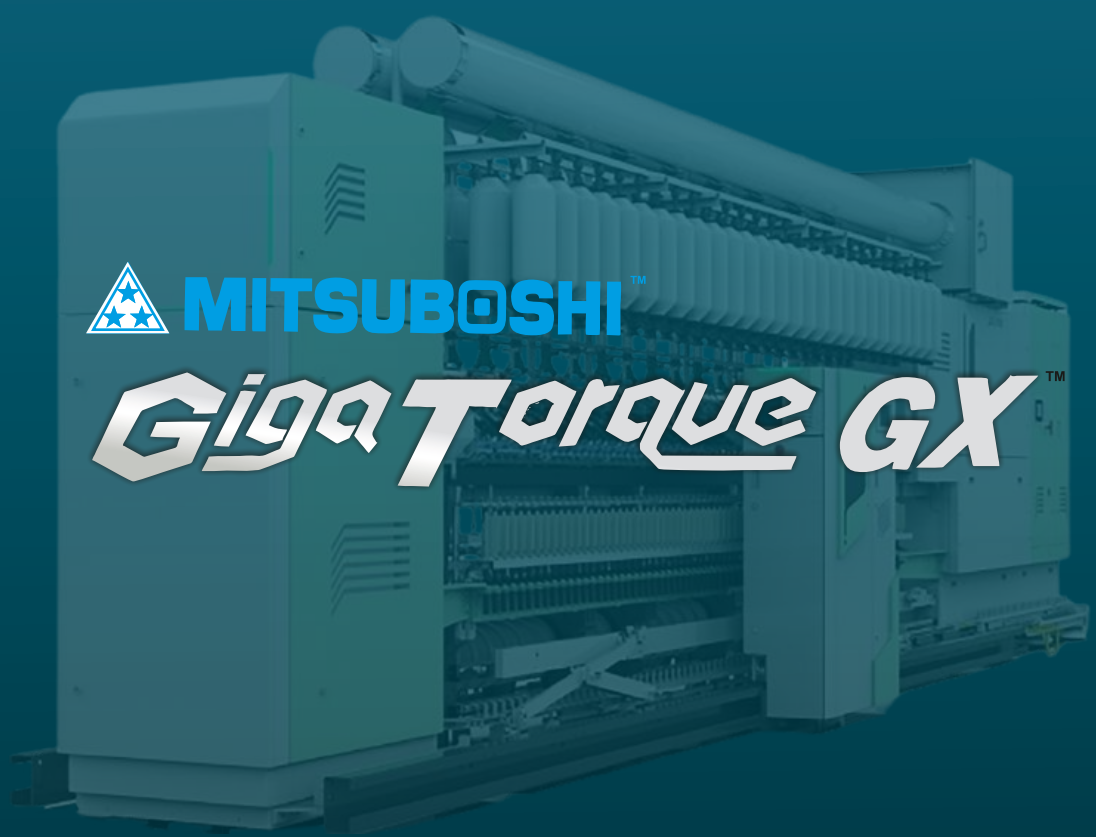

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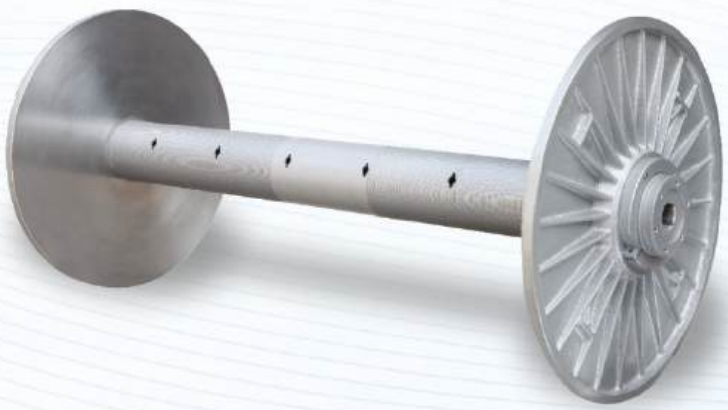

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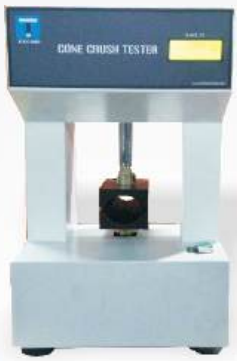

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EDITORIAL

Human-instinct to love Animal Print

Animal print specially of Leopard has been resurgent in modern attire. In many big cities like Mumbai, Bengaluru, Madrid women's attire has become very popular fashion in Leopard print. We have seen in many Bollywood movies Animal Printed dresses worn by actor and actress in dancing scenes. This trend is back on the fashion designers from global cities like Paris, Milan, Madrid. This trend has made the Animal Print hot, desirable and glamours. Flashy Python Prints and Black-White-Tan Leopard Print dress have been growingly popular.

Why do human beings love wearing Animal Prints? Perhaps our early ancestors lived in caves and used to hunt animal for food, after having eaten they turned the skin into their clothes. This was, therefore, one of the original dress codes of human beings and its stays on in our sub-consciousness for millennia. In addition, cave-men hunters boast of hunting mighty Lion or highly speedy Cheetah. It is likely they believed that wearing these skins would transfer to them some of power of these animals. In modern times, Animal Prints popularly Leopard prints have become associated with Sultry feline, powerful looks. From the other aspect these are talked about how animal designs are viewed as sexy, playful, decadent and vibrant. Since these are all desirable attributes for social events or a Night on The Town, the prints have become a main stay of fashion. For a long period of time animal skins were preserved for use by royalty as a symbolic display of power cave-men wielded over their dominions. Leopard skin marked out the king and his progeny as the legitimate ruler. It was usually worn by the eldest son of the king as the successor to the throne.

The most solid argument in favour of fashionable garments with Animal Prints make the wearer stand out. There is a large segment of people want to be seen and admired, do not wish to merge into anonymous crowd. Animal Prints make many other designs look somewhat tame and ordinary. Wearing these prints also signals confidence chutzpah to carry off the wild look, and the adventurous side of our personality.

UK and EU reached in new deals, renew ties 5 yrs after Brexit

Britain (UK) and the European Union (EU) hailed a new chapter in their relationship after they sealed new agreements on defense cooperation and easing trade flows at their first formal summit since Brexit. Prime Minister Keit Starmer, who met European Commission President Ursula vonder Leyen and other senior EU officials in London for talks, said the deals will slash red tape, grow the British economy and reset relations with the 27 nation trade bloc since the UK left the EU in 2020. "Britain is back on the world stage." Starmer said. "This deal is a win-win," Vonder Leyen called the talks a "historic moment" that benefits both sides. More broadly, she said it sends a mesage at a time of global upheaval that the UK and EU are "natural partners standing side-by-side on the global stage". Britain's opposition parties slammed the deals as backtracking on Brexit. "We're becoming a rule-taker from Brussels once again," Conservative Party leader Kemi Badenoch said. Under the deals, a new UK-EU defence and security partnership will allow the UK to access a EU defence loan programme worth 150 billion euros ($170 billion). Other agreements include removing some checks on animal and plant products to ease food trade across borders, and a 12-year extension of an agreement allowing EU fishing vessels in UK waters. While the EU is the UK's largest trading partner, the UK has been hit with a 21 per cent drop in exports since Brexit because of more onerous border checks, laborious paperwork and other non-tariff barriers. Post-Brexit visa restrictions have also hobbled the cross-border activities of profession such as bankers or lawyers, as well as cultural exchanges, including touring bands and school trips. Since becoming prime minister in July, Starmer has sought to reset relations with the EU, following years of tensions in the wake of the UK's 2016 Brexit referendum. Post-Brexit relations have been governed by a trade agreement negotiated by then-Prime Minister Boris Johnson. Starmer thinks that can be improved in a way that boosts trade and bolsten security. The defence pact will allow Britain's defence industry to access cheap loans from a new EU loan programme to buy military equipment, in part to help Ukraine defend itself. In trade, officials say they will reduce routine border checks and costs on some food imports and exports to make it easier for goods to flow freely. ❐

US GDP declines in Q1; tariffs unleash flood of imports

The US Economy contracted in the first quarter, weighed down by a deluge of goods imported by businesses eager to avoid higher costs, underscoring the disruptive nature of President Donald Trump's often chaotic tariff policy. Gross domestic product (GDP) decreased at a 0.3% annualised rate last quarter, the commerce department's bureau of economic analysis said in its advance estimate of first quarter GDP recently. Economists polled by Reuters had forecast that GDP increased as a 0.3% pace in the January-March period. The survey was, however, concluded before data recently showed the goods trade deficit surged to an all-time high in March amid record imports, which prompted most economists to sharply-downgrade their GDP estimates. The economy grew at a 2.4% pace in the fourth quarter. But the report likely grossly exaggerated the economy's dimming prospects as consumer spending continued to grow, though at a moderate pace. Coinciding with Trump's first 100 days in office, it nonetheless reinforced American's growing disapproval of his handling of the economy so far. Trump swept to victory last November on voter angst over the economy, especially inflation. Consumer confidence is near five-year lows and business sentiment has tanked. Airlines have pulled their 2025 financial forecasts, citing uncertainty over spending on non-essential travel because of tariffs, which economists have warned will raise costs for companies and households. Given that an unusually large amount of non-monetary gold had accounted for some of the jump in imports, some economists warned against placing too much weight on the GDP number. Others argued that the data did not change the narrative of an economy struggling because of uncertainty due to tariffs. Inflation picked up last quarter and is expected to rise further through the year. Economists expect the Federal Reserve to resume cutting interest rates at some point this year. Trump recently softened the blow of his auto tariffs through an executive order mixing credits with relief from other levis on parts and materials. ❐

WORLD ECONOMY AND TRADE TRENDS

Euro zone GDP grew faster than expectations

The Euro-Area economy grew more than expected at the start of the year, though is yet to feel the full force of US President Donald Trump's tariffs. First-quarter gross domestic product jumped 0.4% from the previous three months – double the previous period's gain — Eurostat said recently. Analysts in a Bloomberg survey had estimated a 0.2% increase. The outcome means the 20-nation bloc has boosted output for five consecutive quarters, with its biggest two members, Germany and France, both returning to growth. Looking ahead, however, business surveys suggest a weakening-mainly due to confidence-sapping uncertainty over the US' intentions, compounded by the actual impact of the tariffs themselves. European Central Bank chief economist Philip Lane said of late that trade tensions are unlikely to result in a recession for the currency bloc, but acknowledged that expansion would be lower than previously hoped. ❐

China slashes key rates as economy struggles

China cut Benchmark lending rates for the first time since October recently, while major state banks lowered deposit rates as authorities work to ease monetary policy to help buffer the economy from the impact of the Sino-US trade war. The widely expected rate cuts are aimed at stimulating consumption and loan growth as the world's No. 2 economy softens, while still protecting commercial lenders' shrinking profit margins. Still, the size of the rate reductions was mild and reflected the incremental pace of monetary easing in recently years and what analysts interpreted as some wariness among policymakers for more aggressive steps while they navigate the trade war with the US. The People's Bank of China said the one-year loan prime rate (LPR), a benchmark determined by banks, had been lowered by 10 basis points to 3.0%, while the five-years LPR was reduced by the same margin to 3.5%. Most new and outstanding loans in China are based on the one-year LPR, while the five-year rate influences the pricing of mortgages. Both rates are now at the lowest level since China revamped the LPR mechanism in 2019. The lending rate cut was announced just after five of Chian's biggest state-owned banks said they had trimmed their deposit interest rates. Industrial and Commercial Bank and China. Agricultural Bank of China, China Construction Bank and Bank of China reduced deposit rates by 5-25 bps for some tenors, according to rates shown on the banks' mobile apps. Reuters had reported recently that the banks planned to cut their deposit rates from recent past. The deposit rate reductions should guide smaller lenders in making similar cuts. Banking shares edged higher following the rate decision, with the CSI Bank Index rising 0.3% ❐

US & UK announced trade deal: More access to American goods, Ease to Tariffs

The United States and the United Kingdom announced plans for a symbolically important trade deal recently, likely lowering the financial burden from President Donald Trump's sweeping tariffs while creating greater access abroad for American goods. The announcement provided a political victory for UK Prime Minister Keir Starmer and provided a degree of validation for Trump's claims that his turbulent approach on trade may be able to rebalance the global economy on his preferred terms. But the terms of the deal have yet to be completed. Britain said the deal will cut tariffs on UK cars from 27.5% to 10% and eliminate tariffs on steel and aluminum. Trump says US auto tariffs won't force the Iconic British automaker Rolls Royce to make its cars elsewhere. "The final details are being written up." Trump told reporters, adding, "In the coming weeks, we'll have it all very conclusive." The president said that the agreement would lead to more beef and ethanol exports to the UK, which would also streamline the processing of US goods though customs. Starmer, speaking over the phone to Trump, stressed the importance of the relationship between the two countries as the anniversary of the World War II victory in Europe was being commemorated. "To be able to announce this great deal on the same deal 80 years forward, almost at the same hour and as we were 80 years ago with the UK and the US standing side by side, I think is incredibly important," he said. The planned deal was the first outlined since Trump began his stutter-step efforts to rewire the global economy by

dramatically increasing import taxes in an attempt to increase domestic manufacturing. The US President quickly rolled out tariffs after returning to the White House, targeting traditional allies with import taxes on steel, aluminum and autos. Trump announced near universal tariffs on April 2, then partially retreated a week later and announced that his administration would seek individual agreements with various nations over the next few months. The US already runs a trade surplus with the UK, making it a bit easier to find common ground as Trump has staked his tariffs on specifically eliminating trade deficits with many nations he says have taken advantage of the US. ❐

Central Banks across the world have built up their gold piles

It is not just India, but a host of other nations that are bulking up on gold. Russia, Egypt, Argentina, Poland, and Libya are the top five countries that saw the fastest jump in gold as part of their total foreign exchange reserves between 2009 and 2024. The share of gold reserves in the foreign exchange kitty for these five nations jumped between 800 and 2,700 basis points. One basis point is 0.01 percentage point. The share of the yellow metal in India's forex reserves rose to 11.4% from 6.9%, a jump of 450 bps, data from the World Gold Council analysed by Bank of Baroda economists showed. Total gold held by central banks globally has increased to 32,000 tonnes from 26,000 tonnes in the 15 years ending 2024, registering a compounded annual growth rate of 4.1%. The ratios must be interpreted with care, as any increase could also be due to the quantum of forex reserves coming down rather than a rise in the gold stock. Central banks buy gold to diversify their forex assets and as a hedge against inflation and currency fluctuations. It is considered a safe-haven asset during global uncertainties and political turmoil, experts said. Such purchases increased post-Covid amid rising geopolitical risks and cross-border tensions. The Bank of Baroda report showed that the top 10 holders of gold are the United States, Germany, Italy, France, Switzerland, Japan, Netherlands, China, Russia, and India. Together, they held around 76% of the total gold by all central banks in 2024. However, this number is lower than 81% for 2009 because most developed nations have not seen material changes in their gold reserves. For instance, the US has the highest gold reserves of 8,133 tonnes, but this has not changed in the past 15 years. Similarly, billion holdings haven't changed much for France, Italy, Switzerlands during this period, the report said. India has been regularly building up gold reserves since 2017, while the build-up was continuous since 2014 in the case of China, the report added. ❐

China exports surge 8% in April, shipments to US down 20%

China's exports rose 8.1 per cent in April from the year before, the government said recently, faster than economists were expecting, though exports to the United States (US) sank more than 20 per cent. Economists had forecast that China's global exports would grow about 2 per cent in April, down from a whopping 12.4 per cent year-on-year increase in March. Imports fell 0.2 per cent in April from the year before. The data were released a day before US Treasury Secretary Scott Bessent and other top US officials were due to meet with Beijing's lead trade envoy, He Lifeng. The plans for talks in Geneva, Switzerland, could bring a shift in the stalemate over President Donald Trump's hikes in tariffs on Chinese good to as much as 145 per cent. But the world's two biggest economies are at odds over a raft of issues, including colliding strategic interests that will likely impede progress in the talks. Some of the punitive tariffs, including Beijing's retaliatory 125 per cent tariffs on US exports, could be rolled back, but a full reversal is unlikely, Zichun Huang of Capital Economics said in a report. "This means China's exports to the US are set for further declines over the coming months, not all of which will be offset by increased trade with other countries. We still expect export growth to turn negative later this year," Huang said. Preliminary data also show that US imports from other countries not subject to US President Donald Trump's 145 per cent tariff on Chinese products have been rising quickly. Exports to the US from just a part of China's trade, and exports to the rest of the world have helped offset that weakness. Exports to Southeast Asian countries were up 11.5 per cent from a year earlier in the first four months of this year. ■

INDIAN ECONOMY AND TRADE TRENDS

Indirect Indian exports to Pakistan worth $10 bn : GTRI

While the direct trade between India and Pakistan is miniscule, Indian goods worth $10 billion reach the western neighbour annualy through indirect channels, according to estimates by the Global Trade Research Initiative (GTRI). To get around trade restrictions, goods are routed through ports in Dubai, Singapore and Colombo. Explaining the route that the trade takes, GTRI said Indian firms send goods to these ports, where an independent firm offloads and keeps those in bounded warehouses. At bounded warehouses, goods can be stored without paying duties while in transit. In warehouses, labels and documents are modified to show a different country of origin. For example, India-made goods may be relabelled as 'Made in UAE'. After modifications, they are shipped to countries like Pakistan, where direct trade with India is not allowed. This method helps firms bypass India-Pakistan trade restrictions and sell at higher prices by using the third country route. They also avoid scrutiny since the trade appears to come from other countries. Higher prices cover storage, paperwork and access to a closed market. While this transshipment model is not always illegal, it sits in a grey zone. "It shows how businesses find creative ways to keep trade going—often faster than governments can react," GTRI said. Recently, Pakistan suspended all trade with India after New Delhi had announced scaling down of diplomatic relations with Islambad and suspension of the Indus Water Treaty. This is the second schock to trade between the two countries and will bring down to zero whatever remains of its since 2019. Direct trade between the two countries came down sharply after India had without the most favoured nation (MFN) status from Pakistan and imposed 200% duties on imports after the Pulwama attack of February 2019. In August 2019, India scrapped Article 370 that was applicable to Jammu and Kashmir, following which Pakistan announced suspension of all trade with India. Now, limited exports, primarily pharma and chemicals, take place from India to Pakistan. India used to import fruits and nuts, leather, textiles and some surgical goods from Pakistan. The products remain the same, but volumes have gone down sharply. ❐

Core sector growth drops to 8-month low of 0.5% in April

The country's core sector growth — across eitht industries — slowed down to an eight-month low of 0.5 per cent in April, indicative of a steep dip from the 4.6 per cent in the previous month, according to provisional numbers released by the government recently. April 2024 core sector growth stood at 6.9 per cent. These eight core industries —coal, crude oil, natural gas, refinery products, fertilizers, steel, cement and electricity —comprise 40.27 per cent of weight of items included in the Index of Industrial Production (IIP). April's figure marks a significant slowdown from the 5.1 per cent growth recorded in January. It pales against the 4.5 per cent cumulative growth for FY25. According to Aditi Nayar, Chief Economist, Head-Research & Outreach, ICRA Ltd, performance of the core sector deteriorated significantly, with the deceleration being "broad-based". "Based on the tepid rise in the core sector and the performance of the other available high frequency indicators, ICRA expects the IIP growth to moderate sharply to 1 per cent in April," she said. Production in three sectors – crude oil, refinery products and fertilizers – contracted in April, Crude oil production contracted by 2.8 per cent annually in April, compared to a 1.9 per ent contraction in March. Refinery contracted 4.5 percent in April against 0.2 percent growth registered in the previous month. Fertilizer contracted 4.2 percent in April, compared to an 8.8 per cent growth in March. Coal production increased by 3.5 per cent in April, up from the 1.6 per cent growth registered in March. Natural gas rose by 0.4 per cent in April against the 12.7 percent contraction in March. Steel productin increased by 3 per cent in April but growth was slower than in March when it was 9.3 per cent. Cement production, too, reflected a similar picture. It increased by 6.7 per cent in April, but growth was slower than in March when it was 12.2 percent. Electricity generation rose 1 per cent in April. ❐

India to become a most favoured Asian Market

India has replaced Japan as fund managers' top Asian stock market pick, as the South asian nation is likely to benefit from supply

chain shifts amid global trade tensions, according to BofA Securities' latest monthly survey. In the fund manager survey 42% said they are overweight on India, followed by 39% for Japan, and 6% for China. Thailand fared the worst. A total of 109 panelists with $234 billion of assets responded to the survey's regional questions. "India emerges as the most favoured market, perceived as a likely beneficiary of the supply chain re-alignments following the effects of tariffs," strategists including Ritesh Samadhiya wrote in a May 13 note. "In India, infrastructure and consumption continue to be the primary themes that investors are keenly monitoring." The findings support recent market trends in India, where stocks have rebounded since President Donald Trump's chaotic tariffs rollout on April 2. The tariff-driven volatility in global markets has driven investors to deem India as a relative haven given its heavier dependence on domestic consumption over exports. India's stock benchmark, the Nifty 50 Index, has outperformed many of their Asian peers, with only Japan and Indonesia exceeding its performances since April 2. The Indian market has been pressured recently by a conflict with neighbor Pakistan, following an April 22 attack. In Kashmir that killed 26 civilians. The countries agreed to a ceasefire on May 10, triggering a spike in their equity markets when the market opened recently. Indian companies' first-quarter earnings are also pointing to an improved outlook. Local stocks may rise another 7.6% from the current level by the end of the year, and analysts will largely cease downgrading their earnings, Sanford C. Bernstein strategist Venugopal Garre said in a report. "We believe the markets are positioned well," Garre said, citing improved liquidity, tax cuts and rural demand among the drivers. ❐

Wholesale inflation contracts to 13-month low of 0.85% in April

With a drop in the prices of food articies and manufactured goods, producers' inflation based on the Wholesale Price Index (WPI) dipped to 0.85 per cent in April, the government reported recently. This is the lowest in 13 months. Experts feel that this print could go down further. WPI-based inflation was 2.05 per cent in March. It was 1.19 per cent in April last year." "The positive rate of inflatin in April is primarily due to an increase in the prices of manufacture of food products, chemicals and chemical products, manufacture of other transport equipment and manufacture of machinery and equipment, etc," the Industry Ministry said in a statement. food articles saw a deflation of 0.86 percent in April, against inflation of 1.57 percent in March. Deflation in vegetables was 18.26 per cent during April compared to deflation of 15.88 percent in March. Onion inflation eased to 0.2 percent in April, as against 26.65 per cent in March. Inflation in fruits softened to 8.38, from 20.78 percent in the previous month. Potato and pulses saw deflation of 24.3 percent and 5.57 per cent respectively. Deflation in fuel and power was 2.18 per cent in April, compared to 0.2 percent in April, as against 26.65 percent in March. Inflation in fruits softened to 8.38 per cent, from 20.78 percent in the previous month. Potato and pulses saw deflation of 24.3 percent and 5.57 percent respectively. Deflation in fuel and power was 2.18 percent in April, compared to 0.2 percent inflation in March. Crude oil prices have generally remained in the $60-65/ barrel handle in April, with downward pressure arising from OPEC+ announcing production increases. OPEC+ is a group of 23-oil-producing countries that work together to manage supply in the world market to influence global prices. Manufactured products, however, saw inflation at 2.62 per cent in April, compared to 3.07 percent in March. According to Rajni Sinha, Chief Economist with CareEdge, encouraging prospects for agricultural production, the arrival of fresh rabi harvest and comfortable reservoir levels are positives for food inflation. IMD's projection of an above-normal monsoon should support robust growth in agricultural output. "However, monitoring the monsoon's distributional aspect will be crucial. Food inflation is likely to remain comfortable in the coming months. We need to be cautious of any weather related disruptions," she said. Global commodity prices have declined following the escalation of the tariff war, reflecting growing, pessimism over the global economy's growth momentum. In April, average Brent crude prices dropped by approximately 25 percent. Y-o-Y while the Bloomberg Industrial Metals Subindex fell by 0.7 per cent y-o-y. "The imposition of US tariffs has further heightened concerns over dumping as these measures could lead to an oversupply in global markets due to surplus production from China," said Sinha. ■

Despite the imposition of import curbs Garment makers reap benefits, FMCG business as usual, infra projects face delays

Despite the imposition of import curbs on certain goods from Bangladesh, domestic FMCG companies said it is 'business as usual', even for those that have investment in the neighbouring country.

Readymade garment makers, particularly the micro, small, and medium enterprises (MSMEs), could actually benefit from the new import curbs. A major restriction imposed from May 17 has been disallowing the entry of readymade garments through all land and sea ports, except Nhave Sheva in Mumbai and Kolkata (Kidderpore and Haldia) ports.

Santosh Katariya, President, Clothing Manufacturers Association of India (CMAI), said port restriction of garment imports is a welcome move, as it "addresses the industry's long-standing concern regarding the unchecked inflow of low-cost apparel in New Delhi."

"The timely prevention of dumping of foreign-made garments will strengthen India's self-reliance in apparel production," he said.

Local Market

The DGFT had also stopped imports of processed food items through any land port in Assam, Meghalaya, Tirpura, Mizoram and two in West Bengal (Changrabandha and Fulbari). A senior executive with FMCG company told reporters, "Most FMCG companies, who have base in the country, produce for the local market. Hence, the import restrictions are unlikely to have an impact on their operations."

Incidentally, companies have been witnessing some recovery in their Bangladesh businesses. Marico during its earnings call said, Bangladesh posted double-digit growth in Q4 and FY25, "amid a challenging operating environment". In fact, from a Parachute coconut oil-dominated portfolio (90 per cent), there is a change with premiumisation of product basket.

Railway orders

Indian railway firms involved in projects/ collaborations in Bangladesh could face delays due to disruptions in construction and operational activities. Logistical issues related to the movement of goods for railway projects might escalate, affecting project timelines.

RITES - the export arm of Indian Railways — had an export order book of ₹1,360 crore as on March 31, 2025. This includes the Bangladesh order for 200 passenger coaches valued at ₹900 crore; the Mozambique order for 10 locomotive worth ₹300 crore, and three orders from South Africa amounting to approximately ₹150 crore.

"Groundwork for the delivery of both locomotives and coaches has commenced. Inter-country delegation visits and bilateral discussions continue to strengthen project coordination and execution," a person in the know said.

In FY25, steel exports to Bangladesh — primarily for infra projects — stood at ₹425 crore (in value), or 506,000 tonnes. This included 363,000 tonnes of sponge iron. "Apart from select supply of sponge iron or billets, not much finished steel orders generally come in from Bangladesh," a market participant said. ■

Solapur Garment factory fire left eight dead

Eight persons, including three women and a year-and-a-half-old boy, were killed in a fire at a garment mill in the Maharashtra Industrial Development Corporation (MIDC) area in Solapur recently.

The incident occurred between 3.30 p.m. and 3.45 p.m at Central Textile Mills, where two workers on the ground floor were engrossed in their jobs. "One of them noticed a short circuit where they were working and rushed upstairs to inform the owner and seek help, but within this short time, the fire had already spread in the yarn mill, and they could not survive," MIDC Solapur Senior Police Inspector Pramod Waghmare said.

The fire spread rapidly as large stocks of cotton were present in the unit.

Those killed included the owner, Usman Hasanbhai Mansuri, 80; his son, Anas Hanif Mansuri, 25; daughter-in-law Shifa Anas Mansuri, 20; and grandson Yusuf Anas Mansuri. The deceased factory workers and their family members were Mehtab Syed Bagwan, 45; his wife Ashabanu Mehtab Bagwan, 38; son Salman Mehtab Bagwan, 24; and daughter Hina Mehtab Bagwan, 26.

Suffocation led to death

Solapur District Collector Kumar Ashirwad said, "*Prima facie*, the cause of death seems to be suffocation, as the victims could not escape the fire. A case of accident death has been registered."

Being an industrial area, there are several such factories nearby, the police said. "Due to the intensity of the blaze, it took fire brigade personnel five to six hours to control the flames," Mr. Waghmare added. ■

Turtle Ltd. emerges as a leading brand in Men's ware from humble beginning

Building a Brand

Founded with the goal of creating stylish, modern apparel. Turtle quickly became synonymous with quality and innovation. The company's headquarters, a sprawling 35,000 sq. ft. space in Howrah. West Bengal, oversees operations that include two factories and four warehouses. With a presence in over 400 cities across India. Turtle operates more than 170 exclusive brand outlets and 1,500 multi-brand outlets. Its products are also available in major large-format stores and online platforms such as *Myntra, Amazon, TataCliq, Flipkart, Ajio,* and its own site, *turtle.in.* With over 2,000 employees. Turtle has become a significance player in the Indian menswear market.

Milestones and Achievements

The company began oprations in 1994, started assembly line production in 1997, and opened its first exclusive brand outlet in Kolkata in 2000. Turtle has consistently expanded its product range, launching trousers, accessories, denims, suits and winter wear over the years. The brand has also embraced handwoven fabrics and recently introduced Turtle Active Wear & Essential Wear, reflecting its commitment to innovation.

Turtle's excellence has been recognised with numerous awards, including the Indira Super Achievers Award, Apex Awards, Emerging India Awards, and Images East India Retail Awards. Turtle was honoured with the West Bengal Best Employer Brand Award, and its was named one of the Most Trusted Brands of India by Marksmen Daily.

Aims towards future

Turtle's vision is to be an integral part of its customers' journeys and creative evolution. The brand aims to inspire fashion for the new thinkers by being original and challenging conventions. "We are committed to creating top-quality apparel that reflects the modern world," says Jhunjhunwalla. Turtle's core values — creativity, instinct, inclusivity, and innovation — guide its efforts to shape a culturally relevant, modern brand.

Navigating Competition and Expansion

In a competitive market, Turtle remains focused on its core values and continually refines its product offerings. The company's strategic roadmap includes a strong emphasis on permiumisation, aiming to dominate the mid-premium menswear market in India. Turtle plans to expand its network of exclusive outlets, adding 20-30 stores annually over the next three years. The brand also intends to strengthen partnership with large-format retailers like Reliance Trends. Max Fashion, and Pantaloons, while expanding its distribution channels through strategic partnerships and agents.

Hailing digital transformation

As part of its growth strategy, Turtle is embracing digital transformation. The brand is enhancing its online presence through platforms like *Myntra, Amazon, Flipkart,* and *Ajio,* and is implementing a best-in-class omnichannel tech stack to connect its online and offline networks. This digital-first approach aims to build major brand visibility on social media. OTT platforms, and other digital avenues, directly engaging with its core consumers.

Commitment to Sustainability

Turtle is not just about fashion; it is deeply committed to sustainability and community development. The company participates in various CSR activities, and skill development initiatives. On May 23, 2023, Turtle's CSR partner, the NGO Turtle Survival Alliance, organised in Awareness Walk at Hengrabari raise awareness about turtle conservation. This initiative, along with other CSR activities, underscores Turtle's dedication to giving back to society.

Contributing to accelerate India's growth

"Our focus on sustainability, skill development, and community engagement reflects our desire to build a stronger, more resilient India," says Jhunjhunwalla. As Turtle expands its footprint across the country, it aims to create jobs, support local artisans, and promote India's rich cultural heritage through its products. By fostering an inclusive and forward-thinking brand culture. Turtle aspires to be a significant player in India's ongoing economic and social development. As Turtle continues to grow and evolve, it remains dedicated to providing high-quality apparel that not only meets the fashion needs of modern Indian men but also contibutes to a more sustainable and inclusive future for all. ■

Coarse wool gives nature-based solution : cools in summer warms in winer

Insulation material derived from coarse wool waste is a proven nature-based solution familiar to Rajasthan's pastoral community, but long overlooked by the outside world.

Until, that is, Prerna Agarwal, founder of Samakhya Sustainable Alternatives, found out from the shepherds how they tide over the searing desert summer thansk to "*thanda oon* (coarse wool cloth that cools)" from their livestock.

Wool — a staple of winter-wear — to keep cool? Sounds counter-intuitive, but the indigenous wool provides insulation to keep the wearer cool. By extension, wool could also provide good insulation to cool indoor temperatures significantly.

Looking to provide the marginalised community a livelihood, in 2022 Agarwal innovated to create Magra, a natural material suited for thermal and acoustic insulation.

Handholding her was the innovation programme hosted by the social enterprise SEEDS (Sustainable Environment and Ecological Development Society), which works on disaster management and helps increase the resilience of marginalised communities in the face of climate change.

Its Humanitarian Innovation Lab programme bridges gaps in knowledge and resources between the global north and south and "enables local innovators to identify problems and propose solutions for urgent humanitarian challenges that India faces," explains Sumeet Agarwal, Director, Built Environment, SEEDs.

The programme provides innovators technical support and funding, and helps them scale up by developing partnerships between different stakeholders. SEEDS has so far incubated 13 humanitarian innovations.

On her work in creating Magra, Prerna Agarwal points out that "90 per cent of the coarse fibre from sheep shearing gets wasted despite the fact that India is the second largest importer of wool". Her startup began working with the pastoral community to make use of this coarse waste fibre.

Several ongoing pilot projects, aided by SEEDS, have shown that the Magra insulation material is effective in addressing both extremely hot and cold climes. When the outside temperature was 43.7 degrees C, a layer of Magra insulation could cut in to 32.8 degrees C indoors. In winter, when it was 12 degrees C outside, the inside could be a comfortable 16 degrees C.

Not just that, "the thermal conductivity of the material has proved to be too low, and hence it can be pitched as a climate-negative material," explains Sumeet Agarwal. It is naturally breathable, renewable, and biodegradable.

Samakhya is working with the pastoral community at three levels. It has set up community collection centres where sheep are sheared and the coarse fibre is collected. The material is moved to fibre processing centres, and finally to the product processing centre. The startup also provides the community support services such as vaccines, fodder and water; its centres double as safe-houses for nomadic herders. "There has been a three-fold increase in income for the herders, and a ten-time increase for the microentrepreneurs who carry out many of the tasks," says Prerna Agarwal.

Product innovations with the Magra material continue, with Samakhya reimagining lifestyle products like soft toys for exports, and bio-fertilizers using the wool dust and slurry. ■

Curb on import from Bangladesh may create ₹1000 Cr. Biz for Textiles

India's ban on import from Bangladesh through land ports is expected to have a short-term marginal impact on branded garment industry from the winter season. However, the ban is expected to generate and additional business of over ₹1,000 crore for the domestic textile industry.

The local industry, concerned about double digit growth in textiles imports from Bangladesh due to zero import duty, had been demanding restrictions on imports. The recent move is also expected to curb back door import of Chinese fabric, which has 20% import duty.

All the leading Indian brands as well as global brands present in India, have a substantial sourcing of 20-60% from Bangladesh, show industry estimates. "Sourcing garments from Bangladesh is cheaper by 12% to 15%. However, the bigger advantage for the brands is that the large-scale factories in Bangladesh, which can have upto 5,000 machines, have capabilities to cater to large scale bulk orders," said Rahul Mehta, chief mentor, Clothing Manufacturers' Association of India (CMAI), which also represents the leading garment brands.

The supply chains of these brands as well as the MSME units are expected to be disturbed in the short term. "Buyers will be impacted as temporarily their supply chain will be disrupted and would have higher cost and lead time. They will need to realign their supply chains. And for products with less difference in cost and quality, they will shift to Indian suppliers," said Rajesh Jain, chairman, National Textile Committee, Indian Chamber of Commerce (ICC).

However, the good thing is that the industry will get enough time to plan their sourcing as the peak festival season and winter season are 4 to 6 months away. "There will be no impact for the next six month," said the CEO of a leading FMCG brand, who did not wish to be quoted. ■

Luxury fashion houses utilise iconic landmarks to showcase collections

Gucci recently revealed its Cruise 2026 collection in Florence at the Palazzo Settimanni. Last year, the Italian luxury fashion house had turned London's Tate Modern art gallery into a ramp showcasing its 2025 line at the venue.

Louis Vuitton will also bring its Cruise 2026 show on May 22 at one of France's most iconic monuments, the Palais des Papes in Avignon, in the Provence-Alpes-Côte d'Azur region of France. The creations are part of the architectural journey highlighting heritage and local culture by Nicolas Ghesquière, artistic director of the women's collections, who has chosen to show in this marvel of Gothic architecture, classified as a historic monument and a UNESCO World Heritage site.

More and more luxury brands now narrate their brand story and heritage to build a strong sense of identity and connection with consumers. By using story-telling and visual elements to convey their values and inspire consumers, fashion houses bolster their vision to contribute to the conservation of heritage and celebrate diverse cultures.

For instance, Palazzo Settimanni is located in the heart of Florence's Oltrarno district, a neighbourhood long associated with artistry and craftsmanship.

The place was acquired by Gucci in 1953, and the building has served over time as a workshop, factory, showroom, and, since 2021, the home of the Gucci Archive.

While Gucci's return to Florence, the city where Guccio Gucci founded the brand in 1921, has roots in legacy, craftsmanship, creativity, and cultural richness symbolise Florence. These values remain central to Gucci's identity.

It is also home to Palazzo Gucci (museum dedicated to the iconic Italian fashion house); Gucci Osteria, a chain of contemporary Italian restaurants operated by the fashion house in collaboration with Michelin-starred chef Massimo Bottura), and Gucci Giardino (all-day cafe and cocktail bar), as well as the offices and production hubs in Casellina and Gucci ArtLab — sites that embody the maison's deep and lasting connection to the region.

"Returning to Florence, and specifically to Palazzo Settimanni, is both a tribute and a declaration of intent," said Stefano Cantino, CEO of Gucci, in a media statement.

Louis Vuitton, on the other hand, organises shows around the world in globally renowned locations and architectural masterpieces, paying tribute to local craftsmanship.

The house showcases the spirit of travel and the discovery of emblematic architectural monuments converge in the choice of the iconic location in Avignon, one of the most culturally rich cities in the south of France, and a testament to historical and cultural significance.

Earlier, Louis Vuitton has organised its shows at the Bob and Dolores Hope Residence by John Lautner in Palm Springs, California; at the Oscar Niemeyer Museum of Contemporary Art in Niteroi, Brazil; at the Miho Museum by IM Pei near Kyoto, Japan, and at the Salk Institute in California.

However, this new stop echoes LV's first cruise show at Place du Palais in Monaco, as well as the show at the Maeght Foundation in Saint-Paul de Vence in France.

Back home, fashion houses are embracing heritage conservation or opening stores at landmark heritage locations.

Fashion designer Sabyasachi Mukherjee's has a store at Horniman Circle in Mumbai, and designer Anita Dongre has a flagship store at the historic 200-year-old Sassoon Building that faces the David Sassoon Library and the University of Mumbai. Tarun Tahiliani has a luxury address in Bengaluru in a colonial-era cottage.

Last year, iconic designer Manish Malhotra's fashion show titled 'Dharohar Kashi Ki' showcased the Banaras collection on the ghats of Varanasi to celebrate the cultural heritage and craftsmanship of the city, particularly its bunkar (weavers) community.

Christian Dior's Pre-Fall 2023 collection took place in Mumbai at the Gateway of India while JADE by Monica & Karishma hosted a fashion show at the Chhatrapati Shivaji Maharaj Vastu Sangrahalaya in Mumbai last year, inspired by the museum's Indian textiles and costume gallery. ■

Counting Stitches in Jodhpur

Beyond definitions

Beginning at Achal Niwas, artists and creators explore what embroidery can be, if not surface embellishment. Parul B Thacker's *The Book of The Time Travellers of the World* incorporates tiny embroidered dots, fine as paper drawings, to create an impression of sound waves and energetic maps. "We've worked with a German company to use a specific thread count and invented our own stitching to create microscopic dots," she says. The installation draw from an artist residency that Thacker spent sailing around the archipelago of Svalbard.

A number of exhibits explore techniques conventionally associated with clothing and home linens, playing with shape, proportion, and texture. In *Soar*, a series of silk panels designed by Ashdeen Lilaowala, cranes intricately crafted in Parsi *gara* embroidery take flight. "With so many artists using textiles as a medium, it has become a bona fide art form," says Lilaowala. "Craft can find ways to move forward, when it is broken down."

For many, this means reimagination. Take textile designer Swati Kalsi, who dominates the exhibition with nine installations drawn from two projects with *sujini* embroidery and Chamba *rumal* (exbroidered handkerchiefs). Departing from *sujini's* narrative embroidery, her installations *Etch* and *Night Breeze* translate the *bharua* stitch in abstract patterns, reminiscent of fireworks, on kimono-like silhouettes. The Chamba Rumal project, which Kalsi undertook as a collaboration with Delhi Crafts Council, reinvents scenes traditional to the art form such as *vivah* (wedding), *godhuli* (twilight hour), Devi (goddess), and *shikar* (hunting) in reversible embroidered works of art. "I think of them as co-creation, rather than just working with artisans," says Kalsi, whose artworks and design interventions are the result of long engagement with craftspeople.

Highlighting women's collectives

Many creations encompass stories of Indian communities practising embroidery and the work of women's collectives, showcasing indigenous forms such as *kantha, sujani,* and *rabari*. Panels by Kutch-based crafts organisation Shrujan showcase the traditional needlework of the region's Jat and Mutwa communities.

New York-based architect, artist, and designer Ghiora Aharoni's installations (on exhibit at Achal Niwas), *Bagh Phulkari* and *The Infinite Thing We May Become,* use vintage panels of *bagh phulkari*. He juxtaposes this traditional craft from Punjab with his own embroidery, featuring drawings and text from love letters his mother had written as a young woman.

Pushing the needle

At Laxmi Niwas, the installations evoke abstraction and the avant-grade. In the installation *Travelling Roots,* Jeans-Francois Lesage, the founder of embroidery atelier Vastrakala, makes the historical Lal Dera — the 17th century Mughal tent belonging to Shah Jahan, crafted from red silk velvet and embroidered with gold threads — his muse. "This piece is made of hundreds of thousands of wooden beads and hand-painted, suggesting the colour of the earth of Rajasthan." Within the beaded structure stands a miniature Lal Dera, its mirror base reflecting the intricate craftsmanship of the interiors.

Across the three venues of 'Surface', however, no exhibit stands out quite like Kerala-born Haryana-based artist Shine Shivan's mixed media installation, *Kshetra Dhara.* A week before the show opened, two trucks had transported cylindrical packages wrapped in tarpaulin — stuffed with masks, decaying seeds, dentures, scrap fabric, clay pots, toys, discarded decor objects and chicken heads — weighing over 1,000 kg, to the gates of the old city. Shivan then assembled the macabre installation, built as a cave of curiosities, inspired by taxidermy, on site.

"Our purpose was not to create shock value or attract people. It was just to make art," he states plainly. But it also challenges the very concept of surface decoration. Can the grotesque be decorative? Shivan's installation gathers dust and keeps asking this question. ■

Strategic decisions will upgrade India's global leadership in textile economy

Even as one of the world's largest manufacturing hubs, the Indian textile industry faces challenges in sustaining its global presence due to geopolitical tensions, fragmented supply chains, and product price volatility. Climate change or evolving consumer demands are not the only causes, but also the fundamental values that influence business decisions.

In this evolving landscape, achieving a market competitive edge depends on long-term presence, and businesses should explore beyond financial goals, as adaptability, purpose-led innovation, and resilience are also essential. For India to establish its global trade authority, the cultivation, sourcing, and manufacturing practices must be re-examined with a sustainable lens.

Concepts such as regenerative farming, traceability solutions, and product circularity are becoming the operational standards and core manufacturing actions in the industry.

As the sixth-largest exporter of textiles globally, adopting these practices would help the textile industry in strengthening its leadership. We are presented with a growth opportunity to emerge as an important player in the China Plus One strategy, reducing dependence on China and unlocking India's trade potential.

Regenerative farming

In India, regenerative (regen) farming is a viable model amidst concerns of raw material sourcing, climate change, land degradation, and soil erosion. Regen farming practices are already under way in India, with the Ministry of Agriculture and Farmers Welfare considering approximately over one million hectares of farmland for further pilot projects in the coming years. Farmers are equipped with digital resource-based training on regen farming practices.

Real-time data sharing is enabled for growth tracking and transparency. This ecosystem leads to a business model where farmers remain connected with certification bodies, manufacturers, and global market brands.

In Aurangabad, Maharashtra, over 6,000 farmers have joined the Regenerative Cotton Program, which has already shown positive impacts — higher yields, improved climate resilience, reduced reliance on chemical fertilizers, and more cost-effective inputs — leading to better risk management and stable incomes.

Regen farming as a solution helps tackle multiple business concerns at once: rural engagement, improved yields, multi-stakeholder collaborations, and even breaking gender stereotypes in farming. It can also enhance traceability, sustainability compliance, and product quality assurance across the supply chain. The regen farming model is potentially a strong solution to drive India's leadership in the global textile market.

Traceability solutions

Traceable supply chains have a strong potential to ensure product credibility across all stages — sourcing, production, and distribution. Over 37% consumers in the 2023 Consumer Circularity Survey identified sustainability and traceability as important criteria in their purchases. Robust AI and tech-driven traceability solutions are the next big strategies that the Indian textile sector can adopt. Traceability has already transformed from the logistical tracking of a product to delivering a narrative of authenticity and brand accountability.

India's branding initiatives, such as Kasturi Cotton, strengthen the case of traceability, transparency, and quality benchmarking globally. Although currently in the final stages, the India-U.K. Free Trade Agreement (FTA) could amplify such advantages, since the U.K. has one of the world's most environmentally conscious consumer bases.

The EU also emphasises transparency and traceability in the textile industry through international frameworks and DPPs, to protect consumer and environmental concerns.

With the concessions for textiles addressed by the India-U.K. FTA, traceability solutions can help industry players leverage sustainability stories and thereby expand their market presence.

Product circularity

India generates 8.5% of the world's annual textile waste. To retain a competitive edge,

Strategic decisions will upgrade India's global leadership in textile economy

the Indian textile industry's vision is to embrace product circularity and sustainability practices. Product designs must evolve from recylability to also having a longer lifecycle. This means establishing a system at every stage of production — from fibre creation to product development, plastic-free packaging, and post-use consumer disposal — with circularity principles embedded throughout.

Factory waste can be reengineered for newer designs and eventually returned to the soil after a longer product lifecycle.

As endorsed by REIAI's initiatives, a well-functioning circular economy can lead to product innovation, generating more jobs, and an economic competitive edge. India can therefore reduce its reliance on unused raw materials and build a better, self-reliant, and globally relevant system for generations — a vision that the GoI's Viksit Bharat initiative also advocates.

The textile industry must commit to making in India for the world, but through circular, sustainable, and responsible means.

Growing towards

The textile industry is projected to grow to $350 billion by 2030 and could add 35 million new jobs if we align with climate goals and tech-driven innovations. The industry can redefine its global trade leadership vision, with not just manufacturing in volumes, but also with its core business values. We must step ahead of tokenistic green messaging and adapt business models that prioritise regenerative farming practices, traceability solutions, and product circularity.

Strategic decisions made today will help India's global leadership for a sustainable, future-proof, and resilient textile economy. The fabric of the economy's future is dependent on what we envision today and the purposeful designs for the environment that we weave responsibly. ■

Bisleri made beverage partnership deal with Dubai-based Apparel Group

Bisleri International recently said it has inked a strategic partnership with the Apparel Group, the global retail and fashion life-style conglomerate headquartered in Dubai, to manufacture, market and distribute its portfolio in the West Asia and Africa region, beginning with the UAE launch in 2025.

Angelo George, CEO, Bisleri International said, "The West Asia and Africa markets represent a signicant opportunity for value creation in the beverage sector. There is a large Indian diaspora in the region, which is familiar with our brands. We have had sustained success in the UAE market in the past, and I am delighted to annouce the next chapter of our journey in the region, with our strategic partnership with the Apparel Group. With Bisleri's commitment to product quality and brand-building, and the Apparel Group's presence and consumer understanding in the region, I am sure the partnership will be a perfect blend for success."

The company's brand portfolio includes Bisleri Vedica, its premium Himalayan Spring water, and a range of aerated beverages including Bisleri Limonata, Bisleri POP, Bisleri Spyci Jeera, Bisleri Rev and Bisleri Soda.

The beverage company has 128 manufacturing centres, with a distribution network catering to more than 5,00,000 outlets, alongside an established retail presence in the UAE market.

Neeraj Techchandani, CEO of Apparel Group, commented: "Our partnership with Bisleri marks a strategic milestone in our journey to diversify and scale new verticals across high-growth markets.

Bisleri's strong heritage, combined with our operational expertise and deep market understanding, presents a powerful opportunity to deliver exceptional beverage experiences to consumers in the Middle East and Africa. We look forward to building a long-term, value-driven collaboration that redefines beverage retail in the region."

Apparel Group, founded in 1996, is a leading player in apparel retail, food and beverages. With over 25,000 employees, the it manages a portfolio of clothing over 85 brands and operates over 2,300 stores across 14 countries in West Asia, India, South-East Asia and Africa. ■

STUDY THE EFFECT OF INTENSITY OF LIGHT ON PILE HEIGHT IN TERMS OF TIME AND DYE CONCENTRATION IN THE HAND TUFTED CARPET

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Abstract

To achieve perfection during chemical processing specially dyeing of hand tufted carpet is an important challenge for the people involved in dyeing process and for the related industries. In this present research, attempt has been made to study the reason of fading color in relation to pile height with the effect of intensity of light especially in the hand tufted carpet structure through exposure of light in a control medium. At different pile height and time period, the material has been tested for color fading phenomena at defined light intensity. It has been observed that higher pile height and higher time are the reason of fading more color. Finally the problem has been solved through variable sample holder and the testing procedure is adjusted as per define pile height and prescribed time.

Keywords : pile height, time, dye concentration, sample holder and intensity of light.

1. Introduction

In case of normal textile material, the color fastness to light is normally tested by the instrument XENOTEST ALPHA by many authors at different times using control temperature, RH, chamber temperature, black standard temperature and phase time[1-4]. Before XENOTEST ALPHA comes to the research field, researchers are used direct sunlight for the testing of dyed textile material for color fastness to light then after MBT Lamp appears in front of researchers for the better analysis of color fastness as it has the facility of standard light source[5] with the arrangement of sample holding test tube which are overcome the problem associated with the direct sunlight method[6]. Both the direct sunlight method and MBT Lamp method have a disadvantage in terms of maintaining control parameters and the problems associated with the later has been overcome by XENOTEST ALPHA which are described earlier[7-10].

All the above literatures are related to the color fastness testing of textile materials using direct sunlight, MBT Lamp and XENOTEST ALPHA instrument[11-15]. Now-a-days, researchers are using the developed XENOTEST ALPHA instrument for the assessment of machine made carpet and handmade carpet. As far as pile carpet is concerned, problems arise during testing of samples in a constant sample distance as prescribed in the XENOTEST ALPHA instrument. In this critical situation, testing is not possible in standard procedure as more color fading occurs in short span of time. No studies have been reported so far in these particular issues. For the first time it has been observed that the issues may be solved by the setting of developed sample holder with variable slots for maintaining constant distance as per standard.

2. Experimental Plan

2.1. Materials

In the present research work, 100% woolen yarn having count 4 Nm and fineness 30 micron is used for pile yarn. Mat woven cotton cloth is fitted in a tufting frame as a base fabric. Lanasyn Red MGA (1:2 metal complex dyes) is applied for dyeing of woolen yarn. Material is to Liquor Ratio of 1: 20 are maintained during dyeing process. Three different dye concentrations i.e. 0.5%, 1.5% and 2.5% are used in this experiment for comparison. P^H of dye bath 4-5 using acetic acid and temperature of 95°C are maintained. Then 2 × 2 ft of hand tufted carpet has been manufactured at the central workshop of Indian Institute of Carpet Technology having three different pile lengths i.e. 4 mm, 10 mm and 16 mm.

2.2. Methods

XENOTEST ALPHA instrument is used for the assessment of color fastness to light using standard ISO 105-B02. Colour fastness to artificial light from Xenon arc source. Box Bhenken design is also used for the selection of number of samples using three levels and three factors as per tables 1 and optimization of results. ANOVA is used for significantly assessment of results.

After exposing the samples, spectrophotometric analysis are interpolated in order to determine colour fastness of hand tufted samples. In order to determine statistically how material characteristic influence the colour differences (CIE LCH colour space) caused by light exposure ANOVA is used. The same testing procedure is being followed for the change in distance while tested using mechanized sample holder as shown below.

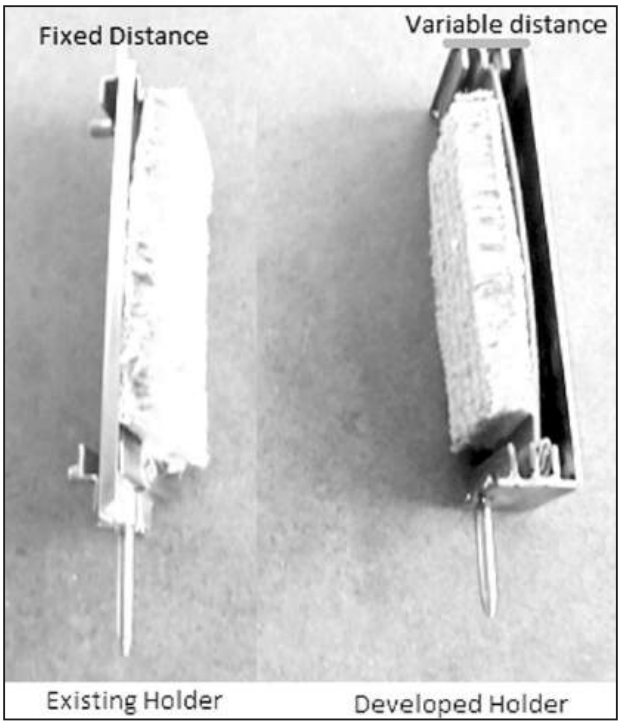

Figure 1. Fabricated sample holder

Table 1. Experimental Plan Details

Sl. no	Dye concentration (%)	Pile height(mm)	Time (hour)
1	0.5	4	20
2	0.5	16	20
3	0.5	10	30
4	0.5	10	10
5	1.5	10	20
6	1.5	16	10
7	1.5	4	10
8	1.5	10	20
9	1.5	4	10
10	1.5	16	10
11	2.5	4	20
12	1.5	10	20
13	1.5	4	30
14	2.5	10	30
15	2.5	10	10
16	1.5	16	30
17	2.5	16	20

3. Results and Discussion

3.1. Effect of pile height

Table 2. Effect of pile height on light fastness

Run	Factor 2 B: pile Height mm	Response 1 L	Response 2 a	Response 3 b	Response 4 c	Response 5 k/s
1	4.00	30.85	32.921	19.391	36.776	16.48
2	16.00	25.226	32.288	16.559	36.287	27.81
3	10.00	31.911	32.419	16.015	32.92	48.65
4	10.00	23.721	32.87	17.516	37.246	36.15
5	10.00	23.728	32.439	16.744	36.519	34.77
6	4.00	17.358	27.884	14.703	31.523	53.65
7	4.00	22.827	31.85	16.253	35.517	34.14
8	10.00	16.782	28.785	14.859	32.41	64.27
9	10.00	31.911	32.419	16.015	36.159	14.53
10	10.00	24.148	33.251	17.397	37.527	34.75
11	16.00	25.226	32.288	16.559	36.42	26.21
12	10.00	22.827	31.85	16.253	35.996	13.64
13	10.00	23.728	32.439	16.774	36.519	34.77
14	16.00	18.856	29.839	15.768	33.749	53.23
15	4.00	16.782	28.785	14.895	35.812	30.79
16	16.00	33.826	32.704	16158	36.478	12.91
17	10.00	24.148	33.251	17.397	37.527	34.75

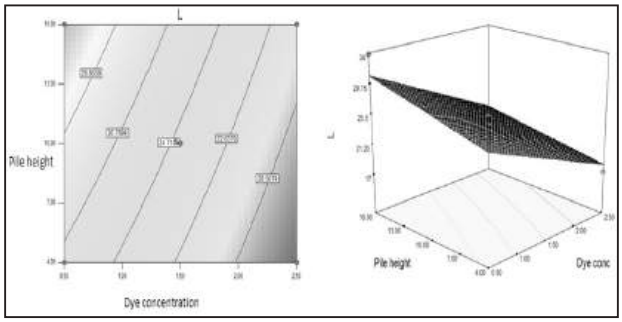

Figure 2. Optimization of color depth value by ANOVA

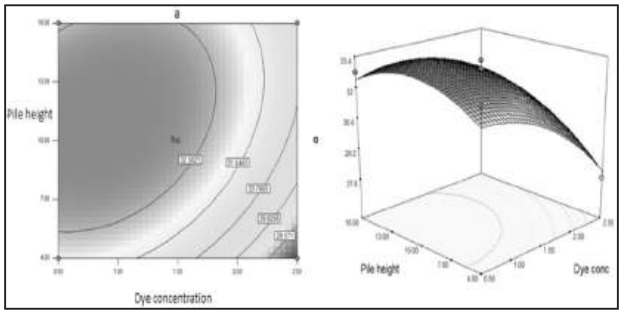

Figure 3. Optimization of tonal change towards red by ANOVA

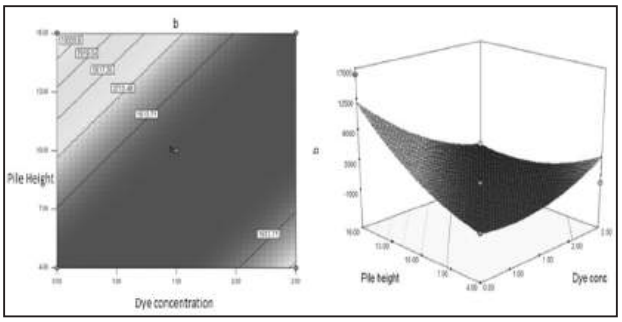

Figure 4. Optimization of tonal value towards blue by ANOVA

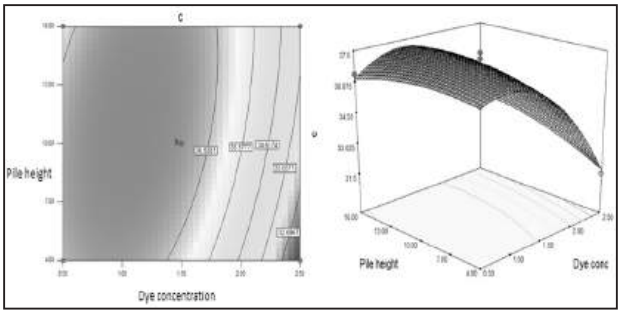

Figure 5. Optimization of tonal value towards chroma by ANOVA

3.2. Effect of time

Table 3. Effect of time on color fastness

Run	Factor 3 C: time hours	Response 1 L	Response 2 a	Response 3 b	Response 4 c	Response 5 k/s
1	20.00	30.85	32.921	19.391	36.776	16.48
2	10.00	25.226	32.288	16.559	36.287	27.81
3	30.00	31.911	32.419	16.015	32.92	48.65
4	20.00	23.721	32.87	17.516	37.246	36.15
5	20.00	23.728	32.439	16.744	36.519	34.77
6	20.00	17.358	27.884	14.703	31.523	53.65
7	10.00	22.827	31.85	16.253	35.517	34.14
8	10.00	16.782	28.785	14.859	32.41	64.27
9	10.00	31.911	32.419	16.015	36.159	14.53
10	20.00	24.148	33.251	17.397	37.527	34.75
11	30.00	25.226	32.288	16.559	36.42	26.21
12	30.00	22.827	31.85	16.253	35.996	13.64
13	20.00	23.728	32.439	16.774	36.519	34.77
14	20.00	18.856	29.839	15.768	33.749	53.23
15	30.00	16.782	28.785	14.895	35.812	30.79
16	20.00	33.826	32.704	16158	36.478	12.91
17	20.00	24.148	33.251	17.397	37.527	34.75

3.3. Effect of light intensity

Table 4. Effect of light depth on light fastness

Run	Response 1 L	Response 2 a	Response 3 b	Response 4 c	Response 5 k/s
1	30.85	32.921	19.391	36.776	16.48
2	25.226	32.288	16.559	36.287	27.81
3	31.911	32.419	16.015	32.92	48.65
4	23.721	32.87	17.516	37.246	36.15
5	23.728	32.439	16.744	36.519	34.77
6	17.358	27.884	14.703	31.523	53.65
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12	22.827	31.85	16.253	35.996	13.64
13	23.728	32.439	16.774	36.519	34.77
14	18.856	29.839	15.768	33.749	53.23
15	16.782	28.785	14.895	35.812	30.79
16	33.826	32.704	16158	36.478	12.91
17	24.148	33.251	17.397	37.527	34.75

3.4. Effect of dye concentration

Table 5. Effect of dye concentration on pile height

Run	Factor 1 A: Dye Conc %	Response 1 L	Response 2 a	Response 3 B	Response 4 c	Response 5 k/s
1	0.50	30.85	32.921	19.391	36.776	16.48
2	1.50	25.226	32.288	16.559	36.287	27.81
3	2.50	31.911	32.419	16.015	32.92	48.65
4	1.50	23.721	32.87	17.516	37.246	36.15
5	1.50	23.728	32.439	16.744	36.519	34.77
6	2.50	17.358	27.884	14.703	31.523	53.65
7	1.50	22.827	31.85	16.253	35.517	34.14
8	2.50	16.782	28.785	14.859	32.41	64.27
9	0.50	31.911	32.419	16.015	36.159	14.53
10	1.50	24.148	33.251	17.397	37.527	34.75
11	1.50	25.226	32.288	16.559	36.42	26.21
12	0.50	22.827	31.85	16.253	35.996	13.64
13	1.50	23.728	32.439	16.774	36.519	34.77
14	2.50	18.856	29.839	15.768	33.749	53.23
15	1.50	16.782	28.785	14.895	35.812	30.79
16	0.50	33.826	32.704	16158	36.478	12.91
17	1.50	24.148	33.251	17.397	37.527	34.75

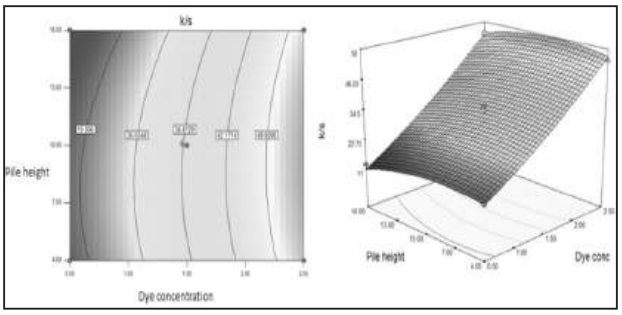

Figure 6. Analysis of K/S value by ANOVA

From table 2 and figure 2, it is observed that the overall mean is better predictor of response which implies the more fading occurs when the carpet piles becomes closer to the light source with respect to time[9,10]. That means higher pile height gives more color fading[11]. Also the way in which testing method is established is also significant which is proved from ANOVA surface response.

3.5. Effect of Variable slot distance on K/S Value

Run	Factor Dye Conc %	Factor Pile Height mm	Factor Time Hours	Response k/s (exhisting sample holder)	Response k/s (Developed sample holder)
1	0.50	4.00	20.00	16.48	14.30
2	1.50	16.00	10.00	27.81	25.50
3	2.50	10.00	30.00	48.65	45.62
4	1.50	10.00	20.00	36.15	33.64
5	1.50	10.00	20.00	34.77	33.68
6	2.50	4.00	20.00	53.65	48.75
7	1.50	4.00	10.00	34.14	30.23
8	2.50	10.00	10.00	64.27	58.91
9	0.50	10.00	10.00	14.53	10.14
10	1.50	10.00	20.00	34.75	30.60
11	1.50	16.00	30.00	26.21	20.79
12	0.50	10.00	30.00	13.64	10.26
13	1.50	10.00	20.00	34.77	30.21
14	2.50	16.00	20.00	53.23	48.53
15	1.50	4.00	30.00	30.79	26.10
16	0.50	16.00	20.00	12.91	24.60
17	1.50	10.00	20.00	34.75	33.76

4. Conclusion

Researching the light influence on tufted carpet at Xenon tester Alpha is quite different from flat surface textile materials. The aims of researcher of this research is to overcome differences for same color value in different pile height, significant result shows at same standard at different pile height in respect of dye concentration, pile height and time. Mechanized sample holder able to maintain constant distance from source of light as per standard. Different pile height shows significant color fading results at same standard holding sample at mechanized holder keeping distance as per standard.

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Fashion isn't just about what you wear, it's a reflection of who you are. Few fabrics capture individuality, refinement, and passion the way linen does. More than just a fabric, linen is a lifestyle, a symbol of sophistication, and a love for the finer things in life. At the heart of this philosophy is Linen Club, India's most iconic and pioneering linen brand.

A legacy of excellence

Linen Club is the definitive destination for 100% pure linen fabrics and apparel, curated for discerning consumers across the country. With an extensive retail presence spanning over 240+ exclusive brand outlets and 8,500+ multi-brand fabric outlets, the brand has firmly established itself as the go-to choice for linen connoisseurs.

Crafted with the finest European flax fibres, Linen Club offers the widest range in linen fabrics with over 3000+ fabric styles, curated for every possible palette of colour, texture, and weave. Through Linen Club Studio, an extensive ready-to-wear range brings fashion-forward garments for today's new-age man.

Category first innovations in linen

True to its commitment to elevate the linen experience, Linen Club has introduced several category-first innovations. These include:

These innovations aim to delight consumers by adding a new dimension to their clothing experience.

Passionately building brand aspirations

Linen Club's appeal lies in its ability to offer best in class craftsmanship for a luxurious clothign experience. The brand is uniquely positioned to appeal to passionate individuals who want nothing but the finest. We communicate this seamlessly and consistently across all consumer touchpoints, from a distinct store experience to premium messaging across both mass and niche platforms. The brand's recent festive campaigns during Onam and Sankranti in Kerala and Andhra Pradesh were culturally resonant and reinforced its regional connect. These hyper-localised marketing initiatives further established Linen Club's Credibility and emotional bond with the consumers.

A commitment to a greener future

Linen is one of the world's most sustainable fibres derived from naturally grown flax plants. The brand integrates eco-conscious practices into every stage of manufacturing.

One such unique initiative is Cavallo by Linen Club, a first of its kind initiative, an elevated expression of mindful fashion that seamlessly blends linen and cotton fibres. Designed with sustainability and sophistication at its core, Cavallo reflects the brand's forward-thinking approach to modern style.

Linen club : for the passionate

At its heat, Linen Club is not just about making fabrics or garments, it's about curating a way of life. A life where passion, taste, sustainability, and elegance walk hand in hand. Line Club is passionate like you. ■

DEVELOPMENT OF COOLING GARMENT USING CALCIUM CHLORIDE AND BARIUM SULPHATE VARSHA TOSHNIWAL & MONIKA SHELAR

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Abstract

As global temperatures rise and heat stress becomes an increasingly significant concern, the demand for advanced cooling apparel has grown substantially. Conventional cooling methods, such as evaporative cooling and phase change materials (PCMs), are often limited in terms of efficiency, durability, and versatility in dynamic environmental conditions. To address these challenges, researchers and textile engineers are exploring the potential of innovative materials, including calcium chloride ($CaCl_2$) and barium sulfate ($BaSO_4$), for the development of next-generation cooling fabrics. These materials exhibit a unique combination of moisture absorption, thermal management, and solar reflectance properties, making them promising candidates for the production of functional, cooling textiles. The primary objective is to design a garment that enhances wearer comfort in high-temperature environments using the endothermic properties of selected materials. The study includes an analysis of thermal properties, material selection, and prototype development. This paper presents the methodology, findings, and potential implications of using salt-based cooling systems in wearable technologies

Keyword: Cooling garments, Phase change materials, Calcium chloride, Barium sulfate, Textile engineering, Thermal management.

1. Introduction

With global temperatures on the rise and industrial activities increasingly exposing workers to heat stress, cooling garments have gained considerable importance. Traditional cooling methods, such as fans or air conditioning, are often impractical in certain work environments. Therefore, there is a growing need for passive and active cooling technologies embedded within clothing. This research focuses on utilizing calcium chloride and barium sulphate due to their hygroscopic and reflective properties, respectively, to enhance the cooling effect in garments [1]. Calcium chloride ($CaCl_2$) is a highly hygroscopic compound, capable of absorbing and retaining moisture from the ambient environment. When integrated into textiles, it facilitates a cooling effect through an endothermic process during the absorption of moisture. This characteristic allows the fabric to maintain a cool surface temperature over extended periods, making it particularly advantageous in extreme heat applications [6]. Furthermore, its ability to undergo repeated cycles of moisture absorption and desorption enhances its durability, rendering it reusable without a significant loss in performance. These attributes make $CaCl_2$ an ideal candidate for moisture-regulating and heat-reducing textiles, with potential applications in sectors such as sportswear, industrial uniforms, and medical garments [10]. Barium sulfate ($BaSO_4$), conversely, offers a passive cooling effect by reflecting a significant portion of solar radiation. Its high solar reflectance and low thermal emissivity properties inhibit excessive heat accumulation on the fabric surface. As a textile coating or incorporated structural element, $BaSO_4$ enhances the cooling performance of garments by minimizing heat absorption from direct sunlight. This property is particularly beneficial in outdoor environments, where prolonged exposure to high temperatures presents a health risk. Additionally, $BaSO_4$ is chemically inert, non-toxic, and highly resilient, promoting the development of cooling fabrics that maintain both environmental sustainability and safety standards over time.

2. Objectives

- To develop a wearable cooling garment integrating calcium chloride and barium sulphate, aiming to enhance thermal comfort for individuals in high-temperature environments
- To evaluate the hygroscopic properties of calcium chloride and its effectiveness in facilitating evaporative cooling within the garment.
- To assess the solar reflectance capabilities of barium sulphate and its role in reducing heat absorption through passive radiative cooling.
- To design and fabricate a multi-layered fabric structure that optimally incorporates the selected salts without compromising the garment's breathability and wearability.
- To conduct thermal performance testing of the prototype garment, measuring parameters such as skin surface temperature reduction and overall cooling efficiency.

3. Materials and Methods

The primary objective of this study is to develop a comfortable and heat-resistant fabric that enhances cooling efficiency and prevents overheating in high-temperature environments.

3.1 Fabric Substrate

Grey cotton fabric with the following specifications:

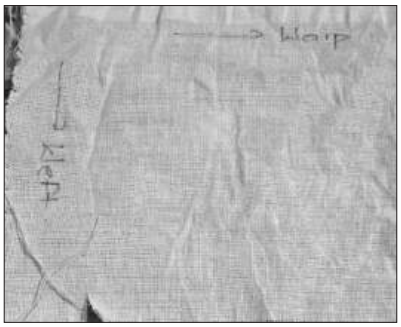


Table 1 : Material with specification

Sr. No.	Fabric parameter	Particulars
1	Material	Grey cotton fabric
2	Weave	Plain
3	Ends per Inch (EPI)	63
4	Picks per Inch (PPI)	50
5	GSM	185

3.2 Cooling Agent Application on Fabric

The grey cotton fabric underwent enzyme desizing using amylase enzyme to remove sizing materials, enhancing fabric absorbency.

3.2.1 Enzyme Desizing

A well signed grey cotton fabric was treated with amylase enzyme at 60°C for 90 min and followed by a cold wash. The fabric was checked for absorbency and Weight loss post-treatment.

Table 2 : Recipe

Sr. No.	Fabric parameter	Particulars
1	Amylase enzyme	5 gpl
2	Common salt	10 gpl
3	Wetting agent	1 gpl
4	pH	6-6.5
5	Temperature	60°C
6	Time	90 min

3.2.2 Combined Scouring and Bleaching

Post-desizing, the fabric underwent a combined scouring and bleaching process to remove impurities and enhance whiteness. Grey cotton Desize fabric was treated with sodium hydroxide and hydrogen Peroxide 85°C for 2 hours, followed by a wash (hot wash) and Neutralization. The air–dried fabric was checked for absorbency.

Table 2 : Recipe for convention combine scouring and bleaching

Sr. No.	Chemical/parameter	Particulars
1	Hydrogen Peroxide	3 Vol
2	Sodium Hydroxide	2%
3	Stabilizer	2%
4	Sodium Carbonate	1%
5	Sequestering Agent	0.1%
6	Temperature	80°C
7	Time	2 hours

3.2.3 Cool Finish Application

A cool finish agent was applied to the fabric to impart cooling properties. The application of a cool finish agent to cotton fabric involves a systematic process to enhance thermal comfort. Initially, a solution is prepared by dissolving the cool finish agent at a concentration of 100 grams per litre. The required quantities of chemicals and water are calculated based on the fabric's weight and desired liquor ratio. The fabric is then immersed in this solution using the 2-dip 2-nip padding method, ensuring uniform application. Subsequently, the treated fabric undergoes curing at 150°C, a step crucial for fixing the finish onto the fibres and enhancing durability.

3.2.4 Testing

To assess the durability and mechanical properties of the developed cooling garment fabric, standardized testing methods were employed.

- Abrasion resistance was evaluated using the Martindale Test, which simulates natural wear

by subjecting the fabric to a figure-8 rubbing motion under controlled pressure.

- Tensile strength was measured using a Universal Testing Machine (UTM) following ASTM D5035 standards, which determine the breaking force and elongation of textile fabrics through raveled or cut strip test procedures. These tests provided comprehensive insights into the fabric's performance, ensuring its suitability for use in high-temperature environments.
- The fabric's absorbency and ultraviolet (UV) protection were evaluated using standardized testing methods. A UV-Visible (UV-Vis) spectrophotometer measured the fabric's UV transmittance across the UVA (320–400 nm) and UVB (280–320 nm) spectra. This data facilitated the calculation of the Ultraviolet Protection Factor (UPF), indicating the fabric's effectiveness in shielding against UV radiation. Additionally, the fabric underwent artificial UV exposure to simulate prolonged sunlight exposure, assessing its durability and sustained protective performance. The results were benchmarked against ASTM D6603 standards, which provide guidelines for labelling UV-protective textiles based on their UPF ratings.

4. Results and Discussion

4.1 Abrasion Resistance Result

The coated fabric's abrasion resistance was evaluated using the ASTM D3389 standard, which assesses the wear resistance of rubber- or plastic-coated fabrics through a rotary platform, double-head abrader.

Thickness result

No. Cycles/samples	a	B	C	d	Avg	Loss in %
0 cycle	42	41	43	43	42.25	9.5%
50 cycles	39	38	40	38	38.75	

Weight result

No. Cycles/samples	a	B	C	d	Avg	Loss in %
0 cycle	0.15	0.14	0.13	0.14	0.14	14.2%
50 cycles	0.13	0.11	0.13	0.12	0.12	

1. **Abrasion Resistance –** showing average values before and after 50 cycles, with a 9.5% loss.
2. **Thickness Result –** showing average thickness values before and after 50 cycles, with a 14.2% loss.

4.2 Tensile strength

Warp Way Strength Result

Sample No	Tensile strength in KGF	Elongation%
1	71.37	11.40%
2	72.02	11.80%
3	71.86	12.20%
4	71.56	12.80%
Avg.	71.70	12.05%

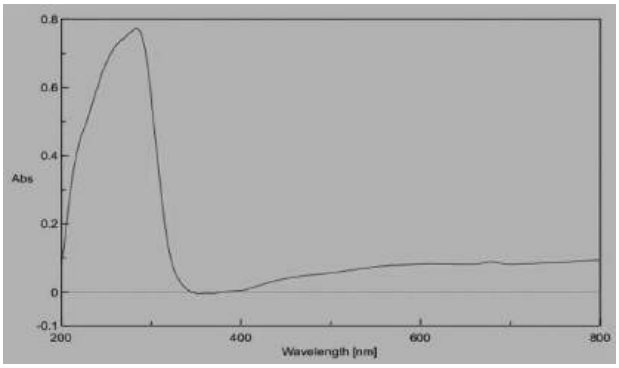
Weft Way strength result

Sample No	Tensile strength in KGF	Elongation%
1	62.80	13.20%
2	63.25	13.40%
3	64.35	13.80%
4	63.10	14.20%
Avg.	63.38	13.65%

1. Warp Direction shows an average bond breaking strength of 71.70 KGF with an average elongation of 12.05%.
2. Weft Direction has a lower average bond breaking strength of 63.38 KGF, but a higher elongation percentage of 13.65%.

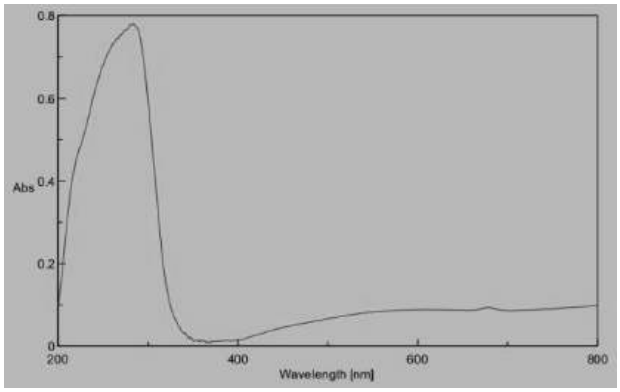
4.3 UV Absorbency Analysis

- **Calcium chloride first, then barium sulphate**

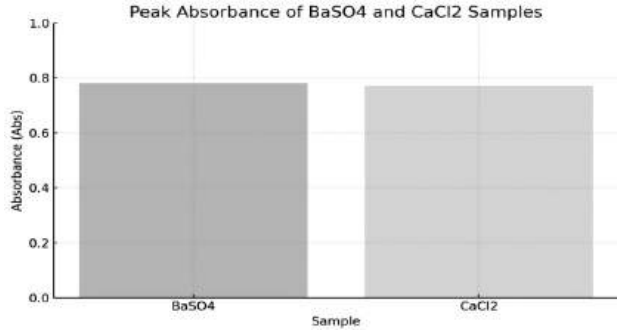


The study evaluates the UV absorbance of CaCl2-treated fabric for cooling garments. The fabric shows high absorbance (~0.75) in the 270-290 nm range, effectively blocking UVB rays and reducing heat Accumulation. However, absorbance declines after 320 nm, indicating Moderate UVA protection, which may require further treatment. Beyond 400 nm, the absorbance is minimal, allowing visible and Infrared light to pass, reducing thermal buildup. These properties suggest the fabric is suitable for cooling garments.

- **Barium sulphate first, then calcium chloride**



The UV absorbance test for BaSO4-treated fabric shows a peak absorbance of ~0.75 in the 270-290 nm range, indicating strong UVB Protection. Absorbance drops significantly after 320 nm, providing Moderate UVA protection. Beyond 400 nm, absorbance is near zero, allowing visible and infrared radiation to pass through, reducing heat Retention. This suggests that BaSO4 treatment enhances UV shielding while maintaining cooling properties. However, additional UV-resistant Coatings may be needed for improved UVA blocking. The fabric shows potential for cooling garment applications by minimizing heat absorption while protecting from harmful UV radiation.



- **Compare result**
- $BaSO_4$: ~0.78 Abs
- $CaCl_2$: ~0.77 Abs

Both samples show strong absorbance at the same level, with $BaSO_4$ showing a slightly higher peak.

5. Conclusion

The UV absorbance tests show that both $CaCl_2$-treated and $BaSO_4$-treated fabrics provide strong protection against UVB rays, absorbing a high Amount of radiation in the 270-290 nm range. However, $CaCl_2$-treated fabric performs slightly better in UVA protection since its absorbance decreases more gradually after 320 nm, while $BaSO_4$-treated fabric drops off more sharply. Beyond 400 nm, both fabrics allow visible and infrared light to pass, helping keep the fabric cool. Overall, while both options are good for UV protection, CaCl-treated fabric offers broader UV shielding, making it the better choice for UV-protective cooling garments.

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EXPLORING THE COMPOSITION, STRUCTURE, AND MECHANICAL BEHAVIOUR OF GLASS FIBRE REINFORCED POLYMER (GFRP) COMPOSITES

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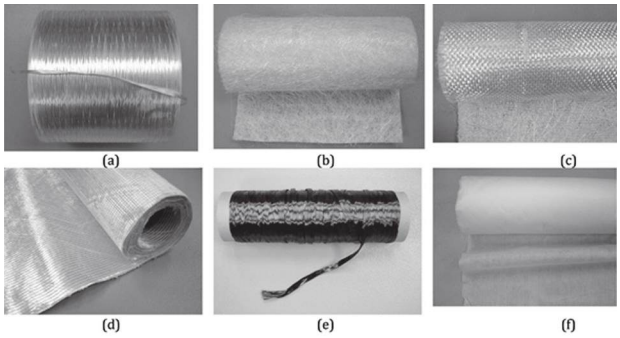
Abstract

The composition, structure, mechanical behaviour, and impact of fiber-matrix and resin-matrix interactions on the properties of glass fibre reinforced polymer (GFRP) composites are all covered in this paper. The paper also discusses how the fibre and matrix strengths affect the mechanical properties of GFRP composites. There is also discussion of research into the mechanical behaviour of GFRP composites and the impact of fibre matrix bonding. The article emphasises the need for additional research to develop more advanced and reliable GFRP composites for specific applications, as well as the importance of these composites in a variety of industries.The research in this specific area is relatively limited, but the potential for interior applications of composites reinforced with glass fabric is promising

1. Introduction

Glass Fibre Reinforced Polymer (GFRP) composite materials are made by joining two distinct fibre types (either all-natural or all-synthetic) with a single or dual polymer matrix [1]. These types of composites have long been used in the engineering, building, and transportation sectors [1]. The most popular method of plastic reinforcement is glass fibre, which is created by extruding glass filaments from textile glass fibres at temperatures around 1300 degrees Celsius [2]. All three orthogonal axes are traversed by fibres in GFRP composites [2, 3]. However, when GFRP composites are not aligned through their thickness, processing and cost issues may occur [2]. GFRP composites are nearly 0.52 mm thick and have a laminated structure [3][2]. The traditional processing techniques used to create GFRP composites involve cutting, stacking, and consolidating into a preformed component [2]. In GFRP composites with a third dimension, both mechanical qualities and impact resistance are improved [2]. These composites have fibres extending along each of the three major axes. The numbers in a GFRP composite's name correspond to the percentages of the materials that were used, and the letters in the name stand in for the actual materials [1]. Fly ash, calcium carbonate, and nano-silica are a few of the materials that can be used to make GFRP composites with a variety of possible compositions [1]. In addition to woven E-glass fabric and epoxy resin, kenaf and coconut fibres, fly ash, nano-silica, and calcium carbonate (CaCO3) can all be used to create hybrid GFRP composites [1]. In terms of functionality and cost, GFRP composites offer many benefits like increased durability, reduced weight, and increased strength. They exhibit superior stiffness/weight and strength/weight ratios, as well as superior fatigue and corrosion resistances [3]. GFRP is infinitely recyclable and can improve product design. [4]. Utilizing UD-tape, thermoplastic matrix reinforced with glass fibres (GFRP) is produced [4]. In GFRP, the benefits of both metal and plastic are combined. Its resistance to corrosion and chemicals contributes to its durability and low cost of ownership [4]. With GFRP, a component's weight can be reduced without compromising its stiffness or strength [4]. GFRP composites lack mechanical stability and water resistance, which precludes their use in marine or flood environments [1]. The identification of a hybrid GFRP composite with different reinforcing materials and fillers would be beneficial for future developments with a more compatible, improved, and dependable water-resistant composite, in particular for structural applications in flood-prone areas [1]. Here are some of the samples of fibres which are reinforced with Composites.



Different fibre system (adapted from Bank [22]): (a) glass roving on a spool; (b) E-glass continuous filament mat (CFM) or continuous strand mat (CSM); (c) woven glass fabric; (d) stitched glass fabric; (e)carbon fibre tows; (f) polyester veil.

2. Building GFRP Composites and their Chemical Composition

Composites made of glass fibre-reinforced plastic (GFRP) are incredibly strong and resilient

to heat, chemicals, abrasion, and impact. In GFRP composites, the matrix is typically made of a thermoset material like epoxy resin, polydicyclopentadiene, or polyimide [6]. GFRP composites can be made from a variety of materials, including glass, carbon, and aramid [6]. In short-fibre-reinforced polymers (SFRP), carbon fibres (CFs) are occasionally used in place of glass fibres (GFs) to increase stiffness [5]. By increasing the proportion of carbon fibres in composites, it is possible to increase Young's modulus of solids and foams [5]. The purpose of GFRP composite fabrication is to create a low-density, lightweight, and rigid component [6]. In order to create GFRP composites, matrix material and fibre preforms are used. After being woven, knit, braided, or stitched, the fibres used to make preforms are strengthened by being embedded in the matrix [5]. FRP composites are made by combining at least two components, or "phases," usually one of which is a polymer. Due to their high strength-to-weight ratios, GFRP composites are widely used in a variety of industries, including building and construction, transportation, aviation, and marine [6].

3. Variations in GFRP composites' structure and mechanical behaviour

Because the structure of GFRP composites has a significant impact on their mechanical behaviour, they can be applied in a variety of industrial settings. Composite materials made of glass fibres and a polymer matrix are known as glass fibre-reinforced polymer composites (GFRP) [7]. The dimensions, shapes, orientations, and distributions of the fibres have an impact on the viscoelastic behaviour of the matrix and the mechanical characteristics of the composite [8]. To improve a composite's strength and stiffness, the fibres can be strategically placed [7]. The proper selection of fibre types for the arrangement layer must be thoroughly established in order to support the mechanical behaviour of the GFRP composite [7]. The volume fraction and arrangement of the fibres in each layer can have an impact on how mechanically sound GFRP composites are [7]. The mechanical behaviour is impacted by the hybrid GFRP arrangement and is modifiable [7]. Different layers of fibre types and arrangements can be found in GFRP composites. Studies have shown that the configuration of chopped-woven-3D-woven-chopped produces the strongest results, whereas the configuration of woven-chopped-woven-chopped-woven produces the stiffest and least absorbent results [7]. When compared to other types of fibre, woven fibre has better mechanical and physical characteristics [7], and a volume fraction of 0.5 results in the highest strength and stiffness. In hybrid GFRP, polyester and a hardener are combined with 3D glass fibres, woven glass fibres, and chopped glass fibres [7]. The hybrid GFRP fibre arrangements and types of glass fibre used in each layer all affect the mechanical behaviour of the material [7]. In GFRP composites, layers of resin and fibres are alternated; the resin is pressed into the fibres to enhance interlayer interaction [8]. The GFRP-RT500 composite has a higher rupture strength under tensile loading than under compression loading [8], and the 50% fibre volume fraction is the same for both kinds of GFRP composites. The GFRP-MAT450 chopped strand mat composite has three distinct layers and randomly oriented fibres. The structure of GFRP composites, which can be altered for different uses, has an impact on how they behave mechanically.

4. Studies of the properties of glass fibre-reinforced polymer (GFRP) composites in relation to the impact of fibre-matrix interaction have been conducted.

The interphase between the fibres and matrix has a significant impact on the properties of Glass Fibre Reinforced Polymer (GFRP) composites. According to data, fibre-matrix debonding may happen as interphase thickness increases over time as a result of the GFRP's behaviour in terms of stress relaxation under flexural conditions [9]. The largest radius at which the presence of the fibre modifies a specific matrix property is equal to the thickness of the interphase [9]. The hybrid viscoelastic interphase model (HVIM) was used to determine the interphase modulus and thickness during the stress relaxation test [9]. As the radius shrinks, the interphase modulus becomes smaller than the bulk matrix modulus [9]. According to the outcomes of microhardness tests conducted using a Shimadzu microhardness tester from the HMV-2 series [10], hybridization enhances material balance, increases interlaminar shear strength, and ensures material affordability. Tensile and flexural tests on the material were performed in accordance with ASTM D638 and D790, respectively. Unidirectional flax/glass-fiber reinforced hybrid composites were found to have better tensile properties when the volume proportion of glass fibres was increased [10]. Hessian fabric and glass fibre were combined to successfully create a hybrid composite using

the hand layup method [10]. In comparison to other variations, the sample with 20% glass fibre was found to have the composite hybrid's best mechanical properties [10]. Additionally, sisal was combined with different volume percentages of glass fibre (i.e., 0, 5, 10, 15, and 20%) to study the mechanical properties of composites made with sisal fibre as the reinforcement, AY-105 as the matrix, and HY-951 as the hardener [10].

5. Comparing Organic, Polyester, and Epoxy Resin Matrices in Glass-Fiber Reinforced Polymer Composites

The study's main goal was to compare and contrast the structure and makeup of various resins used in GFRP composites. In order to create GFRP composites, the effectiveness of using organic, polyester, and epoxy resin matrices was assessed [11]. To increase inter-laminar shear strength [12], a crucial characteristic in composite design, short GFs that have undergone graphene transformation are added between the glass fibre and epoxy matrix. The addition of nano and micro fillers can improve the dynamic mechanical properties, such as tensile strength, of GF-reinforced epoxy composites [12]. Exemplifies the broad range of GFs' potential applications. For instance, GF-reinforced epoxy composites are frequently used in high-voltage insulation applications due to their effectiveness at high temperatures for extended periods of time [12]. An added benefit of using an eco-friendly polymer composite is that it can make auto parts lighter and stronger. Epoxy resin is the matrix, with glass and palm fibres as reinforcement [12]. The results of the study can be very helpful to manufacturers who are interested in producing high-performance GFRP composites for a variety of applications.

6. Examining the Effects of Fibre Strength and Modulus on the Mechanical Properties of GFRP Composites.

Here, GFRP composites made of glass fibres were investigated to ascertain how the strength and modulus of the fibres affect the composites' mechanical characteristics [13]. Both GFRP-RT500 and GFRP-MAT450 GFRP composites were used in the study. A polyester resin of type 440-M888 POLYLITE and a volume fraction of 50% fibre were the main ingredients in both types of samples [13]. While the GFRP-RT500 had four layers of plain weave fabric with a 0/90/0/90 orientation, the GFRP-MAT450, a composite made of chopped strands, had three alternate layers [13]. It was discovered that Young's modulus values [1] for GFRP-RT500 samples were higher than those for GFRP-MAT450. Results from tensile tests had rupture strengths that were 38% greater and elasticity moduli that were 7.29 times higher than those from compression tests [13]. In GFRP-RT500 samples, there is a significant correlation between resin tensile elongation and the mechanical characteristics of the glass fibre laminate [13]. The GFRP-RT500 composite's broken fibres increased in number as the load was applied, shifting the responsibility to the remaining intact fibres. Because the matrix surrounding the intact fibres in the GFRP-RT500 composite was loaded beyond its resistance limit, the resin layer gave way [13]. The composite fails and ruptures when the bond between the fibres and matrix is severed [13]. The study also showed that the stiffness, strength, and bonding behaviour of GFRP materials are affected by the polymer matrix's glass transition temperature. Mechanical properties dramatically decrease at 100 °C. At temperatures above 100 degrees Celsius, the fiber/epoxy matrix interface of GFRP composites suffers significant damage [14]. The strength and modulus of the fibres were found to have an impact on the mechanical behaviour of GFRP composites [13]. Future studies that simulate composite structures like wind turbine blades, boats, nacelles, and automobile bodies can make use of the research that has been presented and the results that have been obtained [13].

7. Investigating the Function of Fibre-Matrix Bonding in GFRP Composites Stress Transmission.

Fibre-matrix bonding has a significant impact on the mechanical behaviour of glass fibre-reinforced polymer (GFRP) composites. The arrangement of the laminates has an impact on the composite hybrid's strength and damage [15]. Kumre et al. investigated the mechanical properties of composites made of sisal fibres, AY-105 matrix, and HY-951 hardener [15]. The 20% glass fibre sample outperformed the other variants in terms of mechanical performance [15]. Sisal was mixed with glass fibre at different volume percentages (5%, 10%, 15%, and 20%) [15]. The samples underwent tests for tensile strength, three-point bending, shear, and short-beam steepness [15]. Almeida et al. compared the mechanical characteristics of a natural curious-fiber-reinforced composite to those of GFRP with interlaminated hybrid composites

made of curaua and glass fibres. GFRP composites were discovered to have better mechanical properties than curaua-fiber-reinforced composite and hybrid composites [15]. Nevertheless, due to insufficient load transfer from the matrix to the fibres, the mechanical properties of GFRP laminates may be diminished [16]. At temperatures above 100 °C, the epoxy matrix softens, significantly reducing the GFRP laminates' compressive strength, tensile strength, and stiffness properties [16]. Additionally, under certain circumstances, GFRP laminates can experience a long splitting failure mode [16]. Additionally, the mechanical characteristics of GFRP laminates, which in turn affect stress transmission, can be influenced by the bonding between the fibres and matrix [15, 16]. Therefore, it is critical to investigate how fibre-matrix bonding affects the mechanical behaviour of GFRP composites for stress transmission.

8. The physical properties of woven mats and chopped fibres in glass-fibre-reinforced polymer (GFRP) composites.

This investigation used glass fibre (GF) reinforcement elements with fibre lengths of 6 mm and 12 mm to fabricate GFRP composite materials. These components were mixed with polyester matrix materials at weight ratios of 20%, 25%, and 30% to create GFRP composite materials [17]. The GFRP composites were created using cast polyester from the Poliber brand and chopped glass fibres of various lengths [17]. The tensile strength of the GFRP composites was tested using various glass fibre lengths [17]. A comparison of the two types of composites found that chopped strand mat composites performed better than woven roving E-glass fibre composites in a number of mechanical properties [18]. Using chopped-strand E-glass fibres can improve the performance and strength of composites [18]. The use of fibres similar to those in this material increases ductility and serves as a crack arrestor [18]. The addition of woven mats and chopped fibres improves the shear and flexural performance of reinforced concrete beams as well as other properties of GFRP composites [18]. In high-velocity impact tests, chopped strand mat composites perform better in damage extension [18]. The Taguchi standard orthogonal array method [18] was used to conduct turning tests, which investigated the relationship between cutting force and surface roughness as a function of changing cutting parameters.

9. Composites made of glass fibre reinforced polymer (GFRP) and the impact of matrix reinforcements on mechanical performance.

The mechanical characteristics of Glass Fibre Reinforced Polymer (GFRP) composites are significantly influenced by the fibre configuration in matrix reinforcements [19]. In order to assess the mechanical performance of GFRP composites and natural curaua-fiber-reinforced composite, researchers tested samples with different fibre configurations under tension, under three-point bending, under shear, and under short beam steepness. The study examined a number of glass fibre and sisal fibre blends, each with a unique volume percentage. Interlaminar hybrid composites with varying concentrations of curaua and glass fibres were also assessed [19]. The top and bottom of the sample had GFRP layers, and the natural fibre was embedded in the middle layers. The sample containing 20% glass fibre was found to have better mechanical characteristics than the other variants [19]. Bending tests revealed that the lamina arrangement had an impact on the composite hybrid's strength and damage. Studies comparing hybrid composites with various stacking sequences, however, did not detect any appreciable variations in mechanical properties [19]. Additionally, the hybrid composite was created successfully using the hand layup technique, which combines glass fibre and hessian fabric. The tensile properties of unidirectional flax/glass fibre reinforced hybrid composites improved as the glass fibre volume fraction rose. Comparing flax fibre composite to glass fibre reinforced plastic, it was weaker and had less elongation at break (GFRP). Hybridization increases interlaminar shear strength, improves material balance, and reduces costs [19]. Microhardness testing was carried out using a Shimadzu HMV-2 series microhardness tester, and tensile and flexural tests were carried out in accordance with ASTM standards.

10. Examining the Advantages of Using Fillers to Enhance the Properties of GFRP Composites.

Fillers are frequently used to enhance the mechanical, thermal, and fire resistance properties of GFRP composites. The addition of fillers can significantly improve the physical, chemical, and mechanical characteristics of GFRP composites [20]. Here, the effects of calcium carbonate, alumina trihydrate, and an ATH/CC mixture on the material properties of glass fibre reinforced plastic

(GFRP) composites are examined [20]. The density, hardness, flexural strength, elastic modulus, and toughness of GFRP composites were all found to be improved by fillers [20]. The top three examples all contain filler that is 30 PHR or higher. CC30 comes first, followed by CA15, and then AT30 [20]. With the addition of fillers, GFRP composites' water absorption and burning rate in a horizontal position are decreased [20]. The technical and financial characteristics of the constituent materials can help GFRP gutter manufacturers make educated decisions [20]. The samples that were used in the tests were created in accordance with ASTM guidelines. Burning, flexural, and Izod impact Standard Test Methods (ASTM) D 635, D 790, and D 5941, respectively [21]. The addition of fillers like ATH, CC, and a combination of ATH and CC improves the flexural strength and elastic modulus of GFRP composite samples [20]. But if the fillers aggregate and form voids, the material's resistance to deformation and strain may be reduced. This can be avoided by adding ATH, CC, or a combination of the two to the resin to create a homogeneous matrix [20]. The properties of GFRP composites are enhanced by the addition of fillers, and they have many advantages over conventional materials, including being lightweight, easy to shape, corrosion-resistant, having a short production cycle, lasting for a long time, and having a high strength-to-weight ratio [21].

11. Conclusions

GFRP composites are used in a wide range of engineering applications, including those in the aerospace, automotive, and construction industries, due to their strength, lightweight attributes, and durability. Glass fibre-reinforced plastic (GFRP) composites are constructed from a thermoset resin, such as epoxy or polyester, and a polymer matrix that has been reinforced with glass fibres. The structure and placement of the fibres in GFRP composites greatly influence their mechanical properties, such as strength and stiffness. By experimenting with various fibre types, orientations, and layer configurations, the composite's properties can be changed. The interaction between the fibres and the matrix, or the interphase, greatly affects the characteristics of GFRP composites. The thickness and modulus of the interphase have an impact on the overall performance of the composite as well as the debonding behaviour. The choice of matrix material, which can be an organic, polyester, or epoxy resin, can have an impact on the mechanical properties of GFRP composites. To further enhance the properties of composites, nano- and micro-fillers can be used. The strength and modulus of the fibres used to create GFRP composites have an impact on their mechanical behaviour. Higher strength and modulus fibres can be advantageous for stiffness, strength, and load-bearing capacity. Stress transmission in GFRP composites heavily depends on how well the fibres and matrix are bonded together. While weak bonding can compromise the mechanical properties of composites, strong bonding enhances their overall performance. The mechanical behaviour of GFRP composites is largely determined by the fibre-matrix interaction, fibre properties, matrix choice, and composite structure. Designers and manufacturers must account for these from the beginning for the best performance in a variety of situations.

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Aditya Birla Fashion will incure capital expenditure of ₹500-crore; turnaround plan

Aditya Birla Fashion and Retail (ABFRL) said it will incur capital expenditure of ₹500 crore in 2025-26 and turn around loss-making businesses including TCNS Clothing, which owns women's ethnic brand W, and digital to consumer entity TMRW, for which it will also raise funds.

ABFRL, which now owns brands including Pantaloons, Sabyasachi and Collective, reported net sales of ₹7,355 crore with net loss of ₹624 crore for 2024-25. It has demerged its lifestyle division, formerly known as Madura Fashion, into a new entry Aditya Birla Lifestyle Brands (ABLBL), which is likely to list on the stock exchanges at the end of June.

"The largest uptake in margins will come from turning the businesses which are currently negative Ebitda and taking away from the profitability, notably parts of ethnic businesses, TCNS being the largest. Tasva being the second, and TMRW being the other businesses. These are businesses which are actually suppressing the margins that other profitable businesses make," Ashish Dikshit, managing director of Aditya Birla Fashion & Retail, told investors.

He said that excluding TMRW, the group will be Ebitda positive next year. "All other businesses, together, would be profitable next year and independently every business will achieve profitability of FY27. TMRW is the only business that could take a year more."

With more than ₹2,350 crore of gross cash at consolidated level following the recent fundraising, the company said it will pursue aggressive growth to triple in scale and double in profitability over the next five years. The expansion spree comes at a time when consumers are tightening their spending across discretionary products.

Retailers saw an average sales growth of 4% in April, lower than 6% in the previous month, according to the Retailers Association of India, indicating subdued single digit growth for more than a year.

"We can't say the underlying demand is very different. There were wedding dates last quarter and therefore the wedding part of the business on those days had the benefit... was different on those dates. But that doesn't reflect the underlying state of the economy and consumption situation," Dikshit said.

ABLBL has four lifestyle brands — Louis Phillippe, Van Heusen, Allen Solly and Peter England — along with casual wear brands American Eagle and Forever 21, sportswear brand. Reebok and the inner wear business under Van Heusen. The company said it will open nearly 300 stores in this fiscal, with a third of the outlets driven by franchise partners. ■

Apparel Markets see $ 1-bn gain following UK-India FTA deal

The Landmark INDIA-UK free trade agreement (FTA) will significantly enhance the export competitiveness of India's labour-intensive textile and apparel sectors, unlocking additional export opportunities worth $1 billion to the UK, according to industry experts.

The FTA could reduce duties on textiles and garments exported to the UK by 8-12%. At present, made-ups like home textiles face on 8% import duty in the UK while woven and knitted garments including baby garments, T-shirts, women apparel as well as processed fabrics attract a 12% duty. The new tariffs structure has placed India on par with Bangladesh, which hitherto enjoyed zero-duty access due to its Least Developed Country (LDC) status. The FTA has also given India's apparel exporters a 12% edge over China's tariffs. According to industry insiders, India's exports to the UK in 2024 included $655 million worth of knitted apparel such as T-shirts, jogging shorts, and leggings, while woven apparel like shirts, trousers, and dresses accounted for $754 million.

The UK imports $18-20 billion worth to apparel annually. China accounts for 21% of the UK's total apparel imports, followed by Bangladesh at 19%. "Historically, India has held only a 5-6% market share in the UK's textile imports," said Prabhu Dhamodharan, convenor of the Coimbatore-based Indian Texpreneurs Federation (ITF). He added that India can be more aggressive in bagging more orders as the FTA has levelled the playing field with its key competitor, Bangladesh.

A Sakthivel, vice chairman of the Apparel Export Promotion Council said that he expects exports to the UK to double in two years from the current level of $1.5 billion. Sakthivel, who runs Tiruppur-based Poppys Knitwear, aid, "Unlike Vietnam, Cambodia. Sri Lanka and Bangladesh, we have inherent strength in raw material. We don't have to depend on imports for cotton or yarn, and that's a big advantage." S Ganapathi, vice chairman and managing director of Gokaldas Exports, said this is a $1-billion incremental export opportunity for Indian apparel in the UK market but the full benefits of the deal may only materialise by FY 27.

"Such agreements are vital for integrating India more deeply into resilient global value chains, strengthening our position as a trusted manufacturing and export partner on the world stage," added Gautam Hari Singhania, chairman. Raymond Group. For readymade garments, Sudhir Sekhri, chairman of the Apparel Export Promotion Council, said exports are likely to-double in the next three-years. The India-UK FTA comes at a time when the high tariffs imposed by the US and China has underlined the need to diversify the supply chains away from the neighbouring country. "Post the latest US tariff announcement, there was a strong need to diversify textile exports," said Santosh Katariya, president of the Clothing Manufacturers Association of India (CMAI). ❐

Textile and clothing face adverse impact

India's Local Garment sector is adversely affected by competition from Bangladesh as its exporters enjoy 10-15% price advantage in India's market due to duty-free fabric imports from China and export incentives. Global brands like H&M, Zara, Primark, Uniqlo, and Walmart source apparel from Bangladesh. Trousers, Jerseys, overall, shorts, blouses, shirts, dresses, Jackets, blazers, and hosiery goods are apparel products that have seen an import surge from Bangladesh. Bangladesh is set to lose duty-free access to the EU by 2026. Along with this, the fact that India has signed a free trade agreement (FTA) with the UK and is likely to finalise one with the EU will help turn the tables on Bangladesh in terms of market access. India should fast-track FTA negoniations with the EU, as well as focus on complying with EU sustainability standards and invest in higher value addition. ❐

Garment makers expect for better days with curb on imports

With India restricting import of readymade garments from Bangladesh through land ports, domectic garment manufacturers hope to see revival inorders in a notification issued on May 17, the Director General of Foreign Trade (DGFT) said readymade garments can be imported from Bangladesh only through Nhava Sheva and Kolkata ports.

"Dealers in Northern States were able to get hold of cheap imported garments that cost almost 20% lesser than Tiruppur products. The situation worsened in the last 2-3 years," said S. Balachandar, vice-president of the South India Hosiery Manufacturers Association.

"Now, the garments can be brought in only through sea ports. This will reduce the illegal entry of ready made garments. The undergarments made in Tiruppur will be competitive cost-wise with the goods coming by sea. In a couple of months, we hope to see orders increasing for MSMEs in Tiruppur," he said. Imports of low-priced garments in huge quantities will certainly reduce now, he said.

The Confederation of Indian Textile Industry (CITI), quoting trade data. said India imported readymade garments worth $634 million in 2024, which saw 19% CAGR growth in the last 10 years. Total textile and apparel exports from India to Bangladesh in 2024 were $3.2 billion and exports from Bangladesh to India were $1.07 billion. Though India has a trade surplus with Bangladesh in textiles and apparel, its exports grew 4.97% (CAGR) between 2015 and 2024, while Bangladesh's exports to India grew 12.8%.

Garments worth ₹5,000 crores to ₹6,000 crores are imported by India from Bangladesh annually, Including those by the unorganised sector. "The DGFT decision will reduce the backdoor entry of Chinese fabrics that were getting converted in Bangladesh and entering India without duty," said Sanjay Jain, chairman of the National Committee of Experts for Textiles, Indian Chamber of Commerce.

Rahul Mehta, chief mentor of Cloth Manufacturers Association of India, said Bangladesh imports cost 12-15% less compared with Indian products. These imports will now shift to sea ports, escalating the cost by almost 10% and increasing the delivery time. This is likely to make Indian buyers look to domestic suppliers, he said.

However, industry representatives point out that a majority of the imports is by retail chains. It remains to be seen how buyers will react to the restriction.❐

Impact on garment import is minimum despite curbs

Some of the trucks from Bangladesh that could enter into India to unload consignment of readymade garments have started returning, industry sources said, after imports of readymade garments and a few other items through land routes were banned. They, however, added that the impact of these restrictions on India's imports will be minimal.

On an average day, the border sees heavy rush, and in the busy season of winter, as many as 200 trucks line up. A big chunk of those carry winter clothing to Nepal and Bhutan. While India has stopped trade of garments through land ports, shipments to Nepal and Bhuttan continue. The impact of port restrictions will be minimal and for short term in the readymade garment sector as Bangladesh enjoys zero-duty access while other countries are charged around 20%, the sources said.

"Top global brands like H&M, Zara, Uniqlo, and Walmart source apparel from Bangladesh, some of which enters Indian market. Indian manufacturers have long expressed concern over the uneven playing field : they pay a 5% GST on locally sourced fabric, while Bangladeshi firms import fabric duty-free from China and receive export incentives for sales to India — giving them an estimated 10-15% price advantage," said Global Trade Research Initiative founder Ajay Srivastava.

The real problem however, lies in Bangladesh benefiting from a zero tariff rate on its exports to India under South Asia Free Trade Area (SAFTA) and lower production cost owing to low wage and its subsidy regime, Apparel Export Promotion Council secretary general Mithileshwar Thakur said. Forcing garments to be shipped via sea ports will increase transportation costs and potentially make Bangladesh germents less competitive in the Indian market. ❐

UK FTA : Textiles exports to surpass Pak, Turkiye

India's Free Trade Agreement (FTA) with the United Kingdom should enable it to surge past Pakistan and Turkey to emerge as the third largest supplier of apparel and textiles to the UK, with its exports set to get a level-playing field against rivals like Bangladesh, Vietnam and Pakistan that enjoy duty-free market access.

India's apparel and home textiles shipments to the UK attract an 8-12 per cent import duty, that would be scrapped under the FTA expected to come into force in calendar year 2026, with tariffs eliminated on 99 per cent of Indian goods. While the EU and the US are India's largest markets for apparel and home textiles. Accounting for about 61 per cent of such exports in 2024, UK's share in such exports from India has hovered between 7 per cent to 8 per cent in the last five calendar years, rating firm Icra said in a report recently.

Last year, the UK market's dominant supplier was China with a share of about 25 per cent, followed by Bangladesh with a 22 per cent share, Turkey with an 8 per cent share an Pakistan with an approximate 6.8 per cent of the market. With exports of $1.4 billion in 2024, Indian textiles were just a tad behind with a 6.6 per cent market share.

Icra expects India's textile export volumes to the UK to double from their current levels in the next 5-6 years after the revised zero tariffs kick in. requiring exporters to ramp up their capacities. While such exports to the UK grew 6 per cent last year. Icra expects the compound annual growth rate of about 13 percent over the next five-six years, with 2029 expected to record a 20 per cent growth with shipments worth $3.2 billion.

EXPORT PROSPECTS AND MARKETS

"The UK's share in India's textile exports is anticipated to rise from 7-8 per cent to 11-13 per cent by CY2027. This growth will be supported by incremental capacity additions in the garmenting segment, creating employment opportunities and improving earnings for exporters,"reckoned Icra's analysts, led by senior vice president and group head Jitin Markar. ❐

Over last few months India's cotton imports increase at higher pace as farmers battle low yields, prices

Increasing import of raw and waste cotton in the last seven months has brought to force the urgent need for measures to improve cotton productivity in India.

Cotton imports were to the tune of $104 million in August 2024, $134.2 million in September 2024, $127.71 million in October, $170.73 million in November, and $142.89 million in December, 2024, in January this year, it stood at $184.64 million.

Comparably, the imports were $74.4 million in August 2023, $39.91 million in September 2023, $36.68 million in October 2023, $30.61 million in November 2023, and $29.47 million in December 2023. In January 2024, the imports were $19.62 million.

Meanwhile, the Cotton Corporation of India (CCI) has procured close to 100 lakh bales of Indian cotton that has come into the market since the beginning of the new season on October 1, 2024. In the peak cotton arrival season in December 2024, the CCI bought almost 60% of the daily arrivals at the minimum support price (MSP). The price of the Shankar 6 variety of cotton in recent part was 52,500 a quintal.

Jaipal, a cotton farmer in Telangana, said at the beginning of the season that farmers are not happy because yield is less. "International prices are weak and mills are able to buy from there, " he said.

Kurbur Shanthakumar, president of Karnataka State Federation of Farmer Associations, said the cost of production per quintal is ₹9,000 and the MSP is ₹7,235. But, brokers were buying in the open market at any ₹5,000 to ₹5,500 per quintal.

The Union Budget announced in February has a Cotton Mission aimed at improving productivity.

For the Indian textile industry, international cotton prices are weak and with export demand looking, up for garments and home textiles, there is a need for the textile industry to be internationally competitive. Over 60% of garments exported are cotton-based. Extra Long Staple cotton can be imported duty free and exporters can import cotton without duty under Advance Authorisation. The mills seem to have imported cotton as international cotton prices were lower than Indian prices and the imports have not disturbed the local market, sources said.

"Cotton productivity in India is about 450 kg per hectare as against 1,800-2,000 kg/ha in Brazil. Indian yarn exports should increase," Pankaj Sharda, director, Indian Cotton Association, said. ❐

MSME exporters eye on multiple risks over U.S. tariffs

When U.S. President Donald Trump announced retaliatory tariffs on April 2, the 26% tariffs on India surprised many exporters.

Of the total merchandise exports from Indian in 2023-2024, close to 18% of the shipments were to the U.S. and a substantial portion of these are made in MSME clusters such as Coimbatore and Tiruppur.

The retaliatory tariff led to anxiety and uncertainty among the U.S. buyers and Indian suppliers and discussions commenced on prices, new suppliers, cancellation of orders, etc. The 90-day pause has given some respite and hope, though the risks of unpredictability continue.

BKS Textiles, which is located almost 45 km from Coimbatore city, sells bed spreads, pillow covers, napkins, etc., to a dozen buyers in the U.S.

Its managing director M. Senthil Kumar said orders started Kumar said orders started declining for the past almost three months, anticipating the tariffs will not harm India. But the 27% announcement came as a twist. One of the customers immediately wanted to shift the sourcing to Turkey that had a lesser tariff. Then, the U.S. President. announced a 10% baseline tariffs. Though there is no request for a price cut now or shifting of orders, the threat is no request for a price cut now or shifting of orders, the threat is still there,"

Executive director of KPR Mill C.R. Anandakrishnan said that while the urgent shipments had gone, the other ware on bold for want of clarity. For instance, the existing duty varies for crew neck and collar neck t-shirts. "We do not know whether

the new duty is 10% in addition to these tariffs." Further, one of the buyers has asked for sharing of the additional cost, he said.

According to V. Elangovan, managing director of SNQS International in Tiruppur, there are garment buyers who are shifting orders from China to India. "But, they are asking for the goods at the Chinese prices, which is 10% to 15% lesser, and rushing of shipments within 90 days.

Ajoy Thipaiah, proprietor of Kerehaklu Estate in Karnataka, which ships two-three containers of specialty coffee to the U.S., said, "We have a tie up with a roaster who is a distributor in the U.S. Every season, when the harvest starts, we reach a price agreement." "When the retaliatory tariff was announced, there was announced, there was a dilemma and the distributor said he cannot take the full burden. Now, the rate is reduced to 10% and we will ship the entire quantity in the 90 days," he added.

In some cases, the tariffs are bringing in new orders. Alphacraft, an aluminium foundry and machine shop in Coimbatore, has four customers in the U.S. Ramesh Muthuramalingam, its Managing director, said, "We were paying 2.5% duty the competing with China. Two months ago, we lost an order from a U.S. buyer in China. The buyer shifted the order from China to our factory. We investing in capex and it will continue. If the Indian government is able to manage the current situation effectively, India will get more orders," he said.

Rajesh Doraiswamy, joint managing director at Salzer Electronics, which employs 1,500 workers at its factoreis, said, "We seem to be stepping back to the pre-globalisation times." However, there are reasons for gains for Indian exporters in the medium to long term. Labour cost constitutes 14-15% of the product (that are made by Salzer) price when made in India. This will be almost 40% if the electrical and engineering items are made in the U.S. So, there is very little chance of production moving to the U.S., he said. The exporters added that the disturbances to the financial markets and potential slowdown in demand in the U.S. after the 90-day pause period were additional risks.

Further, import of Chinese goods may increase in India, they said. ❐

Denim-maker Vishal Fabrics to eye on Europe, Latin America & Africa markets

Looking to ride the denim wave, Vishal Fabrics Ltd, a Gujarat-based manufacturer and processor of denim, is eyeing exports to Europe, Latin America and the African markets.

The company, which is part of the Chiripal Group, has capacity to manufacture 100 million metres per annum of denim and currently exports only to Nepal and Sri Lanka.

"We are not fully involved in the export market. This is one area where we are yet to grow. We currently export small quantities to Nepal and Sri Lanka. These are not good markets as far as price points are concerned. What we are now focusing on is exporting to Portugal in Europe, Panama in South America, Kenya and Morroco in Africa, and Bangladesh. We have already started getting orders from Bangladesh," said Suketu Shah, Business Head.

The company targets to export 5 lakh metres of denim this year. "I have seen nine cycles of denim. Every time the cycle nosedives, it feels that denim will get obliterated. But it goes up. We are currently witnessing an upswing and the going is expected to be good for the next two years," added Shah, an industry veteran who joined the company in January this year.

India capacity

Denim has been growing at 10 per cent CAGR in India. Over the years, a number of players have entered this category, leading to a rising volume.

"Today, India has a denim manufacturing capacity of 1,700 million metres per annum and the production has never 1,200 million metres. In other words, 60-65 per cent capacity has only been utilised. At Vishal Fabrics, we have a capacity utilisation of almost 85-90 per cent," the official said, adding that the company sold denim worth ₹650 crore in FY25, and is now targeting to sell fabric worth ₹850-1,000 crore during the current fiscal.

Huge potentials

Pointing out that even the domestic market in India presents a huge opportunity, Shah said the per capita consumption of denim in India is less than one garment while the per capita consumption in countries of Europe or the US is as high as 4-6 garments.

In the domestic market, the company is looking to tap denim brands located in Mumbai and Bengaluru.

"Only five per cent of our production goes to brands. Now, we are looking to tap national brands in Mumbai which include Killer, Spykar, Pepe and Mufti," Shah said, adding that the younger population aged 25-35 still drives growth.

Most of the denim sales for the company is coming from the north and eastern parts of the country.

While these two regions account for 55 per cent of sales, the western region accounts for 35 per cent of the denim fabric sales. ■

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Details of Office Bearers of ITAMMA for the year 2024-25

Mr. Omprakash Mantry – President (2025/26)
DIRECTOR, CENTURY INKS PVT. LTD.


Mr. Omprakash Mantry – President

Omprakash Mantry is a first-generation self-made businessman from his family & has been in the manufacturing business for 35 years. He has immense experience and knowledge in marking instruments and devices used across the world. With the help of his expertise, 'Century Markers' the brand has grown exponentially in the industry registering a steady year-on-year growth in revenue and Technological Development in the past decade.

Company's strong ethics & commitment to loyalty is showcased with strong business relationships with several distributors in India & around the globe, for many decades.

With continuous R&D efforts over the last 3 decades our team has developed a wider range of cost effective marking instruments and devices with specialty inks to cater to wider industrial processes & applications namely pump-type textile markers, paint markers, High-Temperature chalks & laundry markers and the most talk of the town "CENTURY'S EVERON PEN ".

He also owns & manages a government recognised star export house company 3S Corporation engaged in exports & distribution for specialty pharmaceuticals medicines.

He is currently serving as CHAIRMAN of Bonanza Industrial Estate Co-operative society (Kandivali) caretaking of ongoing renovation work for the society. He is Committee member of ALL INDIA PRINTING INK MANUFACTURER ASSOCIATION. Also, He was committee member of PLASTIC EXPORT PROMOTION COUNCIL.

Mr. Vishal Masand – Hon' Treasurer (2025/26)
Proprietor of TIRUPATI TECHNIK


Mr. Vishal Masand – Hon' Treasurer

Vishal Masand is a Chemical Engineer with a MBA. He started his career as a trainee in Petrofils, Vadodara before moving on as a Project Engineer in Hindustan Dorr Oliver commissioning DAP Fertilizer and Desalination plants and finally as a Business Development Executive in the Oil & Petrochemical Sector, CMC Limited.

After this stint in working life, Mr. Masand started his own business and currently is the Proprietor of TiRUPATi TECHNiK since June 1997.

Thus having a total experience of 35 years in the representation and servicing of Lenzing Instruments GmBH & CO KG, Austria, Move Engineering, Italy, Honigmannn Electronic GmbH, Germany and Broell Ceramics, Austria, thus having the major market share in the respective fields in the Industry.

Agents for entire range of Lenzing Instruments filament, fibre, non-woven testing equipment with the new range of PFY online System (OLM), Hypox based cleaning equipment for Polyester, Polypropylene Nylon, etc.

He has been a member of Managing Committee of ITAMMA, being proactive in the activities of ITAMMA since past many years.

Mr. Nimesh J Shah – Vice-President (2025/26)
Partner, Britex Industries

Young and enthusiastic, Nimesh is currently partner at Britex Industries (which is part of the Wiper drive Group) which is into selling of Textile spare product and accessories, he is Director at Transtec Overseas Pvt Ltd

A record breaking Catalogue Show hosted by ITAMMA at Erode on 22nd March 2025

which manufactures Aviation Ground support Equipments and also Director of Oil gear India Pvt Ltd which manufacture and supply Hydraulic and Automation products and solutions.


Mr. Nimesh J Shah – Vice-President

He holds an MBA in International Marketing from Cardiff University, UK along with a B.E. in Production Engineering from Bombay University, India. He has Twenty five-years of rich experience and exposure to the finer side of running all business successfully. Dealt with customers such as Air India and Indian Airlines and executed sales up to the tune of Euro 20 million for Ground support Equipment.

At a young age of 45 he has played a key role in honing the operation of the group and has demonstrated considerable Financial and Marketing skills. During all these year, in a short period of time, he has initiated a significant thrust on the group export operations to Europe and Middle East companies. He also played a substantial role in getting all Group companies ISO 9001: 2008 certified and participating in international trade fair with thrust on exports. Nimesh is fully geared to spearhead his all Group companies in the area of world class product and service to exceed customer expectation.

For further information, please contact :
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Trützschler marks grand opening of its state-of-the-art manufacturing plant

Trützschler India relocates to ultra-modern manufacturing plant in Sanand

Trützschler India proudly celebrated the grand opening of its state-of-the-art manufacturing plant in Sanand, near Ahmedabad, Gujarat. This strategic relocation from the previous Ahmedabad site to the new facility is set to enhance operational efficiency, sustainability, and innovation.

The Trützschler and Schürenkrämer families and the Trützschler Group management team, alongside Trützschler India CEO Joseph Thomson, warmly welcomed a distinguished group of guests, including Shri Bhupendra Bhai Patel, Chief Minister of Gujarat, Achim Fabig, Consulate General of Germany in India and Shri Parshottam Ji Rupala, Member of Parliament. In addition, many of Trützschler's valued customers, long-time partners and dedicated colleagues joined the celebration for a day of inspiring speeches, networking and a lively cultural program.

Celebrating the inauguration of the new Trützschler manufacturing facility in Sanand, India. From left to right: Edda Schürenkrämer, Shareholder, Alexander Stampfer, CSO, Caroline Lange, Shareholder, Florian Rück, CFO, Charlotte Fontaine, Shareholder and member of the Supervisory Board, Florian Schürenkrämer, Shareholder and member of the Supervisory Board, Dr. Michael Schürenkrämer, Shareholder, Shri Bhupendra Bhai Patel, Chief Minister of Gujarat, Heinrich Trützschler, Shareholder, Shri Parshottam Ji Rupala, Member of Parliament, Shri Kanubhai Patel, Member of Gujrat Legislative Assembly, Heinrich Krull, COO, and Joseph Thomson, CEO Trützschler India.

The new Sanand facility spans 164,000 square meters, with a built-up area of 72,000 square meters, and employs over 1,000 people. This pioneering plant is designed to serve both Indian and global markets, driving continued growth and innovation in the production of spinning preparation machines, card clothing, and nonwoven equipment. Built with a focus on sustainability, the facility adheres to high environmental standards, including ISO 9001:2008, ISO 14001:2015, and ISO 50001:2018 certifications. It also aims to achieve a gold rating from the Indian Green Building Council. Key features of the plant include solar energy systems, rainwater collection, electric vehicle charging points, and AI-powered process optimization.

Heinrich Trützschler, Shareholder, Charlotte Fontaine, Shareholder and member of the Supervisory Board and Florian Schürenkrämer, Shareholder and member of the Supervisory Board, welcome guests to the new manufacturing plant in Sanand.

Additionally, the new facility houses a modern Customer Training Center and an expanded Trützschler Training Academy, supporting knowledge sharing and skill development in alignment with the Skill India Mission.

Joseph Thomson, CEO of Trützschler India, remarked, "The new Sanand plant strengthens our ability to meet the rising demand from India and global markets with technologies, processes, and sustainable standards that truly set us apart. We extend our heartfelt gratitude to everyone who contributed to realizing this vision and to all those who joined us in celebrating this milestone."

Trützschler's state-of-the-art manufacturing plant in Sanand, India.

About the Trützschler Group

The Trützschler Group SE is a German textile machinery manufacturer headquartered

in Mönchengladbach, Germany. The company is divided into three business units: Spinning, Nonwovens and Card Clothing. Trützschler Spinning is the global technology and market leader in spinning preparation in the cotton and man-made fiber sector. With TRUECYCLED, Trützschler Spinning offers a complete solution for state-of-the-art recycling of textile waste – from cutting and tearing textile waste through to carding and drawing secondary fibers, resulting in high-quality, sustainable yarns. Trützschler Card Clothing is the global market leader in the production of high-performance card clothing for cards and roller cards. Trützschler Nonwovens is a leading supplier of complete production lines and machinery for needle-punched, hydroentangled (spunlaced), through-air and chemical bonded nonwovens. Trützschler machines, installations and accessories are produced and developed in nine locations worldwide. This includes four factories in Germany (Dülmen, Egelsbach, Mönchengladbach, Neubulach), as well as sites in China (Jiaxing and Shanghai), India (Sanand), the USA (Charlotte) and Brazil (Curitiba). Local service companies in Türkiye, Mexico, Uzbekistan and Vietnam and local service teams in Pakistan, Bangladesh and Indonesia provide customer proximity in key regions for the textile processing industry.

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Birla Cellulose Exhibits Sustainable Elegance with Livaeco Collection at Jaipur Times Fashion Week

Birla Cellulose, from the house of Aditya Birla Group, made a striking statement at Jaipur Times Fashion Week with an exclusive showcase featuring its latest collection crafted using Livaeco, the eco-enhanced variant of its fabric. Created in collaboration with esteemed partner brands like Indoera, Juniper, and Holly Hock, the collection is a testament to sustainable fashion that blends style, comfort, and eco-consciousness.

The much-anticipated fashion event witnessed the elegance and charisma of Tejasswi Prakash, who graced the runway as the showstopper forLivaeco. Known for her impeccable style and strong advocacy for responsible fashion, Tejasswi was styled in a specially curated ensemble by the brand, embodying the essence of fluid fashion with sustainability at its core.

Livaeco's latest collection was a seamless fusion of tradition and modernity, offering ensembles that were not just high on fashion but also had a lower environmental impact. The brand's commitment to sustainability was reflected in its responsibly sourced fibers, which contributed to reduced water consumption and a smaller carbon footprint, making each garment an eco-friendly choice.

Speaking about the collection and her association with Livaeco, Tejasswi Prakash shared, "Fashion is an expression of who we are, and it is inspiring to see brands like Birla Cellulose making sustainability an integral part of style. The collection beautifully merges elegance with a responsible approach, and I am thrilled to walk the ramp in an ensemble that speaks of eco-conscious fashion choices."

Birla Cellulose' collaboration with Indoera, Juniper, and Holly Hock brought together diverse design aesthetics under a shared vision of sustainability. From flowing silhouettes to intricate handcrafted details, the collection highlighted how fashion can be both luxurious and environmentally responsible.

Commenting on the showcase, Mr. Manmohan Singh, Group Executive President and Chief Marketing Officer of Birla Cellulosesaid, "At Birla Cellulose, sustainability is not just a commitment—it's an ongoing journey. While LIVA itself is an inherently sustainable fabric, Livaeco takes it a step further with responsibly sourced raw materials from certified forests, minimal water consumption, and low greenhouse gas emissions. Its unique traceability solution ensures complete

source credibility, empowering consumers to make informed, eco-friendly fashion choices. In Jaipur Times Fashion Week, we proudly present the Livaecobased collection in collaboration with our three esteemed partners—Juniper, Indoera, and Holly Hock—who have crafted an exquisite range that seamlessly blends sustainability with high fashion, perfect for the modern woman who values both style and a greener future".

Jaipur Times Fashion Week continued to be a premier platform for celebrating innovation in fashion, and Livaeco's showcase set new benchmarks in sustainable couture. The event brought together designers, fashion enthusiasts, and industry leaders, all converging to witness the transformative power of responsible fashion.

As Livaeco by Birla Cellulose took centre stage at Jaipur Times Fashion Week, it reinforced its commitment to a greener tomorrow—one stylish step at a time.

About Livaeco

Livaeco by Birla Cellulose is an eco-enhanced, nature based fabric that combines style with sustainability. Sourced from certified sustainable forests, it helps conserve water, reduce carbon emissions, and increase forest cover. With unique molecular tracers and blockchain-based tracking (GreenTrack™), every Livaeco garment's journey can be traced from forest to fashion. Offering luxurious softness and fluid drape, Livaeco ensures that fashion is not just stylish but also consciously sustainable.

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 using environmentally beneficial manufacturing methods.

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Swiss Textile Machinery Association elected industry leaders

Swissmem textile machinery industry sector elects president and board

The Swiss Textile Machinery Association is the representative body for Switzerland's providers of textile equipment, systems and services. Its general assembly on May 8 elected experienced industry leaders as president and board members.

The association's new president is Davide Maccabruni, CEO of Uster Technologies AG. His role is to lead the board in defining strategies and key focus areas. Assessing the challenges facing the industry, Maccabruni states: "The Swiss textile machinery industry still holds unique strengths that can secure its success well into the future. To achieve this, however, we must focus on aligning our capabilities, working together, and supporting one another."

A new member of the association board has also been elected. He is Martin Zürcher (Heberlein Technology AG), who joins Beat Meienberger (Benninger AG), André Imhof (Autefa Solutions

Switzerland AG), Andreas Conzelmann (Jakob Müller AG)and Ralph von Arx (Retech AG), the latter taking on the role of vice-president.

The board of the Swiss Textile Machinery Association (left to right): Ralph von Arx, Andreas Conzelmann, Davide Maccabruni, Cornelia Buchwalder (Secretary General), André Imhof, Beat Meienberger, Martin Zürcher

Davide Maccabruni succeeds Ernesto Maurer, the association's president for the past ten years. Maurer has been an active board member since 2011,becoming president in 2015. During his service, he has made a significant contribution to strengthening the innovative power and international visibility of the Swiss textile machinery industry.

Former president Ernesto Maurer and newly elected president Davide Maccabruni

The Swiss Textile Machinery sector was founded in 1940 and is the longest-established industry sector within Swissmem. It currently has 42 affiliated companies, including manufacturers of machines and components, and service providers, for the textile industry. The association supports its members in fostering innovation initiatives and education.A major focus is on joint market access campaigns, through a successful programme of international symposia. Recentevents have been held in Mexico and the US, and another is planned for Morocco later this year.

About Swissmem and the Swiss Textile Machinery Association

Swissmem is the leading association for both SMEs and major corporations in the Swiss technology industry. Swissmem enhances the competitiveness of its 1400 or so member companies both at home and abroad by providing needs-based services. These services include professional advice on employment, commercial, contract and environmental law, energy efficiency and technology transfer. Swissmem operates a number of strong networks, including 25 industry sectors. The Swiss Textile Machinery Association is the oldest division, founded in 1940. It represents the interests of the Swiss textile machinery manufacturers. Swissmem and the Swiss Textile Machinery Association are headquartered in Zurich.

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Tommy Hilfiger steps in Mumbai: A Stylish in-store talk and star-studded Bollywood Dinner hosted to celebrate fashion, culture & creativity

Tommy Hilfiger, which is part of PVH Corp. [NYSE: PVH], announced Mr. Tommy Hilfiger's visit to Mumbai, India, on April 15, 2025, for a vibrant day of fashion, cultural exchange, and connection – reinforcing the brand's presence in one of the world's most dynamic style capitals.

The day began with a visit to the TOMMY HILFIGER store at Jio World Drive, located in the heart of Mumbai's luxury shopping destination,

the Bandra Kurla Complex. There, Mr. Hilfiger participated in a panel discussion moderated by Indian creative force Sarah-Jane Dias, and Bollywood actress, model and philanthropist Manushi Chhillar. The conversation explored style, fashion and global influence – uniting icons from both American and Indian fashion cultures.

Later that evening, Mr. Hilfiger hosted a dinner at the Taj Chambers, nestled within the legendary Taj Mahal Palace Hotel. With sweeping views of the Gateway of India and the backdrop of the Arabian Sea, the intimate affair was a curated celebration of culture, glamor and style. The evening brought together India's foremost cultural tastemakers– from Bollywood icons and A-list celebrities to fashion power players, influential top-tier media, and industry insiders. Guests included Karan Johar, Sara Ali Khan, Ibrahim Ali Khan, Aditya Roy Kapur, Shikhar Dhawan and Guru Randhawa.

Infused with the brand's bold, vibrant spirit and tailored with a local twist, the evening was a dazzling celebration of fashion, creativity, and Tommy Hilfiger's deepening connection to India's vibrant style and entertainment scene.

About TOMMY HILFIGER

TOMMY HILFIGER is one of the world's most recognized premium lifestyle brands, uplifting and inspiring consumers since 1985. The brand creates iconic style, which comes alive at the intersection of the classic and the new, co-created with people who are shaping culture around the world. TOMMY HILFIGER celebrates the essence of classic American style with a modern twist. Tommy Hilfiger offers premium quality and value to consumers worldwide under the TOMMY HILFIGER and TOMMY JEANS lifestyles, with a breadth of collections including men's, women's and kids' sportswear, denim, accessories, and footwear. Tommy Hilfiger has an unwavering commitment to sustainability and inclusivity. Global retail sales of TOMMY HILFIGER products were approximately $9 billion in 2023 and the brand is powered by more than 16,000 associates worldwide — present in 100 countries and more than 2,000 retail stores, including its largest global flagship store at tommy.com. PVH acquired Tommy Hilfiger in 2010 and continues to oversee a focused approach to growing the brand's worldwide relevance, presence, and long term growth.

About PVH Corp.

PVH is one of the world's largest fashion companies, connecting with consumers in over 40 countries. Our global iconic brands include Calvin Klein and TOMMY HILFIGER. Our over 140-plus-year history is built on the strength of our brands, our team and our commitment to drive fashion forward for good. That's the Power of Us. That's the Power of PVH.

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Lenzing Group hosted the Lenzing Conclave in Ludhiana Showcases Sustainable Fiber Innovations for Knitted & Woven Textiles

The Lenzing Group, a global leader in wood-based specialty fibers, successfully hosted the Lenzing Conclave at Radisson Blu Hotel inLudhiana, bringing together key players from the textile industry, including manufacturers, exporters, dealers, agents, and leading brands. This exclusive event served as a dynamic platform to explore Lenzing's latest fiber innovations and their diverse applications in knitted and woven textiles.

As part of its ongoing commitment to sustainability and innovation, Lenzing showcased its cutting-edge fiber portfolio, featuringTENCEL™ Lyocell A100, LF, x Micro, Fill, and LENZING™ ECOVERO™ Blackwith a special focus on innerwear, sleepwear, athletic/activewear, lingerie, and ethnic wear, the conclave provided valuable insights into the evolving demands of the textile industry. By engaging with manufacturers, exporters, and brands, Lenzing reaffirmed its commitment to delivering holistic solutions. The conclave provided insights into evolving industry demands while reaffirming Lenzing's commitment to fiber innovation, technical and marketing support, and supply chain solutions for a more sustainable textile future.

Avinash Mane, Senior Commercial Director for AMEA & NEA in Commercial Textiles at Lenzing Group, emphasized the company's vision, stating:"As the demand for eco-conscious textiles continues to grow, Lenzing remains at the forefront of innovation, empowering brands and manufacturers with high-performance fibers that prioritize both quality and sustainability. Our TENCEL™ and LENZING™ ECOVERO™ fibers represent the future of textile production, offering versatility across multiple categories while significantly reducing environmental impact. The Lenzing Conclave in Ludhiana served as a crucial platform to foster collaboration and drive meaningful change in the industry."

Through interactive discussions and product showcases, the Lenzing Conclave in Ludhiana successfully strengthened industry connections and reinforced Lenzing's position as a global leader in sustainable fiber solutions. The Lenzing Group extends its gratitude to all attendees for their enthusiastic participation and looks forward to fostering future partnerships that will shape a more sustainable future for the textile industry

About the Lenzing Group

The Lenzing Group stands for the ecologically responsible production of regenerated cellulose fibers based on cellulose and recycled material. As an innovation leader, Lenzing is a partner to global textile and nonwoven manufacturers and drives many new technological developments. The Lenzing Group's fibers are the raw material for a wide range of textile applications – from functional, comfortable and fashionable clothing through to durable and sustainable home textiles. A range of LENZING fibers is also certified by TÜV AUSTRIA for the following properties: biodegradable in soil, fresh water and marine environment as well as compostable in home applications and industrial facilities.

The Lenzing Group's business model extends far beyond that of a conventional 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 efficient utilization and processing of all raw materials used and offers solutions for the transformation of the textile industry from the current linear economic system to a circular economy. In order to reduce the rate of global warming and thereby also support the goals of the Paris Agreement and the EU Commission's Green Deal, Lenzing has a clear, science-based climate action plan that aims for a significant reduction in greenhouse gas emissions by 2030, and a net-zero target (Scopes 1, 2 and 3) by 2050.

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Bluesign welcomes Nishat Mills as New System Partner, Advancing Responsible Denim Manufacturing in South Asia - The Global Ripple Effect of Sustainable Denim Continues to Expand

Founded 25 years ago, bluesign has long been a pioneer in sustainable manufacturing. In 2020, it launched their bluesign Denim Initiative - marking a bold step in transforming one of fashion's most iconic and resource intensive categories. Since then, the initiative has created a powerful ripple effect across the global supply chain, empowering luxury houses, premium brands, and forward-thinking mills to adopt clean chemical management and verified sustainable manufacturing at scale.

The 2024 - 2025 period marked a breakthrough year for the bluesign Denim Initiative, as key players across the industry aligned on measurable sustainability targets, integrated bluesign System Partner manufacturers into their operations, and brought garments with bluesign Approved denim to market at an unprecedented scale. New partnerships, regulatory shifts, and a heightened demand for transparency and traceability accelerated adoption—solidifying bluesign's leadership in redefining the future of responsible denim.

bluesign proudly announces Nishat Mills Limited, one of South Asia's largest vertically integrated textile companies, as its newest system partner. Based in Lahore, Pakistan, Nishat joins a growing network of manufacturers worldwide committed to eliminating harmful substances from the supply chain and implementing cleaner, safer, and more transparent production practices. With extensive operations in spinning, weaving, processing, stitching, and power generation, Nishat Mills plays a critical role in supplying premium fabrics and garments to leading global brands and retailers. Through this new partnership, Nishat will align its operations with the bluesign System, implementing rigorous environmental and chemical safety standards across its facilities.

"Achieving bluesign® certification is more than a milestone for us—it's a reflection of the values we've built our operations on," says Umer Shah, Executive Director at Nishat Fabrics. "Being the first mill in Pakistan to join the bluesign® system reinforces our commitment to cleaner chemistry, safer workplaces and more responsible use of resources. We believe progress means producing with purpose-and this partnership is a step forward in that direction."

The partnership strengthens bluesign's presence in South Asia, a vital manufacturing region for the global textile supply chain. With growing regulatory and brand pressure for transparency, Nishat's adoption of the bluesign System will help its customers meet emerging standards such as the EU Digital Product Passport (DPP), Corporate Sustainability Due Diligence Directive (CSDDD), and Corporate Sustainability Reporting Directive (CSRD).

bluesign's Denim Network Grows: New System Partners Driving Change

bluesign denim initiative welcomed a record number of denim-focused system partners across the full textile ecosystem—brands, laundries, chemical suppliers, and mills - making a global footprint incomparable in the fashion and textile industry. These include:

Brands & Retailers

- Dondup (Italy)
- J Crew / Madewell (USA)

Laundries & Mills (location)

- NISHAT (Pakistan)
- ISKO (Turkey)
- Advance Denim (China)
- Everest (Italy)
- LIM Group (Italy)
- Saitex Laundry & Saitex Mill (Vietnam + LA)
- Pure Denim (Italy)
- Prosperity Textiles (China)
- Sanko Tekstil – Martelli Branch (Turkey)

Chemical Partners

- Archroma
- Nearchimica
- Officina +39
- RUDOLF
- ZAITEX
- DyStar
- Soko Chimica

These partnerships set new benchmarks for traceable and environmentally responsible denim production—ensuring that sustainable practices move beyond brand storytelling and into the foundational processes that define textile manufacturing.

"Denim is at the center of cultural and economic storytelling in fashion," says Daniel Rüfenacht, CEO of bluesign. "By partnering with mills, laundries, and brands who are committed to clean chemistry and transparency, we are transforming the category from the inside out."

Luxury Supply Chain Shift: Everest & LIM Group

Two of Europe's most advanced denim laundries—Everest Textile Technologies and LIM Group—joined the bluesign® SYSTEM in 2024. Serving iconic brands like Chanel, Louis Vuitton, Gucci, Balenciaga, and AMIRI, these laundries now offer bluesign® APPROVED washes, establishing a new level of accountability in denim finishing, traceability, and water stewardship.

From Italy to the USA: Denim Brands Dondup & Madewell Create Consumer Impact

In Italy, denim leader Dondup—under CEO Matteo Anchisi—became a bluesign® system partner, aligning its premium Italian-made legacy with modern environmental responsibility. Meanwhile, Madewell's move into the bluesign® system marks a major step for U.S. retailers responding to the American consumer's growing demand for clean and transparent supply chains.

Looking Ahead: A Blueprint for Industry-Wide Change

The bluesign® Denim Initiative offers partners a proven path to implementing best-in-class environmental and chemical standards through hands-on facility assessments and customized systems integration.

With each new partner, the ripple effect expands—encouraging upstream and downstream players, from dyehouses to raw material suppliers, to follow suit. The result: a resilient, transparent, and traceable global denim ecosystem powered by innovation, responsibility, and science.

"This is how change happens," adds Rüfenacht."One partner at a time - until sustainable practices are not just adopted, but expected."

About Nishat Mills Limited

Nishat is one of Pakistan's largest and most respected textile manufacturers, known for its fully vertically integrated operations—from spinning to garment manufacturing and global distribution. This end-to-end control ensures consistent quality, innovation and speed. With a strong global presence

including offices in Denmark, Turkey, Bangladesh and the USA, Nishat Mills is strategically positioned to deliver faster lead times and responsive service across international markets. Driven by a mission to craft smart, sustainable fabric solutions, Nishat Mills offers a vast portfolio across fashion, workwear and performance textiles. Its dedication to innovation was recently recognized on a global scale with the prestigious Lycra Most Innovative Fabric Award. With a solid foundation and a forward-looking approach, Nishat Mills continues to lead the future of textiles—locally and globally.

Nishat Mills: Powering Progress Through Integrated Excellence. www.nishatmillsltd.com

About bluesign

bluesign helps the textile industry reduce its impact on people and the planet. Through a structured system for sustainable chemical management and responsible manufacturing, we empower brands, manufacturers, and chemical suppliers to create safer, more responsible products. By eliminating harmful substances at the start of production, we ensure textiles & accessories meet the highest safety and environmental standards. Since 2000, over 850 industry leaders have partnered with Bluesign to drive meaningful change. Bluesign is part of SGS, the world's leading testing, inspection, and certification company.

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India believes its market share to be double from 6% to 12% in the UK's RMG imports: CareEdge Ratings

Says India-UK FTA will be a game changer for India's RMG sector opening for it nearly US$20 billion RMG market of the UK

According to CareEdge Ratings, India is expected to double its market share from 6% in CY24 to 12% in the UK's RMG imports, translating into an incremental annual export opportunity of around US$1.1-1.2 billion in the near to medium term.

The UK is among the top five RMG markets, with imports of around US$20 billion in CY24 (compared to US$24 billion in CY22).Currently, India holds a 6% market share in the UK's RMG imports, while Bangladesh, Turkey, Cambodia, Vietnam, and Italy enjoy duty-free access, giving them a 12% tariff advantage over India. The India-UK FTA is a game changer for India's RMG sector, creating a level playing field vis-à-vis key competing nations for accessing the nearly US$20 billion RMG market of the UK.

Akshay Morbiya, Assistant Director at CareEdge Ratings said, "Recovery in demand for RMG in the UK market, gain in market share from competing nations backed by increased competitiveness of Indian RMG exporters post duty removal and favourable policy regime in India are expected to create the incremental annual export opportunity of around US$1.1-1.2 billion in the near to medium term. India's major dependency on cotton-based textiles as against the relatively higher share of man-made fibres in the global RMG market may restrict the overall opportunities from the India-UK FTA to an extent."

Despite the applicability of a 12% tariff, India had gradually gained market share in the UK market over the past four years, while China had lost some ground during the same period. With the signing of the FTA with the UK, India now has a clear 12% duty advantage over China, the largest RMG exporter to the UK, with exports of US$5 billion in CY24. China has lost its market share in the past few years, and it is expected to continue losing its share in the UK's RMG market due to its declining competitiveness, backed by rising labour costs and the 'China Plus One' sourcing strategy adopted by global apparel brands and retailers. Socio-political uncertainties in Bangladesh, which exported RMG of around US$4 billion to the UK in CY24, may also lead apparel brands and retailers with a significant presence in Bangladesh to diversify their sourcing, amongst others, to India.

Krunal Modi, Director at CareEdge Ratings said,"With a clear 12% duty advantage over China and prevailing socio-political uncertainties in Bangladesh, which together account for nearly 45% of market share in UK's RMG imports, India is expected to double its share in this market from 6% in CY24 to 12% in the near to medium term. The India-UK FTA holds significant potential to boost investments across the textile value chain, generate employment, particularly for women in the labour-intensive RMG sector and increase foreign exchange earnings."

The RMG industry accounted for a significant share of around US$525 billion in the overall global textile and RMG trade, which stood at approximately

US$900 billion in CY24. Major markets include the European Union (EU), the United States of America (USA), the UK, Japan, Canada, and South Korea, which together accounted for nearly 44% of global imports in CY24.

In CY22, the EU and the USA together accounted for nearly 40% of global RMG imports. However, their combined share declined in CY23 and CY24 due to the inflationary scenario and higher interest rates in these economies, impacting consumer discretionary spending.

Countries such as Bangladesh, Turkey, Cambodia and Italy enjoy duty-free access to the UK market, while Vietnam and Pakistan benefit from duty-free access or a lower tariff rate. Following the Vietnam-UK FTA effective from January 01, 2021, Vietnam's share in UK's RMG imports increased from 2.22% in CY20 to 5.42% in CY24.

"Vietnam has demonstrated significant gains in its share of the UK's RMG market following the FTA with the UK. India's overall RMG exports, which grew by 10% to US$16 billion in FY25, have sufficient headroom to increase RMG exports by another 10-15%, given the available capacities in the sector", added Akshay Morbiya.

Share in the UK's RMG Import (%)					
Countries	**CY 20**	**CY 21**	**CY 22**	**CY 23**	**CY 24**
China	28.11	21.73	25.73	24.34	25.59
Bangladesh	12.21	14.33	18.60	19.57	19.95
Turkey	7.08	8.17	9.20	8.64	7.91
India	4.25	5.19	5.82	6.14	6.09
Cambodia	3.25	2.92	4.66	4.85	5.51
Vietnam	2.22	2.20	4.89	5.03	5.42
Italy	6.56	7.95	4.60	5.25	5.20
Pakistan	3.05	4.40	4.44	4.68	4.81
Sri Lanka	2.07	2.17	2.90	2.68	2.59
Rest of the World (ROTW)	31.20	30.94	19.17	18.82	16.92

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EIM unveils the first global report on the environmental impact of denim finishing

It offers a comprehensive view of the industry, setting new sustainability benchmarks and guiding the transition toward more responsible production.

The findings reveal improvements in resource efficiency while underscoring the urgent need to reduce harmful chemicals and practices that threaten both worker health and the environment.

EIM (Environmental Impact Measuring), the leading global platform for measuring the environmental impact of garment finishing—trusted by the world's top brands and textile production centers—presents the "Innovations and Challenges in Denim Finishing: 2024 Report." This pioneering report provides an analysis based on accurate, objective data from over 115,000 denim finishing processes collected through the EIM platform, setting new benchmarks for sustainability in the industry.

The report reveals that 63% of the analyzed processes are already classified as low environmental impact, reflecting a positive shift toward more responsible practices. However, it also highlights critical challenges, such as the high use of hazardous chemicals (24% of processes), particularly pumice stones and potassium permanganate—practices that urgently require safer and more sustainable alternatives due to their negative effects on both the environment and worker health.

Progress in water consumption management is also considered, as this remains one of the key environmental challenges for the textile sector. The report shows that the current average water usage in denim finishing is 30 liters per garment—still above the recommended benchmark of 22.5 liters per garment. Effective strategies for reducing water consumption include optimizing rinsing processes, selecting fabrics that require less aggressive treatments, and implementing technologies such as ozone, e-flow, and smart foam systems.

Among the proposed improvements are also the adoption of advanced technologies to reduce chemical use and protect worker health, such as the strategic selection of ZDHC-certified chemicals and the automation and digitalization of manual processes.

Begoña García, creator of the EIM platform and co-author of the report, states: "For years, the textile industry has lacked reliable tools to measure its environmental impact, making data-driven decisions difficult. This report marks a crucial step toward transparency and continuous improvement, showing that technology is key to measuring and reducing environmental impact."

CORPORATE NEWS

The report aims to support informed decision-making based on verifiable data, positioning EIM as a global standard essential for transparency and ongoing sustainability improvements in the textile industry.

The full report is available for download and will be updated annually, serving as a vital tool for brands and suppliers to collaborate in reducing their environmental footprint and advancing toward a more responsible and sustainable production model.

EIM: The global standard for measuring impact in textile finishing

Developed in 2009 and globally adopted since 2011, EIM has become the go-to global tool for measuring the environmental and social impact of textile finishing processes. Through this software, a global ecosystem has been built involving over 100 brands and retailers, as well as more than 500 laundries and production centers worldwide—all using EIM to assess and reduce their environmental footprint across the entire supply chain.

EIM has been integrated into the sustainability strategies of companies across the market spectrum—from denim giants like Levi's, Tommy Hilfiger, and Guess, to leading retailers and fashion brands such as H&M, AEO, Primark, C&A, Mango, Jack & Jones, and Springfield, along with major retail groups such as M&S and F&F Tesco. Leading laundries and finishing centers have also adopted the tool, expanding its impact from production to final product.

With nearly one million processes analyzed, EIM's reliability is supported by an accreditation program and external validation by independent firm GoBlu International Limited, which rigorously audits systems and processes to ensure data accuracy.

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Kornit Digital and Gooten has integrated with Kornit's Global Fulfillment Network for On-Demand ProducBon

Gooten's leading pla/orm joins Kornit's network, offering their customers global reach, retail quality, and agile on-demand produc?on at every stage of growth

Kornit Digital LTD. (NASDAQ: KRNT) ("Kornit" or the "Company"), a global leader in sustainable, on-demand digital fashion and texGle production technologies, recently announced that Gooten, a leading print-on-demand fulfillment and technology company, has integrated with Kornit's Global Fulfillment Network (GFN). The collaboration further expands brand access to Kornit's unmatched production capabilities at over 250 locations across North America, Europe, Asia, and Latin America, transforming how brands of all sizes manage, scale, and grow their businesses globally.

Through this integration, brands using the Gooten platform can now tap into Kornit's trusted network of on-demand production partners—already utilized by several leading marketplaces and platforms—to deliver high-quality printed textile products with agility, speed, and local fulfillment alongside Gooten's extended product catalog.

"Our partnership with Gooten is another step in expanding access to Kornit's on-demand global infrastructure," said Ronen Samuel, Chief Executive Officer at Kornit Digital. "Gooten joins a growing list of e-commerce and enablement platforms that connect to our network, enabling their customers to deliver quality, speed, and sustainable production at scale—all while maintaining the agility needed to win in today's market."

Key benefits of the solution for brands include:

- **Expertise and Quality at Scale:** Kornit and Gooten combine deep expertise in textile printing, production excellence, and e-commerce connecGvity, providing brands with retail quality across a wide range of products.
- **Global Reach, Local Production:** Gooten users gain access to Kornit's 250+ production locations worldwide—delivering consistent quality with fast, local fulfillment.
- **Simple, Seamless Connectivity:** Integration between platforms means brands can onboard in just minutes, accessing a combined global catalog backed by expert guidance to activate on-demand operations without needing to manage complex logisGcs.
- **Sustainable Growth:** As long-standing, sustainability-driven companies, Kornit and Gooten are empowering brands to embrace a more responsible on-demand production model that reduces waste and inventory risks while meeGng demand.
- **Increased Revenues:** Enabling brands to unlock new apparel revenue streams, expand into new markets, and leverage Kornit's exceptional production capacity to fuel growth at every stage of their business.

"Kornit has always been a leader in the print-on-demand industry, and it's an honor to collaborate with their team to provide a unique solution to global e-commerce brands," said Maddy Alcala, President of Gooten. "By partnering with Kornit, the Gooten catalog, and global production reach expands significantly — empowering brands to create and sell anywhere backed by a single plaUorm that delivers at scale"

This announcement reflects Kornit's continued commitment to powering the digital transformation of fashion and lifestyle products, providing the world's most reliable, agile, and sustainable fulfillment infrastructure to partners, plaUorms, and brands around the globe.

"Consumer expectaGons on choice, quality, and delivery Gmes have never been greater; Kornit satisfies these needs by expediting the delivery of printed textiles and apparel with consistent quality from the most optimal local production facility in our Global Fulfillment Network," said Chris Govier, Executive Vice President Strategic Growth and Marketing at Kornit Digital. "This agreement allows the brands on the Gooten platform to accelerate their time to market with zero inventory costs, that's a huge win for brands, no maaer what their growth stage."

About Kornit Digital

Kornit Digital (NASDAQ: KRNT) is a worldwide market leader in sustainable, on-demand, digital fashion, and textile production technologies. The company offers end-to-end solutions including digital printing systems, inks, consumables, socware, and fulfillment services through its global fulfillment network. 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 the world of fashion and texGles, visit www.kornit.com.

About Gooten

Gooten is a leading provider of order management socware and fulfillment services, specialized in print on-demand production. The company helps businesses streamline vendor and order management, enabling profitable and risk-free growth through an on-demand manufacturing model. Headquartered in New York, Gooten was founded in 2015 and has 83 employees across 17 countries. To learn more about Gooten's collaboraGon with Kornit, visit www.gooten.com/kornit.

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Italian Textile Machinery: Orders continue to decline in first quarter 2025

In the first quarter of 2025, orders for textile machinery recorded by ACIMIT, the Association of Italian Textile Machinery Manufacturers, showed a sharp decline compared to the same period in 2024, down 29%. The index stood at 41.8 points (base year 2021=100).

The negative result reflects both a significant contraction in the domestic market and a pronounced slowdown abroad. In Italy, orders dropped by 57%, while foreign orders fell by 25%. The index for foreign markets stood at 43.3 points, while the domestic figure dropped to 30.5 points. The order backlog at the end of the quarter ensured 3.6 months of production.

The downturn also continues when compared to the previous quarter (October-December 2024), with overall orders decreasing by 15%.

Marco Salvadé, President of ACIMIT, commented: "The sector started 2025 on an even weaker footing than it ended 2024. On international markets, the deep uncertainty triggered by last year's geopolitical tensions has been further worsened by the tariff decisions implemented by the Trump administration. In the US, orders remain at a standstill as the market awaits the next steps from the President. Some glimmers of hope come from the estimates of global export data for textile machinery in the first quarter: China, India, and Pakistan—key markets for technology suppliers—show signs of recovery compared to the same period in 2024."

In Italy, the situation is even more critical, with the orders index at its lowest level, even surpassing the slump of 2020. "We need to look beyond 2025 and call on the Government to implement targeted, structural incentives for investments in capital goods, with simple procedures that allow companies to access them quickly", Salvadé noted

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ITMA ASIA + CITME Singapore 2025

28-31 October 2025, Singapore Expo

The Race for Premium Recycled Yarns is On

As the textile industry faces rising labour, energy, and raw material costs, forwardthinking yarn spinners are turning to advanced technology to maintain their competitive edge. With sustainability becoming an increasingly vital focus, the demand for fabrics containing recycled content is set to rise. For Asia's advanced spinning mills, this shift represents a significant opportunity to produce high-quality yarns with a higher percentage of recycled content, positioning them to meet the growing demand for sustainable textiles.

As leading machinery manufacturers in yarn spinning and winding prepare to showcase their technologies at ITMA ASIA + CITME, Singapore 2025 this October, the industry is gearing up for a transformation towards more sustainable yarn production. The latest blog article will give you a glimpse of the cutting-edge technologies that can help your business stay ahead in this evolving market.

Discover Cost-effective Solutions to Stay Competitive

Visit ITMA ASIA + CITME, Singapore 2025 to grow your business with cutting-edge textile technologies. Explore solutions from energy-efficient machinery to eco-friendly processes to stay competitive in this dynamic industry and compliant with global sustainability standards.

Save 50% when you register your visitor badge today. Preferential rates are available for members of supporting organisations.

Explore Bugis: Where Traditions Meet Trendiness

Situated within an arts and heritage precinct, Bugis offers a unique blend of historical charm and modern innovation, making it a key cultural and lifestyle hub in the city. A short MRT ride from Singapore Expo, the area is known for its trendy shopping malls, diverse F&B outlets, and charming heritage buildings. Explore an interesting range of accommodation options in Bugis.

Collaboration is the cornerstone of innovation in the dynamic textile and garment industry. We invite trade associations, influential media organisations, and trusted overseas travel agents to join us as supporting partners and enjoy special privileges including preferential visitor badge rates.

Book Accommodation

Take advantage of special rates and convenient shuttle bus service when you book through our official travel partner Burnaby Solutions.

Plus, enjoy a complimentary private shuttle for your group when you book 10 or more rooms by 31 May.

Fly with Excellence

Participants can enjoy special discounted airfares when flying with our official airline, Singapore Airlines. Experience exceptional service to Singapore from key cities worldwide.

Plan your journey with one of the world's leading airlines.

ITMA ASIA + CITME in 2025 will provide ASEAN companies with access to the latest technologies in garment and textile production. The industry continues to evolve at a rapid pace with technology disruptions, breakthroughs in innovations and the impact of sustainability. Garment and textile industrialists need to keep up and transform when necessary, in order to stay relevant."

Mr Wilson Teo, Immediate Past President, Singapore Fashion Council

For further information, please contact:
info@itma.com ❐

Garment Tech Istanbul

25-28 June 2025

Garment Tech Istanbul Exhibition: A Global event for Buyers and International Visitors

Poised to become a global showcase for the garment and ready-to-wear industry, Garment Tech Istanbul Exhibition is set to bring together leading brands that shape the sector under one roof. With its diversity of exhibitors, high-profile visitor portfolio, and substantial business potential, the exhibition promises a unique experience. It will serve as a pulse-check for the industry's ongoing transformation.

Taking place from June 25–28 at the Istanbul Expo Center (IFM), the Garment Tech Istanbul Exhibition for Garment, Embroidery Machinery, Spare Parts, and Sub-Industry will unite the key players of an industry that holds a significant share in Turkiye's exports. Organized under the motto "Innovative Touch to Fashion", the exhibition will showcase technologies spanning the entire garment production chain—from sewing to cutting, ironing systems to packaging, embroidery to denim.

A Platform for Strategic Partnerships

With its advanced production infrastructure, strong design capabilities, and dynamic workforce, Turkiye's garment industry will step confidently onto the global stage through the Garment Tech Istanbul Exhibition. Bringing together all stakeholders from

across the sector, the exhibition will host existing companies and attract international investors, business partners, and industry professionals.

Garment Tech Istanbul is more than just a product exhibition—it is a platform where new business collaborations will be initiated. Over the course of four days, international investors, manufacturers, suppliers, and brand representatives will engage in face-to-face meetings to establish long-term business connections.

The exhibition offers exhibiting companies the chance to achieve both short-term sales targets and make significant progress in long-term business development strategies. Decision-makers in the business world will invest in innovations, establish new supply chain partnerships, redefine their production strategies, and explore fresh positioning opportunities in regional markets.

Cutting-Edge Machines and Automation at Garment Tech Istanbul

The Garment Tech Istanbul Exhibition will also serve as a stage for innovative machines, automation systems, and sustainable production solutions. Visitors will have the chance to explore the latest advancements in the industry and discover ways to improve operational efficiency. They'll get hands-on with cutting-edge sewing and embroidery machines, digital automation systems, pressing technologies, cutting automation solutions, and eco-friendly sustainable machinery.

These technologies will enhance production efficiency, reduce energy consumption, and help companies meet sustainability standards more easily. Machines equipped with innovative applications such as artificial intelligence, Internet of Things (IoT), and data analytics will introduce industry professionals to not only today's but also tomorrow's manufacturing models. Investors, tech developers, suppliers, manufacturers, and buyers will gain fresh insights that will help steer the direction of the global textile industry.

Istanbul: The Beating Heart of the Garment and Textile Sector

The Garment Tech Istanbul Exhibition also stands out due to its strategic geographic location. As a bridge between Europe and Asia, Istanbul is highly accessible for global visitors. Its modern transportation infrastructure, worldwide air connections, and visa waiver agreements with many countries significantly ease international participation.

Professionals from around the world are already applying online to receive their invitations and join the event to discover the latest technologies and form new business partnerships. Thousands of visitors from over 60 countries—including India, China, Pakistan, Tunisia, Iran, Sierra Leone, Ghana, Germany, Italy, the UK, and Hong Kong—have completed their online registrations. Expected to attract thousands of professional visitors, this event will once again position Istanbul as the epicenter of global garment and ready-to-wear trade.

This vibrant interaction will lead to a better understanding of regional market needs and lay the groundwork for more targeted collaborations. Moreover, participants will enjoy the rich cultural and historical heritage of Istanbul, turning their business trip into a memorable journey. From the stunning Bosphorus view and historic peninsula to world-class cuisine and much more, visitors will complement their professional experience with cultural enrichment.

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GENTEXH 2026

Global Exhibition on Nonwoven & Hygiene Technology

Dates : 11-13 March, 2026

Venue : Saigon Exhibition and Convention Center (SECC), Ho Chi Minh City, Vietnam

Building on the remarkable success of GENTEXH 2025, organisers are excited to invite you to participate in GENTEXH 2026. This premier event offers unparalleled opportunities for exhibitors and delegates in the Nonwoven and Hygiene Technology sectors.

Why Participate?

Exhibitors:

- Showcase your products and innovations to an international audience.
- Connect directly with potential buyers and partners from sectors such as hygiene, medical, automotive, agriculture, and more.
- Strengthen your market position and brand visibility in the rapidly growing nonwoven industry.

Delegates:

- Discover groundbreaking technologies and innovative solutions.
- Network with global industry leaders and decision-makers.
- Gain valuable insights through expert-led conferences and interactive sessions.

TEXTILE EVENTS

GENTEXH 2025 Highlights:

- Over 200 exhibitors from more than 10 countries showcased cutting-edge technologies and products.
- The event attracted a diverse audience, including manufacturers, suppliers, distributors, and end-users.
- Insightful sessions led by industry experts on the latest trends and innovations in nonwoven technology.
- Extensive networking opportunities facilitated meaningful connections across various sectors.

International Participation From

India ■ China ■ Taiwan ■ South Korea ■ Germany ■ Italy ■ Vietnam ■ Thailand ■ Indonesia ■ France

For further information, please contact:
Visit: www.gentexh.com
Email: mktg@gentexh.com
Let's innovate and grow together at GENTEXH 2026! ❐

Bharat Print Expo 2025 held from 24th to 26th April at Bengaluru International Exhibition Centre

Bharat Print Expo 2025: South India's Largest Print Exhibition Leaves a Lasting Impression

An Unforgettable Debut in Bengaluru

Bharat Print Expo 2025, held from 24th to 26th April at the Bengaluru International Exhibition Centre, was not just another industry gathering. It was a spectacular celebration of innovation, technology, and collaboration within the printing and packaging industry. As South India's largest print exhibition, the event surpassed all expectations and marked a significant milestone for the print fraternity in India.

Organised by the All India Federation of Master Printers (AIFMP), in association with ReEnvision Events Private Limited, and co-organised by the Karnataka State Printers Association (KSPA), this inaugural edition set a powerful tone for future editions to come.

A Grand Inaugural Moment

The opening ceremony was held on the morning of Day 1 with the traditional lighting of the lamp, signifying the beginning of a promising and visionary chapter in print exhibitions. The inaugural was graced by an esteemed gathering of dignitaries including Shri M.G. Balakrishna, President of FKCCI, who served as the Chief Guest; Satish Malhotra, President of AIFMP & Chairman of Bharat Print Expo; Mahesh Kumar, GC Member of AIFMP; K. Rajendran Hon. General Secretary, AIFMP; Raghabendra N Dutta Baruah, Imm. Past President of AIFMP; Ashok Kumar, President of KSPA; Ravindra Reddy, President of TOPA; Balasaheb Ambedkar, President, MMP; Vinod Rajpal, Director of Zhongke India; Anil Arora, Director of ReEnvision Events Private. Limited.; Tushar Dhote, Co-chairman of Bharat Print Expo.

The show floor came alive immediately after the inauguration, drawing an unprecedented footfall and generating a surge of onsite business engagements. Bharat print Expo 2025 poised as a powerful business engine, a celebration of technological excellence, and a reflection of the strength and unity of the Indian print community.

"Such a show was much needed in Bengaluru. Bharat Print Expo has brought the right energy, the right opportunities, and the right momentum to the region's print industry." Shri M.G. Balakrishna, President of FKCCI, aptly expressed.

A Celebration of Industry, Innovation, and Inspiration

With an overwhelming response from both exhibitors and visitors, Bharat Print Expo 2025 turned into a hotspot of business opportunities, networking, and knowledge-sharing. Spanning three action-packed days, the show attracted thousands of professionals from across the country and beyond. The event showcased cutting-edge printing and package converting solutions, from digital and offset printers to automation tools and post-press technology.

Beyond the buzz and the brilliant displays, Bharat Print Expo 2025 proved to be a commercial success for many participants. Renowned exhibitors such as Ashwin Enterprises, Autoprint, Robus, RS Marketing, Zhongke, Ambica, Bindwell, Megabound and Shreeji Corporation reported exceptional traction and high-quality business leads throughout the three-day event. Their booths remained abuzz with engaged buyers, industry professionals, and decision-makers, many of whom arrived with intent—and left with signed deals. From spontaneous inquiries to serious negotiations, the exhibition floor witnessed meaningful business conversions that reinforced Bharat Print Expo's stature as a high-impact trade platform. For these brands, it wasn't just about visibility—it was about profitability and forging future-ready partnerships.

"This expo has set a new benchmark for South India. It's remarkable to witness the enthusiasm, technological progress, and thriving business opportunities," said Satish Malhotra, President of AIFMP.

Exhibitors' Comments

"It's unbelievable that this was just the inaugural edition of Bharat Print Expo. The energy, the response, and the scale have been phenomenal. I see even greater potential for the editions to come."

➤ **Mr. Sunil Kumar, Canon**

"We are truly delighted to be exhibiting at Bharat Print Expo. The footfall has been impressive, and the quality of visitors is exceptional — it's been a fantastic platform to connect with serious buyers and industry professionals."

➤ **Ms. Pooja Rajpal, Zhongke India**

"Bharat Print Expo has been a game-changer for us! The response has been phenomenal — with strong footfall and a stream of new customers, this platform has exceeded our expectations,"

➤ **Shivnandan Singh, Webtech International Machineries**

"We were looking for a platform like this in Bengaluru— and Bharat Print Expo delivered! From cutting-edge print technologies to insightful conversations with industry experts, it's been an experience worth every moment."

➤ **Anup Verma, Sona Fine Papers.**

"Bengaluru has always been a special market for us. We had been looking for a platform like this for a long time, and Bharat Print Expo finally catered to our needs. We're truly happy to be here."

➤ **Jai Bhanushali, Ashwin Enterprises**

"The quality and volume of footfall during the inaugural session was exceptional — something we rarely witness. We are stunned and delighted to welcome such a huge crowd."

➤ **Srinivasa Reddy, Megabound**

"We hadn't initially planned to attend Bharat Print Expo, but now that we're here, the response has been phenomenal. We've closed multiple deals — over five machines in just a day and a half! From now on, we'll definitely be part of every edition of the show."

➤ **Prem Vishwakarma, Robus India**

"A regional-level show like this was long overdue. Bharat Print Expo has filled that gap perfectly."

➤ **Parmeshwar Patidar, Indas Analytics**

"This is the biggest print expo we've witnessed in Bengaluru so far. It's been an excellent platform for us. We generated valuable leads and were pleasantly surprised to see participation from leading printers, even from remote areas."

➤ **Jitender Rohila, Komori**

"Bengaluru holds a major part of our clientele. We've been waiting for a show like this for a long time, and it's finally here."

➤ **Manoj Sharma, Westland Rubber**

"This is our first time participating in an event in southern India, and the response has been very promising. We're thrilled about the upcoming sessions."

➤ **Debashish Dutta, Alpna Visual Packaging Aids**

Bengaluru witnessed a powerful comeback of printing exhibitions with the grand success of Bharat Print Expo. The event provided us with a wonderful opportunity to reconnect with our valued clients, engage with new enquiries, and explore exciting business opportunities. The expo went far beyond our expectations.

➤ **K.S. Moorthy, Suprabhat Trading Corporation.**

Visitors' Comments:

"Bharat Print Expo surpassed our expectations. The quality of visitors, the range of technology on display, and the opportunities for networking made it a truly rewarding experience. It's encouraging to see such a strong platform emerge for the print industry in South India."

➤ **Saurabh Pal, A2 Machineries**

The expo gave us the opportunity to explore cutting-edge solutions and connect with top brands. It's a must-visit for anyone serious about printing technology."

➤ **Abhishek Rao, Creative Press Hub**

Every aisle at the expo had something new to offer. From tech upgrades to market insights, this was the place to be."

➤ **Nitin Bajaj, ProPrint Services**

"Bharat Print Expo 2025 was a complete experience— from high-level business discussions to detailed product walkthroughs. It served as a bridge between what the industry is today and what it can be tomorrow. I had conversations with innovators, attended launch events, and saw real-time solutions to the challenges we face in our workflow. This is the kind of expo that ignites ideas and fosters long-term collaborations."

➤ **Rajeev Bansal, UltraPack India**

Next Stop: Chennai 2026

As the curtains closed on Bengaluru's blockbuster edition, the excitement carried forward with the announcement of Bharat Print Expo 2026, to be held from 27th to 29th April in Chennai. With lessons learned, enthusiasm heightened, and expectations elevated, the upcoming edition promises to be even more impactful.

"Get ready to witness something even bigger next year," said Anil Arora, Director of ReEnvision Events Private Limited. Chennai 2026 will build on the momentum from Bengaluru and will be expected to deliver an experience that sets new benchmarks for the print industry."

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Combing System

Optimized for Excellence: LMW's Formula Series Cots and Aprons Enhances Spinning Performance at Cheran Spinner Pvt. Ltd.

Cheran Spinner Pvt.Ltd., established in 1991, is a leading exporter of yarn. The mills are committed to supplying quality yarn to its clients. Located at Erode, a major Indian textile center, to cater to a wide range of clients, both domestic and international. Cheran Spinner Pvt.Ltd. has consistently expanded its operations and now boasts an impressive 40,000 spindles. The mill's unwavering commitment to quality and productivity has been significantly strengthened by its long-standing partnership with LMW. By leveraging LMW's Cots and Aprons, Cheran Spinner Pvt.Ltd. has been able to achieve superior yarn realization and enhanced performance, ensuring consistent quality for its customers.

Mr. Ramakrishna Prasad – Director of Cheran Spinner Pvt.Ltd.

"Our association with LMW began in 1991, and ever since, we have faced absolutely no hardships with them. Our relationship has been smooth, supportive, and mutually beneficial. We are very happy with these years of partnership." - Mr. Ramakrishna Prasad – Director, Cheran Spinner Pvt.Ltd.

Strategic Collaboration with LMW: A Path to Excellence

Cheran Spinner Pvt.Ltd. partnered with LMW's state-of-the-art textile machinery to achieve excellence in yarn manufacturing. This collaboration has not only ensured smooth operations but has also driven continuous improvements in efficiency, quality, and sustainability. Today, it produces 30 tons of yarn per day, with the capacity to scale up to 34 tons per day. With 60 airjet looms under Cheran Weaves India Pvt. Ltd., the company has successfully integrated forward into fabric production, further enhancing its market presence.

LMW's Cutting-Edge Technology: Driving Quality and Performance

LMW's extensive range of machinery has empowered the mills to achieve impressive productivity and quality standards. By integrating LMW machines across the entire production process, they ensure consistency and efficiency, reinforcing their position as a preferred supplier to high-end textile manufacturers. The ability to run at high spindle speeds without compromising yarn integrity has given Cheran Spinner Pvt.Ltd. a competitive edge.

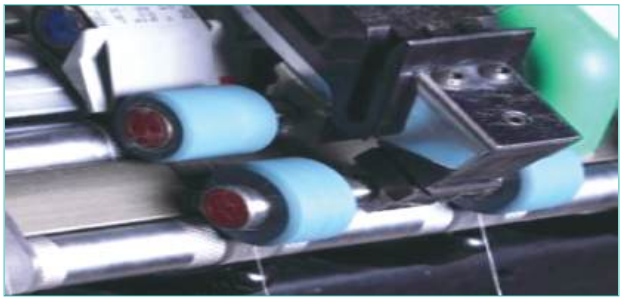
Versatile Production Capabilities

The mill specializes in manufacturing a wide range of cellulose fiber yarns, catering to the growing demand for sustainable and high-quality textiles. They manufacture all types of cellulose fibers such as Viscose, Tencel, Bamboo, Modal, Micro modal, Viscose linen & Viscose Polyester linen.

Department	Model	Plant Configuration
LMW Blowroom	LB7/4 lines	2
LMW Cards	LC361-CDS, C300AV3	12
LMW Draw frames – Breaker	LDB3, LD2	4
LMW Draw frames – Finisher	LDF3S, LDAZ, RSB851	5
LMW Speed frame	LF4200A, LFS1660, F1400A	10
LMW Ring frame	LRJ9AXL, LR9AX, LR6/s, LG5/1	30

Formula Series Cots & Aprons – The Game Changer for Productivity & Quality

Cheran Spinner Pvt.Ltd. have been using LMW Formula Series Cots & Aprons for decades and is achieving best quality at highest productivity levels.



Mr. D. Devaananth – General Manager, Cheran Spinner Pvt. Ltd.

"In Cheran Spinner Pvt. Ltd., our main objective is to produce good quality based on customer requirements and ensure user-friendliness for the end users. With LMW's Ringframe, we can achieve the best GPS, for which we opt for LMW's Formula Series Cots & Aprons."

Optimized for Excellence: LMW's Formula Series Cots and Aprons Enhances Spinning Performance at Cheran Spinner Pvt. Ltd.

With LMW's Cots & Aprons, mills achieve high productivity with minimum yarn breakage level ensuring better yarn quality, Optimized winding cuts and Classimat faults and with no lapping.

The LMW Formula Series, Cots & Aprons are manufactured in-house at an exclusive state-of-the-art facility using the latest technology catering to the needs of every application.

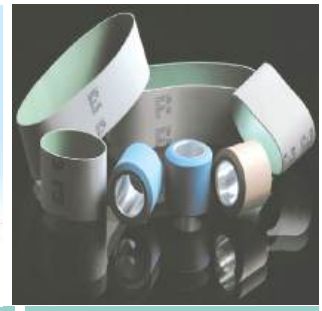
Key benefits of LMW's Formula Series Cots & Aprons

The OEM, Cots & Aprons ensure consistent quality and enhanced performance. The Cots offer superior abrasion resistance and reduced fiber lapping, while the Aprons ensure smooth, hurdle-free running with excellent flex and weather resistance.

Cots and aprons work in tandem to achieve optimal drafting and fiber control, leading to better yarn strength, regularity, and overall quality. The combined effect of cots and aprons also contributes to the efficiency of the spinning process, reducing yarn breakage and improving productivity. They are designed with features like good resilience, compression set properties, anti-static properties, and enhanced surface resistance to optimize performance.

In essence, the cots and aprons are essential for achieving the desired yarn characteristics and overall spinning performance in a mill and LMW's Formula Series Cots & Aprons, have assisted Cheran Spinner Pvt.Ltd. to spin the best quality yarn at the highest productivity levels.

- Good control of yarn
- Less yarn breaks
- Best Antistatic properties
- Good cushioning effect
- Anti lapping
- Superior abrasion resistance
- High resilience
- Longer life



- Good fiber control
- High flex resistence
- Quick adoptability to climatic conditions
- Very low friction
- Smooth running
- No apron buckling
- Hurdle free running
- Excellent wear resistence

After-Sales Support:

"LMW's commitment to customer satisfaction extends beyond machinery supply. Their dedicated after-sales service has been instrumental in ensuring uninterrupted operations at Cheran Spinner Pvt.Ltd. Their service is exceptional & they are just a call away. Within a day, their team is here to resolve any issues," - Mr. Ramakrishna Prasad.

This proactive support minimizes downtime and ensures that production remains seamless, reinforcing Cheran Spinner Pvt.Ltd.' trust in LMW.

Conclusion - Partnership for the Future

The partnership between Cheran SpinnerPvt.Ltd. and LMW is a testament to how the right technological investments can drive success in the textile industry. LMW's innovative machinery, with exceptional service and support, has empowered the mills to optimize their operations, maintain high-quality standards, and achieve sustainable growth.

As Cheran Spinner Pvt.Ltd. continues to expand and evolve, its collaboration with LMW remains a cornerstone of its success. This long-standing relationship exemplifies how trust, innovation, and excellence can create a thriving textile enterprise, setting performance for the industry.

Scan here to visit our website

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Email: info@lmwtmd.com
Website: http://www.lmwtmd.com/

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Oerlikon

Barmag at the Domotex Middle East

Emphasize on sustainability at the trade fair

Barmag, a subsidiary of the Swiss Oerlikon Group, is presenting comprehensive total solutions for efficient carpet yarn production for its Oerlikon Barmag and Oerlikon Neumag product brands at Domotex Middle East. At the representative stand of ATAG Ltd. Trading Export & Import (Z5-A20), trade visitors to the leading event for the carpet and flooring industry in the Middle East will have the opportunity to get an idea of the integrated solutions offered by the manmade fiber technology provider.

The trade fair presentation will also focus on the topic of sustainability. Together with partners such as Oerlikon Barmag Huitong Engineering (OBHE) and BB Engineering (BBE), Barmag will be presenting concepts for mechanical and chemical bottle recycling as well as for textiles, biopolymers and the circular economy. In addition, the company has been offering innovative solutions for the textile industry with the e-save sustainability label for decades, setting standards for a more environmentally friendly future.

The BCF S8 system from Barmag's product brand Oerlikon Neumag offers high productivity and expands the product portfolio to a level that can survive in a constantly changing market.

Recycling - technologies for a sustainable future

The Homogenizer from OBHE enables thermomechanical recycling of polyester waste. Commercially available raw materials such as bottle flakes or post-industrial waste and film waste are processed into high-quality PET products. With an optimized residence time spectrum, the OBHE Homogenizer ensures constant polymerization conditions. This has a targeted effect on the desired increase in viscosity and produces an excellent and homogeneous melt quality. The production of high-quality and defined rPET products with further processing of the melt to POY and FDY in the direct spinning process or for the production of PET chips is thus guaranteed and has already been proven by installed systems on the market. With the Homogenizer, the customer receives a flexible system for thermomechanical recycling of polyester waste.

The VarioFil® R+ compact spinning system from BBE recycles and processes PET bottle granulate, and PET waste produced during start-up directly back into POY. The sustainable machine concept allows a high degree of product flexibility, including the production of spun-dyed yarn. The turnkey spinning line is also ideal for producers who manufacture small batch sizes or specialized products.

BBE's VacuFil PET recycling system convinces with the "From Waste to Value" principle. The system is designed to process textile waste to a high quality. Based on decades of experience in extrusion, filtration and spinning, the patented technology is unique: it combines gentle large-area filtration with targeted IV regulation for consistently excellent rPET melt quality, comparable to virgin material. Numerous input materials can be processed: In addition to the usual bottle flakes, VacuFil is particularly suitable for production waste from the spinning mill, from start-up lumps and yarn to unmixed fabrics, which can also include post-consumer waste. The patented key component Visco+, a liquid-state polycondensation system, quickly and reliably removes volatile impurities and automatically regulates the IV. There are various options for further processing of the treated melt. It can be fed into the main melt stream, processed into chips via pelletizing or flow directly back into the spinning mill. The VacuFil recycling system can therefore be designed modularly and flexibly to meet customer requirements.

Novel bi-component BCF yarn for the carpet market

Quality, efficiency and performance - with its latest development in bicomponent yarns for carpet production, Barmag's product brand Oerlikon Neumag meets the carpet market's demand for new innovative BCF yarns. The new BICO BCF yarn is characterized by a richer and higher volume while significantly reducing raw material consumption in carpet production. "At the exhibition stand, interested parties can see sample

yarns and carpets, find out about the range and have in-depth discussions about the benefits of BICO BCF yarn in various applications," explains Jilali Lakraa, Regional Sales Director at Barmag.

Efficient production of high-titer products in the POY and DTY process with WINGS HD and eAFK Big V

The knowledge of all relevant technologies in manmade fiber spinning enables Barmag to be the only manufacturer worldwide to offer a comprehensive range of services for the production of carpet yarns. The system concept based on a POY and texturing process is designed for a carpet and home textile product sector that requires particularly soft and bulky polyester yarns with BCF-like properties. The aim here is to produce yarns with a maximum count of 1200den and over 1000 filaments. Typical products are, for example, a 1200den f1152 or 600den f1152 as well as 900den f864. The machine concept consists of the well-known WINGS HD POY winder and the eAFK Big V texturing machine.

The eAFK Big V multi-spindle texturing machine is part of the solution of the Barmag product brand Oerlikon Barmag for the production of high-quality, high-titer yarns.

If DTY yarns up to 1200den with up to 1152 filaments are spun together from four POY bobbins 300d/288f on a DTY machine, as was previously standard, the process has a fundamental disadvantage: half of the available winding positions of the texturing machine remain unused. Here, Barmag offers the yarn producer a highly efficient solution: the spinning concept with WINGS HD take-up unit in combination with an automatic eAFK Big V multi-spindle texturing machine is currently the only solution on the market that produces excellent quality high-titer yarns with maximum machine efficiency. With this concept, the 1200den yarns are produced directly from two 600den POY bobbins.

JeTex® Air texturing from BBE enables a broad and flexible product portfolio

The JeTex® air texturing system from BBE perfectly complements the Oerlikon Barmag DTY system and enables the customer's product portfolio to be expanded to include high-quality ATY based on POY and FDY for a wide range of textile applications. The heart of the system is the texturing box developed by BB Engineering. In addition to many other state-of-the-art components from Oerlikon Barmag, it ensures gentle yarn treatment with reliable texturing effects as well as production efficiency in terms of OPEX, handling and speed.

The JeTex® air texturing system is not only available as a complete system, but also as a conversion variant for existing DTY systems from Oerlikon Barmag. This enables customers to expand or convert their product portfolio to ATY at comparatively short notice and at low cost.

VarioFil® - flexible compact spinning system for countless applications

Whether carpets and upholstery fabrics, fashion and sport or seat belts and airbags - a wide range of products is no challenge for the VarioFil® system from BB Engineering. The compact turnkey system is also ideal for producers who manufacture small batch sizes or specialized products. It is similarly flexible when processing different polymers, regardless of whether they are PET, PP, PA 6 and PA 6.6 or PBT. Customized conversion packages allow the system to be quickly adapted to constantly changing market requirements. In combination with Oerlikon texturing machines, a wide range of end products can be covered. This ranges from standard textile yarns to textured yarns with BCF-like properties.

About Barmag

Since 2025, the Swiss Oerlikon Group has continued its manmade fiber business as a subsidiary under the traditional name Barmag. This includes the established product brands Oerlikon Barmag, Oerlikon Neumag and Oerlikon Nonwoven. As a future-oriented company, research and development are focused on energy efficiency and sustainable technologies (e-save).

Barmag is one of the leading suppliers of filament spinning systems for man-made fibers, texturing machines, BCF systems, staple fiber systems and solutions for the production of nonwovens. Together with its range of polycondensation and extrusion systems and their key components, Barmag thus co-Oerlikon vers the entire manufacturing process - from

monomer to textured yarn - and supports it with customer-oriented engineering services. The product portfolio is rounded off by automation and digitalization solutions. In addition, Barmag offers high-precision gear metering pumps for the textile industry and other sectors, including the automotive, chemical and paint industries.

The VacuFil® system from BB Engineering recycles post-consumer and post-production polyester waste.

The main markets for the Barmag product portfolio are in Asia, particularly in China, India, Turkey and the USA. Barmag employs around 2,500 people worldwide and is represented by production, sales and service organizations in 120 countries. In the research and development centers in Remscheid, Neumünster (Germany) and Suzhou (China), highly qualified engineers, technologists and technicians develop innovative and technologically leading products for the world of tomorrow.

Oerlikon (SIX: OERL) is a global leader in surface technologies. Headquartered in Pfäffikon, Switzerland, the Group has over 12,000 employees at 199 locations in 38 countries with sales of CHF 2.4 billion in 2024.

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Mimaki Europe B.V.

Mimaki opens up New UV DTF Technology and Next-Gen UV Inks ahead of Innovation-Packed FESPA 2025

- The UJV300DTF-75 enables product customisation and value-added printing on items of all shapes and sizes, as well assign and interior décor applications
- Mimaki's new ELS-170 and ELH-100 UV inks have been specifically developed to comply with the EU's REACH regulation, helping customers to meet regulatory requirements, while providing durability and flexibility
- Mimaki to kick off its 50th anniversary celebrations at FESPA and invites everyone to 'Print Different' with latest slogan

Mimaki Europe, a leading provider of industrial inkjet printers and cutting plotters, is set to showcase its first UV-DTF (UV curable, direct-to-film) printer, the UJV300DTF-75, at FESPA Global Print Expo 2025. Combining Mimaki's expertise in sustainable, energy-efficient UV technology with its proven DTF textile printing capabilities, this latest entry produces high-quality, customisable prints, ideal for decorating items of all shapes and sizes, including those with uneven or rounded surfaces. The UJV300DTF-75 will be one of many industry-shaping innovations making their debut at the event (Hall 1.2 / Stand B20), as Mimaki kickstarts its 50th anniversary celebrations.

The brand-new UJV300DTF-75 uses a transfer printing method, where the design is printed directly on a glued film, applied to a transfer sheet which is then applied to the object. This further expands application and creative possibilities with reduced risk of misprinting. Equipped with proprietary silicon film pinch rollers, this printer effectively addresses issues such as film peeling off or glue being removed, maintaining print stability for desired quality and accuracy. The printer incorporates Mimaki's core technologies, including automatic nozzle check, nozzle recovery function, ink circulation function and anti-collision sensor, to ensure consistent reliability with minimal user intervention.

Arjen Evertse, Director Sales at Mimaki Europe, comments, "Mimaki led the way with the release of its first DTF printer in 2023, which continues to be incredibly successful within the textile market. Building on this achievement, we are extending the core concept—printing on a film first, then transferring it to surfaces that are challenging to print on directly—to new markets. With the UJV300DTF-75, we have also leveraged our expertise in UV printing to deliver a reliable solution for object decoration, enabling high-quality, durable prints on surfaces that were previously unsuitable for direct UV printing."

Further expanding its expert UV offering, Mimaki is introducing its next generation of UV inks, ELS-170 and ELH-100at FESPA. The range abides by EU's REACH regulation (SVHC regulation) and is GREENGUARD Gold certified, making it both environmentally and health conscious. The UJV300DTF-75 uses a unique combination of the two: ELH-100 (hard ink) for White and Clear, and ELS-170 (flexible ink) for CMYK, ensuring industry-leading durability with both strength and flexibility.

Mimaki's new UV-DTF printer, theUJV300DTF-75, is ideal for product customisation and value-added printing

Mimaki encourages the industry to 'Print Different'

To mark 50 years of introducing transformative technology to the sign graphics, industrial, and textile printing markets, Mimaki is launchingits 'Print Different'vision. The initiative not only celebrates Mimaki's legacy of breakthrough technologies but also highlights the company's continuous commitment to driving creativity and sustainability in the digital printing industry.

In line with this vision, the Mimaki FESPA booth will showcase an impressive display of Mimaki solutions across multiple sectors, many of which will be demonstrated for the first time at an international show. One of these brand-new technologies is the recently launched, direct-to-textile Tx330-1800, with dual capabilities for printing on both fabric and paper. In addition, the JFX600

and CFX Series print-and-cut solution, as well as the CJV200-160, TS330-3200DS, and TRAPIS will showcase the wide-ranging, creative application possibilities enabled by Mimaki technology.

Danna Drion, General Manager Marketing and Product Management at Mimaki Europe, comments, "Mimaki's ethos is one of continuous innovation that combines the need for productivity, performance and improved sustainability. This is why 'Print Different' exemplifies everything Mimaki stands for and provides the perfect backdrop for our 50th anniversary celebrations. It reflects both our pioneering spirit and our ongoing commitment to shaping a more vibrant, sustainable future for digital printing - with our customers at the heart of it."

Combining the capabilities of UV and DTF printing, the prints can be applied on any surface, while maintaining its quality and detail

Mimaki is also shaping the industry's future by supporting Girls Who Print and the FESPA Foundation. Danna Drion continues, "FESPA will be the official event to launch Girls Who Print Europe. This represents a powerful step towards a more inclusive print industry.At Mimaki, we know that true innovation comes from diverse voices, education and supporting communities. This is why we have pledged our commitment to the FESPA Foundation too. Together, these initiatives are empowering change and building a future where different opportunities are open to all."

About Mimaki

Mimaki is a leading manufacturer of wide-format inkjet printers and cutting machines for the sign/graphics, industrial, textile/apparel and 3D markets. Mimaki develops the complete product range for each group; hardware, software and the associated consumable items, such as inks and cutting blades. Mimaki excels in offering innovative, high quality and high reliability products, based upon its aqueous, latex, solvent and UV-curable inkjet technology. In order to meet a wide range of applications in the market, Mimaki pursues the development of advanced on-demand digital printing solutions. Mimaki Engineering Co. Ltd., (President: Kazuaki Ikeda) Nagano (Japan), is publicly listed on the Tokyo Stock Exchange, Inc.

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Jeanologia

At the recent Dhaka International Textile & Garment Machinery Exhibition, the company showcased its integrated ecosystem for eco-efficient production processes

Jeanologia bolsters Bangladesh's leadership in denim production with its global finishing solutions

Jeanologia, a global leader in the development of sustainable technologies for the textile industry, is reinforcing Bangladesh's position as the world's leading denim manufacturer by offering cutting-edge solutions that transform the industry from fabric treatment to garment finishing.

At the recent Dhaka International Textile & Garment Machinery Exhibition (DTG), Jeanologia showcased its integrated ecosystem of technologies designed to drive automation, efficiency, and sustainability across the entire denim production process.

G2 Dynamic: The revolution in fabric finishing

The journey to truly sustainable fashion begins with fabric. Jeanologia's G2 Dynamic technology is revolutionizing fabric treatment and garment finishing by replacing highly polluting conventional processes with an eco-efficient ozone-based alternative. This solution significantly reduces the environmental impact of denim manufacturing by cutting water and chemical consumption by up to 95% and energy use by 80%.

By implementing G2 Dynamic, Bangladesh's textile industry can boost its competitiveness and sustainability, ensuring it remains at the forefront of global denim production.

Automated, digital, and sustainable garment finishing

Beyond fabric treatment, Jeanologia provides advanced garment finishing solutions that integrate automation, digitalization, and sustainability. These include Laser technology,a fully digital and automated system that replaces traditional manual and chemical-intensive processes, increasing precision and creativity while reducing environmental impact; G2 Indra, based on Airwash technology, this eco-efficient solution achieves authentic vintage and aged denim looks without using water or chemicals, reducing environmental impact while maintaining fabric integrity; e-Flow, a nanobubble technology that applies chemicals using minimal water, drastically reducing waste, and improving fabric performance; and H2 Zero,a water recycling system that enables zero discharge in the finishing process, making garment production more sustainable and resource-efficient.

SCIENCE IN INDUSTRY

By combining these solutions, Jeanologia is providing Bangladesh's denim industry with vertical, integrated technologies that enhance efficiency, reduce environmental impact, and secure its position as a leader in sustainable denim production.

"Our goal is to transform the denim industry by offering an end-to-end solution that enables a more responsible, automated, and sustainable production model. Bangladesh plays a key role in this transformation, and our technologies support the country's leadership in the global market," said Jean Pierre Inchauspe, Jeanologia's Business Director in Asia.

Shaping the future of sustainable denim in Bangladesh

With over 20 years of presence in Bangladesh, Jeanologia continues to be a strategic partner for the country's leading manufacturers, supporting them in their transition toward a more eco-efficient and competitive industry. By integrating its fabric-to-garment finishing solutions, the company is accelerating the shift towards a new era of digital and sustainable denim production.

Jeanologia: 30 years leading the transformation of the textile industry

Since its founding, Jeanologia has been on a mission to transform the textile industry into a more ethical, sustainable, and efficient model. The company works closely with brands, retailers, and suppliers on this transformative journey, offering disruptive technologies, innovative software, and a new operational model. Their groundbreaking solutions, including laser technology, G2 ozone, Dancing Box, e-flow, H2Zero, and ColorBox, have redefined garment design and finishing standards, eliminating polluting processes and significantly reducing the use of water, energy, and chemicals. Thanks to these advancements, Jeanologia has saved millions of liters of water and eliminated harmful substances, turning its vision of a truly sustainable textile industry into reality.

In 2025, Jeanologia celebrates its 30th anniversary, marking a legacy of three decades of sustainable innovation. From the introduction of its laser technology in 1999, which revolutionized denim finishing, to its current challenge of implementing a revolutionary sustainable garment dyeing process, the Spanish company has pioneered solutions that not only benefit the environment but also optimize operational costs. Looking ahead, Jeanologia remains committed to creating an eco-efficient and ethical textile future, encouraging all industry stakeholders to join its Mission Zero initiative: dehydrate and detoxify the textile industry. No more water and toxic chemicals used in garment finishing around the world.

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ColorJet

ColorJet exhibited excellence in technology and sustainability at FESPA 2025

ColorJet, the leading force in India's digital inkjet printing landscape, made a bold statement at FESPA 2025, held from 06 to 09th May at Berlin, Germany. unveiling a suite of innovations that push theboundaries of both signage and textile printing. With a spotlight on Innovation and sustainability, ColorJet reaffirmed its commitment to shaping the future of digital print technology.

In the signage segment, ColorJet has presented two of its advanced steadfast solutions:

- Vulcan Hybrid – A versatile, high-performance printer engineered to deliver exceptional output across both roll-to-roll and flatbed applications.
- Verve Mini – A compact yet robust UV flatbed printer, ideal for short-run and on-demand printing on a wide array of rigid substrates.

Marking a significant milestone in eco-conscious digital textile manufacturing, ColorJet introducingits excellence in Technology by launching Earth NXT under its acclaimed Earth Series at FESPA. This next-generationdigital textile is super compact featuring a 10-color configuration and a fully integrated Inline Additive system designed for enhanced convenience and precision.

Earth NXT will set the new benchmarks for sustainability and efficiency in digital printing textile ecosystem. Fashion brands are actively seeking green manufacturing partners to meet their sustainability goals. By adopting the Earth Series, textile businesses can align with leading global brands that prioritize sustainable production practices Enabling-Waterless operation, Reduced energy consumption, Use of environmentally friendly inks.

SCIENCE IN INDUSTRY

This latest innovation redefines what's possible in sustainable textile printing—empowering businesses to meet both environmental regulations and consumer expectations with ease.

"Sustainability is no longer just a regulatory requirement—it is a key driver of business success," said Mr. M S Dadu, Chairman, ColorJet Group. "With Earth NXT, we are enabling our customers to stay ahead of the curve by adopting printing practices that are efficient, cost-effective, and planet-friendly."

As consumers worldwide increasingly demand environmentally responsible products, brands that integrate sustainable practices are enjoying a distinct competitive edge. Color Jet's Earth Series is tailored to help businesses capitalize on this shift—offering scalable, eco-friendly printing solutions that align with global sustainability goals while delivering top-tier results.

ColorJet has extended a warm invitation to industry professionals, partners, and media to experience firsthand the confluence of technology, efficiency, and environmental responsibility at the ColorJet booth.

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Mylon Metallics Pvt. Ltd.

Mylon Metallics Pvt. Ltd. with over 8 years manufacturing Yarn Conditioning Plants in a production range of 200 to 2000 kgs in 3 distinctive models:

1. MYLON YCP CYLINDRICAL WITH AUTOLOADING PLATFORM
2. MYLON YCP CUBICAL WITH AUTOLOADING PLATFORM
3. MYLON YCP CUBICAL FLOOR MOUNTED SERIES – NARROW, STANDARD AND WIDE FORMATS

Have an installation base of 100 machines in the last 5 years and a customer base of over 500 machines for spares and service support. MYLON machines are working at par or better than the existing machines in the market.

History snippets: When FORD & GM were ruling the automobile industry Chrysler came in with new products followed by Japanese car brands in 1970s. It is time for the Chinese EVs to flood the market. Innovation alone will retain us in the market.

Frugal Engineering: Mylon is practicing Frugal engineering offering solutions at fraction of the cost of other suppliers.

Some of the service / support provided to ALL MAKES & MODELS of Yarn Conditioning Machines in India and abroad.

1. Preventive Maintenance Programs

Schedule regular check-ups (monthly/quarterly) to ensure the plant runs smoothly.

Offer AMC (Annual Maintenance Contracts) with priority support and discounted spare parts.

Provide a maintenance checklist and train operators on routine care.

2. Responsive After-Sales Support

Dedicated helpline or WhatsApp business line for quick responses.

Implement a ticketing system to log and track issues from report to resolution.

Quick access to spare parts.

3. Training & Documentation

Provide on-site training after installation, and repeat it every 6–12 months.

Create easy-to-follow manuals, videos, or QR codes on the machine linking to troubleshooting guides.

Offer remote support via video calls for live troubleshooting.

Improve moisture gain, reduce power consumption.

4. Remote Monitoring (if applicable)

If the plant has digital/IoT capabilities, enable remote diagnostics.

Alert users to errors before they become breakdowns — this is a huge trust-builder.

5. Feedback Loop & Relationship Building

Conduct customer feedback surveys 1–2 times a year.

Send service engineers who can not only repair but listen and report pain points.

6. Productivity Optimization Advice

Help customers use the plant better: optimize settings for energy, time, and water usage.

Suggest process improvements based on common issues other clients face.

7. Service Packages or Upgrades

Offer modular upgrades: software updates, energy-saving kits, Energy Vessel etc.

Promote trade-in offers or accessories to keep customers within our ecosystem.

Resurface of YCP Vessel to avoid leakages and extend the service life of the machine.

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Uster Technologies AG

Announcing the all-new Uster AFIS 6 – the indispensable process control instrument

Uster Technologies launches its new fiber process control system

Fiber quality measurement in spinning preparation is crucial for optimizing waste and meeting yarn quality specifications. The brand-new Uster AFIS 6 – the next-generation laboratory instrument from Uster Technologies – uniquely tests man-made fiber properties in addition to cotton. It provides critical data to optimize fiber process control for cotton, man-made fibers, and blended yarns.

Spinners always strive topreserve the quality of valuable incoming fiber throughout the manufacturing process. Uster AFIS 6 achieves this by testing the material at each stage of preparation, from bale to roving.And, in its latest version, AFIS can now measure 100% synthetic fibers and fiber blends commonly used in short-staple spinning, in the same unit as cotton.

Ongoing fiber quality monitoring

Several different fiber characteristics affect quality and performance through pre-spinning operations – opening, cleaning, carding, combing, roving – so testing needs to take account of the impact of each. AFIS (short for Advanced Fiber Information System) achieves this by measuring the various parameters for the length, fineness, maturity, neps, seed coat neps, trash, and dust in a particular test specimen of fiber.

This intensive monitoring is the only way to detect fiber quality issues before they get into the yarn and lead to a quality claim from the customer. Only industry-leading Uster AFIS 6 can deliver these advantages to give mills better overall control of costs, reduced raw material waste and less off-quality yarn.

AFIS 6 also makes things easier for the spinner, applying the same intuitive new user interface as the famous Uster Tester 6 and other Uster yarn testing instruments, featuring 11 languages. The improved reporting package simplifies data analysis.

What spinners need to know

Neps in yarn can be seriously disturbing if they show up in finished fabrics and garments. Uster AFIS 6 makes the important distinction between

fiber neps and seed coat neps – important because seed coat neps are more difficult to remove. In addition to the number of neps, the size of the neps is measured. With the critical neps size report,spinners get an estimate of how many neps are in the yarn.

For the spinning process, it is essential to know about fiber length and short fiber content. AFIS 6 measures the single fiber length, per number and per weight. Next to the length, the maturity and immature fiber count are measured. With its advanced opto-electronic sensorsto measure single fiber quality, AFIS 6 proves it can optimize short staple spinning.

An optional sensor also measures dust and trash particles, which can cause serious problems in subsequent fabric manufacturing processes. Knowing the number of trash and dust particles helps the spinner and results in less downtimein weaving, while knitting needles last longer, and cleaning efficiency in the open-end spinbox is enhanced.

Managing synthetics the same way

Synthetic fibers are growing in importance, so it's essential to measure them. The cut length and fiber fineness are particularly relevant, as both are crucial for the spinning process. Uster AFIS 6 can measurethe synthetic fibers most commonly used in short staple spinning. As well as length and fineness, fiber neps are determined.New test parameters are also introduced, such as cut length and denier. They are critical for incoming raw material inspection and selection.

Short-staple yarns today include more and more cotton/synthetic blends and 100% synthetics. Cotton can be blended with fiberssuch as polyester,micro-polyester, viscose, modal, micro-modal, lyocell, micro-lyocell, and acrylic.

Quality and profitability in control

Carding and combing are the two fiber processes in the spinning mill which most influence yarn quality.The carding process is the heart of every spinning mill. Poor performance here cannot be recovered in subsequent processes.The combing process reduces the short fiber content and is the last removal stage for neps, trash and dust. Only with Uster AFIS 6 measurements canspinners optimize these processes and save money.

Uster AFIS 6 can be connected to Quality Expert, hosted in Uster Tester 6. Full control from fiber to yarnin a single inline system illustrates the entire mill operation, with key quality parameters in the right format at the right time. Mill analyses with meaningful quality comparisons, integrated application knowledge and focused management reports are leveraged for even more profound and informed decision-making.

Last but not least, Uster Statistics is already integrated within AFIS 6, making global benchmark comparisons quick and easy.The new AFIS provides two Uster Statistics interactions: one for the whole process and one for each process step. Comparisons to Uster Statistics throughout the process show any unexpected spinning faults.

SCIENCE IN INDUSTRY

Spinners have it in their own hands! The latest Usterfiber process control systemputs them in control of spinning preparation – andthe end-product's success.

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Mayer & Cie.

Sales begin of Mayer & Cie.'s new machine control system Control 5.0 makes circular knitting machines IoT-ready

The new machine control system Control 5.0 from Mayer & Cie. is now available. It makes the company's circular knitting machines Internet- and knitlink- ready, preparing them for the digital future of textile production. Control 5.0 the prerequisite for accessing knitlink, Mayer & Cie.'s digital platform. The new machine control system is available as an upgrade kit for all machi nes built from 2001 onward. From now on, every newly delivered mechanical circular knitting machine will be equipped with Control 5.0 as standard.

New concept in machine operation

"Control 5.0 marks a milestone in the evolution of circular knitting for the digital age," says Benjamin Mayer, Managing Director of Mayer & Cie. "With Control 5.0, we're guiding our customers step by step into the world of the Industrial Internet of Things (IIoT). That makes our machines not only smarter but also more efficient in the long run."

From Stand-alone to IoT-ready

Since the 1990s, Mayer & Cie. machine control systems have undergone continuous development

— from stand-alone solutions to locally installed data interfaces, and now to Control 5.0, which enables a direct, secure connection to the cloud-based knitlink platform.

Gateway to the knitlink platform

Control 5.0 is the key to accessing knitlink, Mayer & Cie.'s digital platform that currently includes three apps:

- my.monitoring provides real-time machine operating data.
- my.service enables fast and competent remote support.
- my.shop delivers precise search results for "registered machines", e.g., for spare parts.

Another major benefit: updates are now delivered over the air (OTA) — making USB sticks a thing of the past.

SmartControl or ClassicControl — your choice

Control 5.0 consists of an edge device for internet connectivity and a new human -machine interface (HMI). Customers can choose between two interface options:

- SmartControl (standard): Up to four smart knobs — small, rotary displays — on the machine legs allow the knitter to access all relevant machine functions. More in-depth operation is handled via a mobile device — such as a tablet or smartphone — which allows for role-based user permissions for operators and supervisors.
- ClassicControl (optional): All control functions are bundled in one central touchscreen interface located within the machine — in the same position as the previous control unit.

Upgrades for machines built after 2001

Going forward, all new mechanical circular knitting machines from Mayer & Cie. will be equipped with Control 5.0.

For existing customers looking to retrofit their machines to use knitlink, Mayer & Cie. offers upgrade kits for machines built from 2001 onward. Since older models and configurations can vary, the company provides a detailed checklist to clarify individual upgrade requirements in advance.

About Mayer & Cie.

Mayer & Cie. (MCT) is one of the world's leading manufacturers of circular knitting machines. The company offers the full range of machines needed for the production of modern textiles — from fabrics for home textiles, sportswear, nightwear and swimwear, seat covers and underwear to technical textiles. In addition, Mayer & Cie. regularly develops new approaches.

Since 2019, Mayer & Cie.'s service portfolio has been supplemented by the production of braiding machines. They are used to manufacture sheaths for hydraulic hoses, for example for use in aviation, the automotive industry or other special niche applications.

Founded in 1905 Mayer & Cie. has around 350 employees worldwide, including around 300 at

the Albstadt site. In addition to its headquarters in Albstadt, Germany, and its subsidiaries in China and the Czech Republic, Mayer & Cie. is represented in a total of around 80 countries through its sales partners in the field of circular knitting and braiding machines.

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Durak Tekstil

Sewing thread invisible to infrared cameras

Durak Poly-Strong PC-IR perfects camouflage invisibility opening new opportunities including military applications

Durak Poly-Strong PC-IR, developed to eliminate the weakness in the stitching areas of camouflage materials that provide invisibility against infrared rays (IR), offers superior performance and durability. This special technical thread opens the door to new opportunities in several different areas as well as military applications.

Durak Tekstil, a leading manufacturer of industrial sewing and embroidery threads, continues to expand its technical product portfolio. The companyhas achieved successful results with its cut-resistant, conductive and insect repellent threads, and has developed the new Durak Poly-Strong PC-IR sewing thread, which provides infrared (IR) invisibility, especially for camouflage applications in military and security areas. Developed as a solution to the infrared problems experienced by the military and security industry in the sewing areas of clothing and other materials, the new IR thread enables the camouflage feature to be used to its full potential.

Durak Tekstil Board of Directors Vice President Yiğit Duraksaid that camouflage is a technique that allows an object or person to become invisible by blending in with the environment it is in, expressing that more than traditional methods are needed due to developing new technologies. “The infrared (IR) wavelength in the 700-1200 nm range of the electromagnetic spectrum is a spectral area that the human eye cannot see but can be detected by a few sensors. With new technological developments, invisibility against radar and IR sensors is the most important factor for security in the field in military and security applications. The Poly-Strong PC-IRdeveloped by Durak Tekstil stands out among the most innovative and ambitious products in this field. Although camouflage clothing provides IR invisibility, this concealment could not be fully achieved due to both heat differences and surface connection gaps due to the stitching areas. With our new thread, camouflage becomes more perfect and complete invisibility is achieved. In short, no IR camera in the 700-1200 nm wavelength range can detect our Poly-Strong PC-IR, it provides real invisibility,” he disclosed.

Durak stated that users gain a great advantage against IR sensors with special reflection values provided by special prescriptions in the production

process, and emphasized that the dark military green tone of the thread is ideal for sewing military clothing and camouflage products. He noted that Durak Poly-Strong PC-IR sewing thread can also be used for outdoor sports clothing and materials such as tents.

R&D studies for the new thread started upon the request of the Polish army

Yiğit Durakinformed that the first studies on this thread started with a request from the Polish military administration, explaining that an intensive R&D process started for the IR thread after the meetings. He summarized the process of transition from idea to concept, from design to final product as follows; "The demand for IR invisibility has now become a necessity for the military and security industries due to developing technologies. With the R&D study we initiated, we determined the technical features of the thread as well as the special recipes for the production process and achieved successful results in a short time. Our Durak Poly-Strong PC-IR sewing thread, which provides invisibility in the specified IR range, has received approval from accredited laboratories and international independent institutes. We believe that this innovative special thread will be one of our strongest products in the international market".

Durak Poly-Strong PC-IR sewing thread can be used in any application where invisibility is required

Durak Poly-Strong PC-IR sewing thread offers solutions to a lot of different areas, especially the military and security industry. This innovative thread can be used safely in products such as clothing, tents, bags and shoes where complete thermal invisibility is desired. The IR thread, which produces strong and durable seams, currently has a reflectance value in a safer range than the IR reflectance limit values in the military field compared to similar products on the market.

Durak Poly-Strong PC-IR sewing thread, which is offered in different thicknesses according to customer demand as well as its special khaki green color, provides textile manufacturers with new advantages for opening up to new markets and making applications. The threadshows superior resistance to movement and strain, and has internationally valid standards for washing, water, friction, hypochlorite, perspiration and light fastness. Durak Poly-Strong PC-IR also shows high resistance to mineral acids, alkalis, organic solutions and bleaching, meanwhile has the best melting, softening and shrinkage values for stable functionality. This innovative thread, which improves IR invisibility, contributes to the comfort and health of users by not allowing the formation of microorganisms such as fungi and mold as well.

"We believe that this new thread will take us to a different point," said Yiğit Durak, emphasizing that they aim to expand the markets they address as a company. He concluded his words as follows; "We want to have more markets in military equipment production, as in the footwear and bed industry. Our wide product portfolio distinguishes us as a manufacturer that addresses different segments. Developing the production of our Durak Poly-Strong PC-IR sewing thread after the Polish army's request and gaining this international experience makes us stronger. We also think that this product will be an important power for Turkish military equipment/clothing production. In addition, camouflage is not only used for military purposes, it is also used in many different areas such as nature sports, photography and so on. Therefore, Durak Tekstil, as an expert in technical threads, will have a strong share in the market in the coming period with Durak Poly-Strong PC-IR sewing thread."

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