



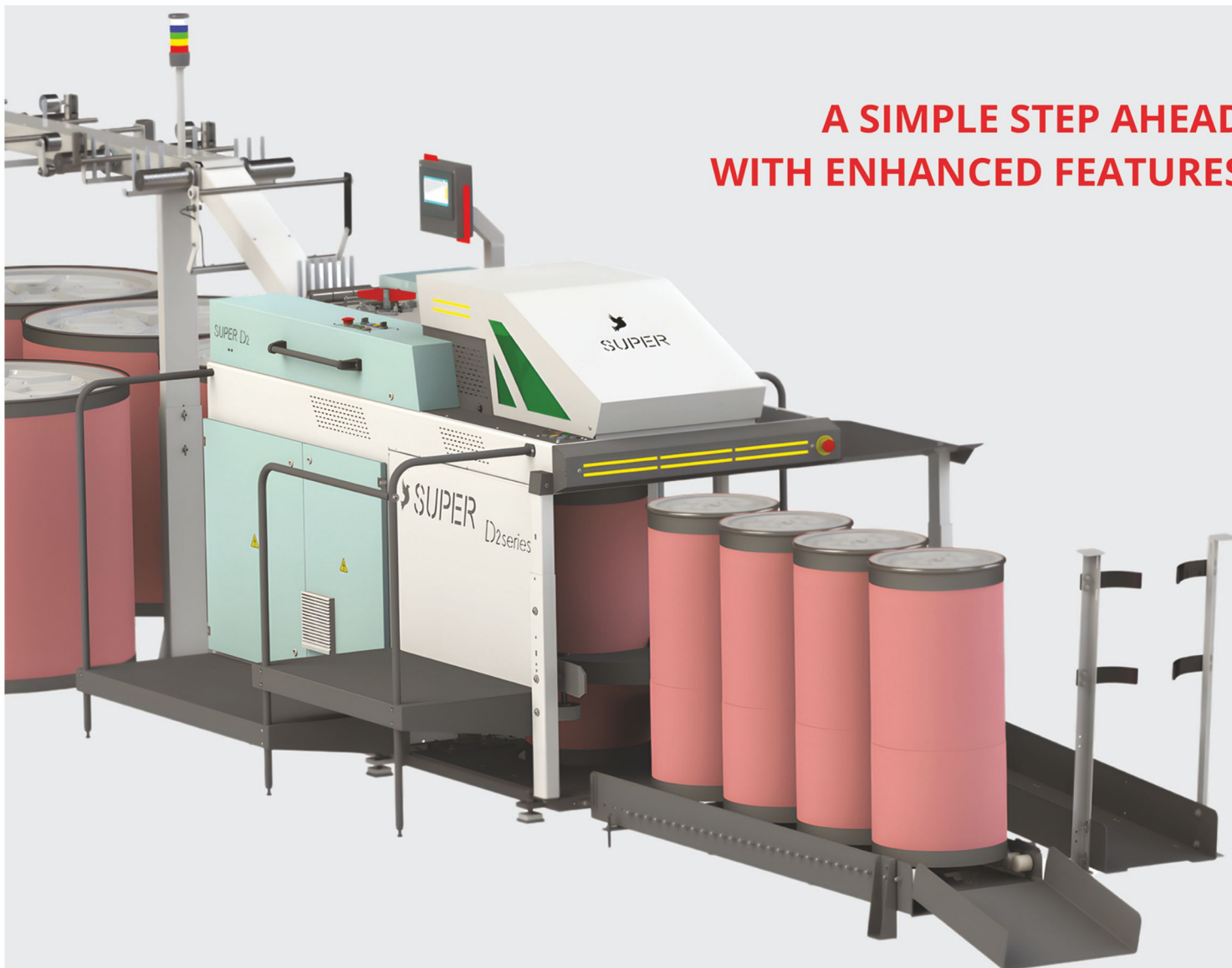
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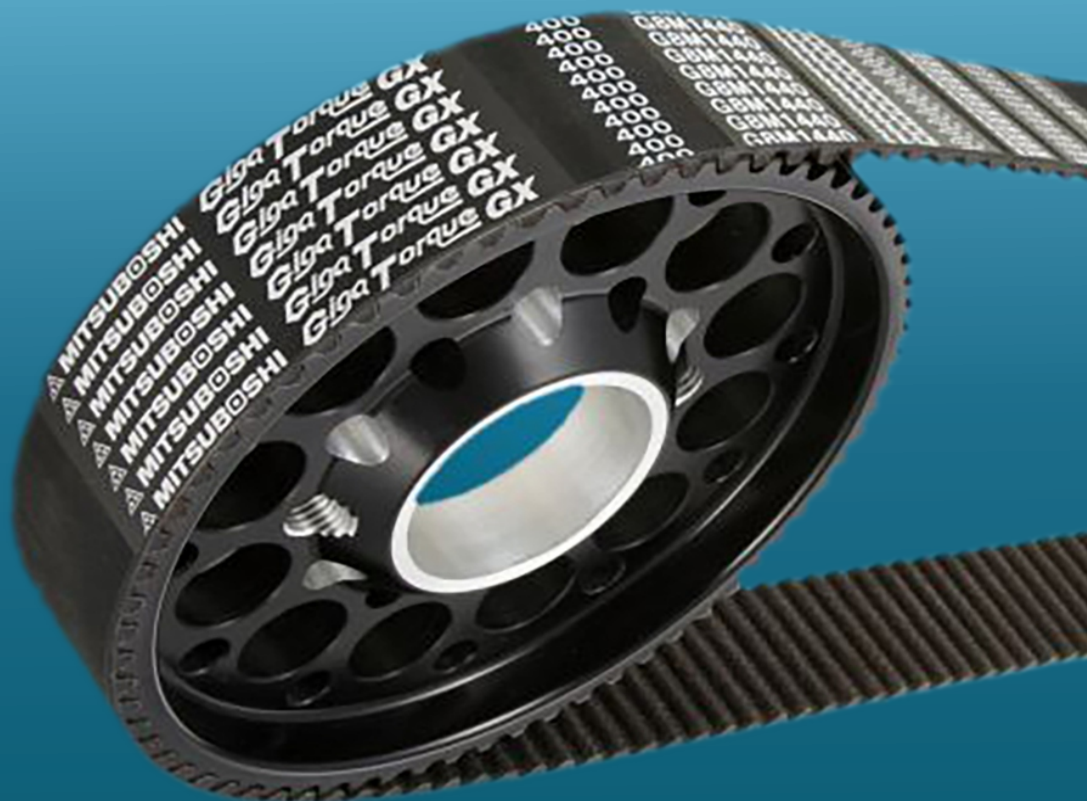
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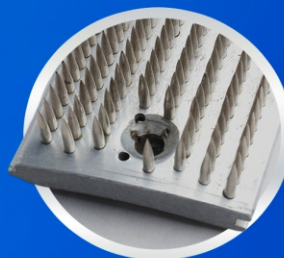
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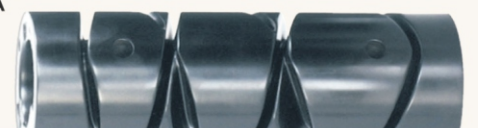
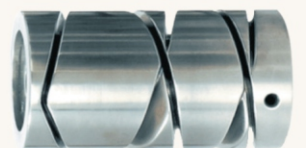
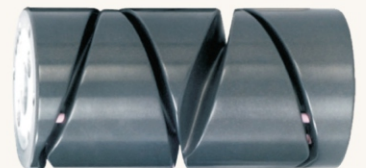
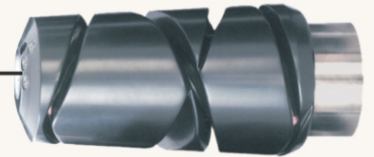
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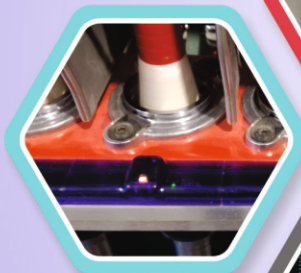
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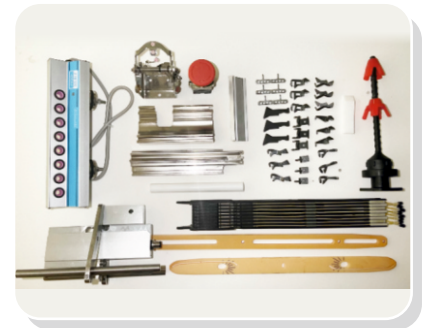
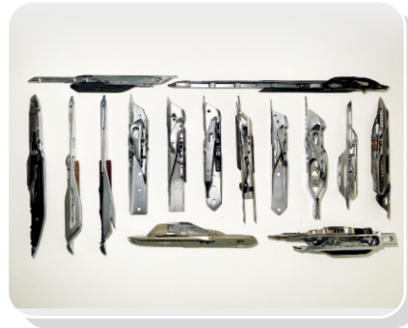
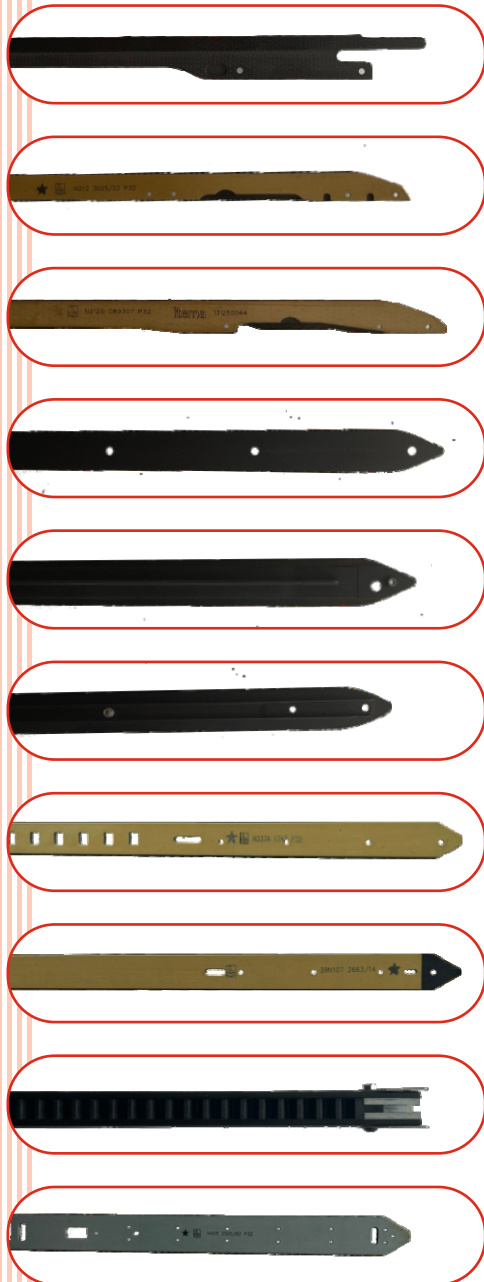
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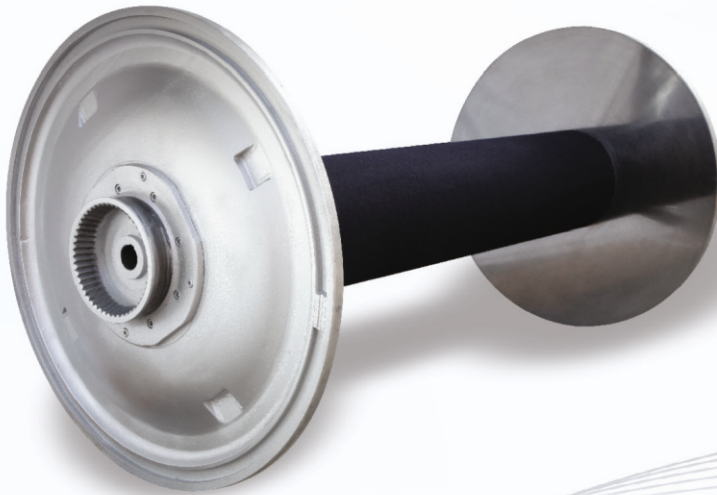
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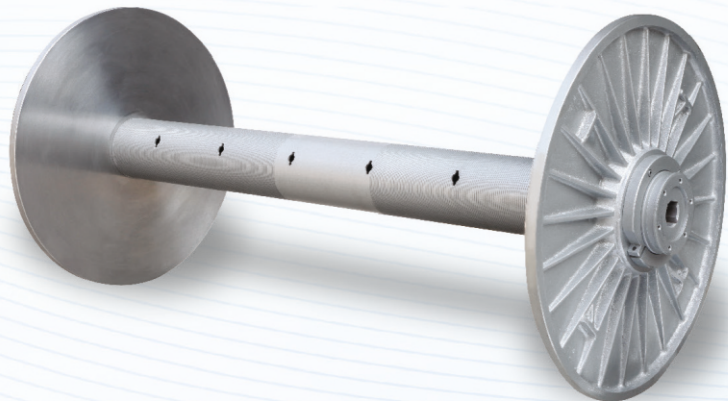
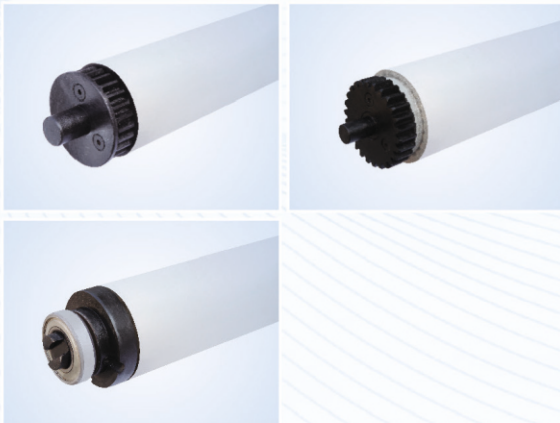
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A	150	3500	> 30 ^s	70 ^s ~100 ^s
B	140	3000	20 ^s ~100 ^s	50 ^s ~80 ^s
C	120	2200	10 ^s ~80 ^s	20 ^s ~60 ^s
CD	100	1600	20 ^s ~100 ^s	30 ^s ~80 ^s
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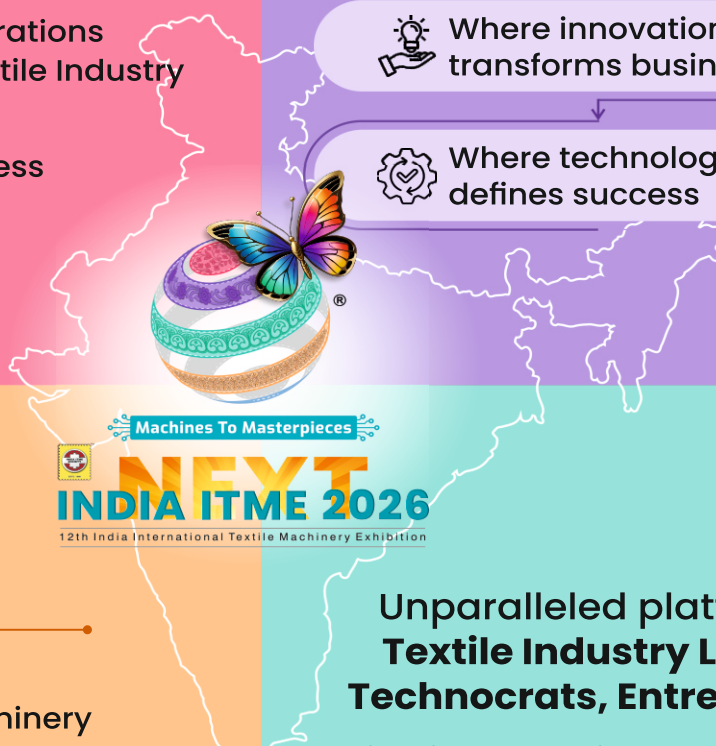
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Heat hits surge-orders of India's textiles

India is currently reaping benefits from global textile trade as the political instability rocks the traditional hubs such as Bangladesh, international buyers turn to Indian textile clusters. But as the garments and apparel factories in Tiruppur and Bengaluru take on this surge they are passing through a thermodynamic crisis for which they don't have budget.

A textile worker in Tamilnadu losses 50% of his capacity on a 40°C at noon and consequently he losses 50% of his day's wages. Between 2001-2020 India lost an estimated 259 billion work hours due to scorching heat in summer. As a result, this loss severely affects the productivity. The productivity is no longer a theoretical risk; it is a mechanical and biological reality crippling India's industrial heartlands. Factory owners in Maharashtra report production capacity is dropping by up to 50% as extreme heat triggers hazardous conditions that jeopardize both man and machine. It also leads frequent breakdown of machines and sudden operational shutdowns.

Global brands impose strict delivery deadlines and heavy financial penalties if delay occurs. Does factory managers fall in dilemma: ignore worker collapse to meet a shipment, or face financial ruin. As orders shift to India due to regional and political instability, hubs such as Tiruppur are being crushed by a 'Thermodynamic Bottleneck' where surge orders collided with record-breaking heat. This creates a regressive tax on the poor, disguised as a weather problem. While global brands insulate themselves by diversifying sourcing—shifting orders to Vietnam or Mexico—local factory owners lack the bargaining power to re-negotiate terms and the burden is pushed downward.

To combat this crisis industrial clusters must adopt mandatory heat-action plans with enforceable temperature thresholds, cooling breaks, and worker health assessments. Banks must incorporate climate risk into loan assessment, and the government must offer concessional credit lines supporting investment in cooling systems, water management, and heat-resilient technologies. The physics of thermoregulation will not bend to profit margin. If heat stress remains invisible in boardrooms, India's workers will pay in lost wages and shortened lives.

WORLD ECONOMY AND TRADE TRENDS

➡ **US consumer inflation grew to record on fuel price surge**

US consumer prices increased by the most in nearly four years in March as the war with Iran led to a record surge in the cost of gasoline and diesel, dealing a blow to President Donald Trump whose approval ratings have been falling because of unhappiness over his handling of the economy. Though the Consumer Price Index report from the Labor Department recently showed an underlying measure of inflation that excludes the volatile food and energy components rising moderately in March. March's data only captured the immediate effects of the oil prices shock. As such, the benign so-called core CPI readings would offer no comfort to officials at the Federal Reserve and did not change economists' expectations that the US central bank would most likely not cut interest rates this year. The report followed in the wake of a sharp rebound in job growth in March, which suggested the labor market remained stable. "The economy has just taken a direct inflation hit as a result of the war in the Middle East," said Christopher Rupkey, chief economist at FWDBONDS. "Every recession since the 70s has been preceded by an energy price shock and if consumers thought there was a cost of living crisis before, get ready, as you haven't seen nothing yet." The Consumer Price Index jumped 0.9% in March, the Labor Department's Bureau of Labor Statistics said, the largest increase since June 2022 when prices soared in response to the Russia-Ukraine war. Consumer prices rose 0.3% in February. A record 21.2% jump in gasoline prices accounted for nearly three quarters of the monthly increase in the CPI. Other motor fuels, which include diesel, soared 30.8%, the largest rise since the government started tracking the series. The US-Israeli war with Iran has sent global crude oil prices surging more than 30%, with the national average retail gasoline price breaking above \$4 a gallon for the first time in more than three years. Though Trump recently announced a two-week ceasefire on the condition that Tehran reopen the Strait of Hormuz, the truce appeared fragile. In the 12 months through March, the CPI advanced 3.3% after

rising 2.4% in February. Economists polled by Reuters had forecast the CPI accelerating 0.9% and increasing 3.3% year-on-year. There are, however, concerns that a prolonged conflict in the Middle East could undercut the labour market, especially if households respond to high prices by pulling back spending. March's surge underscored the affordability challenges facing consumers. Trump romped to victory in the 2024 presidential election promising to lower prices. Food prices were unchanged after rising 0.4% in February. Stocks on Wall Street were trading higher. The dollar fell against a basket of currencies. US Treasury yield rose. □

➡ **China emphasizes on more balanced trade, to open mkt after record surplus**

Chinese Premier Li Qiang pledged recently to further open the country's economy to foreign firms and pursue more balanced trade with its global partners, after a year marked by trade friction and tariff wars with the United States and European Union in particular. China will import more high-quality foreign goods and work with all parties to promote optimised and balanced trade development and expand the global trade pie, Li told the China Development Forum in Beijing, state media said. The annual two-day forum, which conclude of late, allows Beijing to lay out its economic vision and investment opportunities to foreign business leaders, officials, economists and academics. It comes after the world's second-biggest economy reported a record \$1.2 trillion trade surplus for 2025. Challenges for Beijing are aplenty, including deflecting concerns from an increasing number of global capitals about China's trade practices and overcapacity, as well as their overreliance on key Chinese products. While Li's speech did not appear to directly mention the surplus, his pledges indicate an awareness that the issue could disrupt international relations at a time when China has reached a temporary truce with the US on trade. US President Donald Trump recently postponed a trip to Beijing to meet with Chinese President Xi. Jinping due to the Iran war, delaying an effort to ease tensions between two biggest economies.

WORLD ECONOMY AND TRADE TRENDS

China's central bank governor Pan Gongsheng also sought to alleviate concerns surrounding the trade surplus. "Analysing global economic imbalances requires looking not only at trade in goods but also services, and not only at the current account but also the financial account," Pan said, according to a transcript of his speech published by the People's Bank of China, adding that China is the country with the largest goods surplus but also the largest services deficit. China is working to reverse a decline in foreign direct investment, which fell 5.7 per cent year-on-year to just over 92 billion yuan (\$13.36 billion) in January, following a 9.5 per cent drop over the course of 2025. Li said foreign firms would be treated in the same way as domestic ones, allowing enterprises from all countries to develop with confidence and realise their ambitions in China. □

⇒ World Bank warns of a looming job gap

The World Bank has warned of a looming global jobs crisis, with President Ajay Banga flagging a potential shortfall of 800 million jobs in developing countries over the next 10-15 years. Banga said around 1.2 billion people will reach working age in that period, but current trends suggest only about 400 million jobs will be created, leaving a vast employment gap. The warning comes as global finance leaders gather in Washington this week for the spring meetings of the World Bank and the International Monetary Fund, with discussions overshadowed by the ongoing Middle East conflict and its impact on growth and inflation. Despite near term shocks — from the Covid-19 pandemic to the latest war — Banga stressed the need to stay focused on long-term challenges such as job creation, electricity access and clean water. "We have to walk and chew gum at the same time," he said, warning that failure to generate jobs could fuel instability and illegal migration. The World Bank's Development Committee is pushing reforms to improve investment conditions in developing economies, including easing regulatory barriers, strengthening transparency and tackling corruption. Banga highlighted sectors with strong job potential — such as infrastructure, agriculture, healthcare, tourism and manufacturing — and stressed the need to

draw in private investment. He also pointed to emerging global players from developing countries, including Reliance Industries, Mahindra Group and Dangote Group, as signs of growing economic momentum. Alongside jobs expanding access to basic services remains a priority, with efforts underway to provide clean water to one billion more people and electricity to millions of households, particularly in Africa. Banga cautioned that without urgent action, the scale of the employment gap could have severe economic and social consequences worldwide. □

⇒ China's March Exports Stumble, Imports Up 28%

China's export growth slowed sharply in March while imports surged, as seasonal factors added to the fallout of the war in Iran on global energy supply. Exports rose just 2.5% from a year earlier, according to a statement released by the General Administration of Customs recently, falling well short of forecasts after a gain of almost 40% in February. Seasonal distortions linked to the timing of the Lunar New Year, along with the statistical effect of a high base last year, likely exaggerated the slowdown. With purchases of high-tech products such as chips jumping in March, imports surged at the fastest pace since late 2021 and climbed almost 28%. As a result, the trade surplus shrank to \$51 billion, the smallest in more than a year. The data caps off a wild month for global markets and economies, after the US and Israeli attack on Iran and Tehran's retaliation spread upheaval throughout West Asia and beyond. Iran's effective closure of the Strait of Hormuz pushed up the costs of materials from plastics to fibers by disrupting a major transit point for energy flows that accounts for about a fifth of the world's oil and liquefied natural gas. Many consumer facing Chinese factories saw profits squeezed. "A lot of weakness was due to seasonality," said Michelle Lam, Greater China economist from Societe Generale SA. "It would be too early to interpret the data as showing slowing global demand," especially because chip export growth continues to "accelerate strongly" thanks to artificial intelligence, she added. A later-than-usual Lunar New Year holiday in 2026 meant that many factory workers likely

returned to work only in early March. That would reduce the number of working days in the month after adding to them in February compared with 2025. □

➡ **US job growth rebounded sharply by most in 15 months**

US job growth rebounded sharply in March as a strike by healthcare workers ended and temperatures warmed up, but downside risks for the labour market are mounting from a war with Iran that has no clear end in sight. This is the biggest increase in nonfarm payrolls in 15 months reported by the Labor Department in its closely watched employment report recently followed a sharp decline in February. Still, the rebound overstates the labor market's health. The average workweek was shorter in March. While the unemployment rate fell to 4.3% from 4.4% recently, that was because 396,000 people dropped out of the labor force. That more than offset weakness in household employment. Economists said March was too early to capture the fallout from the West Asia conflict, with some expecting that could become evident as soon as April's employment report. "Payrolls boosted by one-time factors; the trend still looks weak," said Samuel Tombs, chief US economist at Pantheon Macroeconomics. Nonfarm payrolls increased by 178,000 jobs in February after a downwardly revised 133,000 drop recently, the labour department said. Economists polled had forecast pay-rolls rising by 60,000 jobs after a previously reported 92,000 decrease recently. Warmer weather boosted construction employment, which increased by 26,000 positions. Transportation and warehousing payrolls increased by 21,000 jobs. Employment in transportation and warehousing is down by 139,000 since reaching a peak recently. □

➡ **Australia, EU sign FTA after 8 years of talks**

Australia and the European Union signed a free trade agreement recently after eight years of negotiations, removing tariffs on almost all goods and potentially easing EU access to Australian critical minerals. However, some Australian agricultural exports, including beef and sheep meat, will face quotas. Australian

farmers criticised the pact for offering what they called "subpar" access to the bloc, while French farmers argued the quotas were too generous. The deal follows intensified talks amid sharply higher US tariffs under the Trump administration and growing Western concerns over China's dominant position in rare earths and other critical minerals. The two sides also signed an agreement to deepen security and defence cooperation. "The EU and Australia may be geographically far apart but we couldn't be closer in terms of how we see the world," European Commission President Ursula von der Leyen said in a statement. "With these dynamic new partnerships on security and defence, as well as trade, we are moving even closer together." The agreement will remove more than 99 per cent of tariffs on EU goods exports to Australia, saving companies 1 billion euros (\$1.2 billion) a year. EU exports to Australia are expected to grow by up to 33 per cent over the next decade. Australian Prime Minister Anthony Albanese said the deal would be worth about A\$10 billion (\$7 billion) annually to the Australian economy. He said scrapping almost all import tariffs on Australian critical minerals entering the EU would help stabilise global supply chains. □

➡ **China drains cash from economy**

China's Central Bank withdrew cash from its financial system for the first time in a year, a cautious signal that keeps its policy options open as higher oil prices filter through the economy. The People's Bank of China drained a total of 890 billion yuan (\$129 billion) worth of liquidity via short-term open market operations in March and soaked up another 250 billion yuan through longer-term tools including outright reverse repurchase agreements and medium-term lending facility. Taken together, commercial banks likely recorded their first net repayment of PBOC loans since last May, according to Bloomberg calculations based on official data. The withdrawal marks an abrupt reversal from months of a buildup in liquidity, when officials steered the world's second-biggest economy through its steepest slowdown since the reopening from Covid lockdowns in late 2022. But with growth rebounding to start the year, the PBOC turned more vigilant. ■

INDIAN ECONOMY AND TRADE TRENDS

➡ Private Sector growth slows to 3.5-yr low in March

India's private sector growth slowed to its weakest pace in more than three-and-a-half years in March as the West Asia conflict dampened demand and output, even as international sales hit a record high, a private survey showed recently. The HSBC Flash India Composite Purchasing Managers' Index fell to 56.5 in March from 58.9 in February and 59.5 a year earlier. The composite PMI combines manufacturing and services indices, with readings above 50 signalling expansion and those below indicating contraction. "Output growth eased across both manufacturing and services as the energy shock unfolds," said Pranjul Bhandari, chief India economist at HSBC. Manufacturing activity weakened more sharply, with the PMI falling to 53.8 in March from 56.9 in February. Market volatility and consumer uncertainty lined to the conflict led to the slowest rise in factory output since August 2021. The services PMI eased to 57.2 from 58.1. Inflationary pressures intensified during the month. Input costs, including oil, energy, food, aluminium, steel and chemicals, rose to a 45-month high, while selling prices increased to a seven-month high. "Cost pressures intensified, but companies are absorbing part of the increase by squeezing margins," said Bhandari. India imports more than 85% of its crude oil, with about half routed through the Strait of Hormuz, exposing it to oil price shocks. □

➡ India-UK FTA likely to come into effect by mid-May

The Comprehensive Economic Partnership Agreement (CETA) between India and the UK is likely to come into force from the second week of May, as the ratification process and completion of other legal requirements have entered the final stage, according to an official. The agreement signed in July 2025, has been vetted by the both houses of UK's Parliament in March. In India, the ratification of FTAs is an executive process requiring only Cabinet approval. Post-ratification and before entry into force other rules and regulations also need to be amended to make the agreement enforceable. These include customs notifications by both sides to update the national tariff schedule

to bring it in line with the commitments in the trade agreements. Along with CETA, the Double Contribution Convention (DCC) will come into force. The DCC will exempt Indian professionals and their employers from social security payments in the UK for up to three years. It will ensure that employees moving between the UK and India, and their employers, will only be liable to pay social security contributions in one country at a time. It will also ensure that employees temporarily working in the other country for up to 3 years will continue paying social security contributions in their home country, preventing the fragmentation of their social security record. The CETA will allow 99% of the Indian exports to enter the UK duty free and cover almost 100% of the trade in value terms. For the UK, India will reduce or eliminate duties on 90% of the tariff lines that account for 92% of the imports. The immediate target for the FTA is to double bilateral trade both goods and services-to \$120 billion by 2030, up from \$56.9 billion in 2024-25. The talks on the agreement began in January 2022 and were concluded on May 6 last year. India has opened its market to a range of UK consumer goods, including chocolates, biscuits and cosmetics, while securing enhanced access for exports such as textiles, footwear, gems and jewellery, sports goods and toys. Tariffs on Scotch whisky will be cut from 150% to 75% immediately, and further reduced to 40% by 2035. Import duties on automobiles will be brought down to 10% over five years from the current levels of up to 110%, under a phased quota system. In return, Indian manufacturers will gain access to the UK market for electric and hybrid vehicles within a quota framework. □

➡ India becomes well destination to attract higher overseas investment

India is performing better than rival Asian economies and is well placed to secure higher overseas investment flows due to its attractive valuations and growth potential, central bank governor Sanjay Malhotra said recently. "Structurally, the Indian economy is very strong, very resilient, very robust... We are doing better than other economies," Reserve Bank of India (RBI) governor Malhotra said at the post-policy press interaction in Mumbai.

To be sure, overseas funds have consistently sold Indian financial assets lately, with FY26 marking the fourth year in the past five in which foreign portfolio investors (FPI) were net sellers in Mumbai-listed securities. Overseas investments have continued, however, into capital assets and new stock listings. The central bank has projected a 6.9% real GDP expansion for FY27, which it believes positions India as one of the fastest-growing major economies despite external headwinds. "The fundamentals of the Indian economy are on a stronger footing at the current juncture than in previous crisis episodes as well as relative to many other economies, providing it with greater resilience to withstand shocks," he said earlier in the day, after announcing the status quo in terms of policy rates. Deputy governor Poonam Gupta said that India's relative attractiveness as an investment destination is going to increase this year because of three factors. "One is that valuations have become more attractive... The exchange rate (which depreciated sharply amid the geopolitical crisis) makes investments into the country more attractive, and a higher nominal GDP growth will help with earnings as well," she said. Between April 2025 and January this year, overseas players announced \$65 billion worth of investment into greenfield projects in India as compared with \$78 billion foreign direct investment during the same period last fiscal. □

⇒ World Bank raises India GDP growth to 6.6%

The World Bank recently raised India's growth estimate for FY27 to 6.6%, up 30 basis points from its earlier estimate, partly aided by free trade agreements (FTA) amidst headwinds from the West Asia crisis. In India, growth is estimated to have accelerated from 7.1% in FY25 to 7.6% in FY26, owing to strong domestic demand and export resilience. Private consumption growth was particularly robust, supported by low inflation and rationalisation of the Goods and Services Tax (GST). "Growth is projected to decelerate to 6.6% in FY27, reflecting headwinds from the Middle East conflict," the Bank said in its South Asia Economic Update. Recently, Moody's Ratings trimmed India's growth outlook for the current fiscal year to 6% from 6.8% estimated earlier, flagging rising risks from the conflict in West

Asia. Although the reduction in GST rates should continue to support consumer demand in the first half of FY27, elevated global energy prices are expected to put upward pressure on prices and constrain households' disposable income, the World Bank said. "Government consumption growth is expected to soften to offset higher subsidy outlays for cooking fuel and fertilisers. Investment growth is likely to moderate amid elevated uncertainty and rising input costs," it said. Improved access to the United States and the European Union for India's exports will be undermined by slower growth in major trading partners, it said. India signed comprehensive FTAs with the United Kingdom in July 2025 and the European Union in January 2026. Under these agreements, more than 95% of exports on both sides will eventually benefit from reduced tariffs. Prior to these agreements, India had FTAs with a lower share of the global economy than the average Emerging Markets and Developing Economies (EMDEs), now it is above average. Furthermore, US tariffs on India were negotiated down from 50% to 18% before being replaced by a 10% tariff imposed on all countries in February. □

⇒ IMF elevates India's FY27 growth estimate to 6.5%

The International Monetary Fund (IMF) recently raised its forecast for India's GDP growth in financial year 2026-27 (FY27) by 10 basis points to 6.5 per cent, from 6.4 per cent projected in its January outlook, expecting the adverse impact of the conflict in West Asia to be outweighed by the reduction in additional US tariffs on Indian goods from 50 per cent to 10 per cent. The marginal upgrade for India assumes significance as the IMF pared its global growth hopes for 2026 to 3.1 per cent from 3.3 per cent estimated this January, with the deleterious impact of West Asia conflict likely to be felt more by emerging markets and developing economies (EMDEs). The Fund expects EMDEs' growth to slip to 3.9 per cent this year from 4.4 per cent last year, and 4.2 per cent projected before the US-Iran conflict. The Fund's FY27 growth projection for India is lower than the Reserve Bank of India (RBI) and Asian Development Bank (ADB) estimates of 6.9 per cent and the World Bank's projection of a 6.6 per cent uptick. ■

From loom to login: Flipkart targets ₹100 cr sale from Santipuri sarees

Flipkart, which has adopted an on-ground initiative for providing institutional support to weavers and sellers of Santipuri heritage sarees, expects total sales of these famed Tant, handloom and Jamdani sarees through its online marketplace to cross ₹100 crore this year.

Santipur, a historical Bengal town, is a centuries-old hub for exquisite handloom sarees, with the rich artistry of intricately hand-woven and feather-light sarees passed down through generations of weavers.

The region represents a strong growth opportunity, with saree weavers and sellers expected to double their overall sales on Flipkart by 2027.

In the same period, the e-commerce giant expects the number of weavers and sellers on its platform to grow to over 1,000 from the current 500.

The e-commerce company has adopted its cluster-based initiative at Santipur in West Bengal's Nadia district, ensuring greater digital onboarding of weavers and sellers, bolstering their market access across the nation and with consumer demand, and widening their income opportunities.

The company began engaging with the Santipur cluster in 2025.

Currently, around 30 per cent of the people actively selling Santipuri sarees on its platform are weavers.

Sales Momentum

"Last year, total cluster sales, including weavers and sellers, reached around ₹70 crore on the platform. Direct weavers made sales of around ₹25 crore, which was a 50 per cent year-on-year growth compared to previous year. Our goal is to cross ₹100 crore this year," Kapil Thirani, Vice-President, Marketplace and Shopsy, Flipkart, told reporters.

Certain regions and towns across India have a strong national reputation for specialised crafts such as Tant, handloom and Jamdani sarees in Shantipur, Banarasi sarees in Mau, brass handicrafts in Moradabad, ceramics in Khurja, Uttar Pradesh, and textiles in Tiruppur, Tamil

Nadu, making them key focus areas for cluster-based initiatives.

"In West Bengal, we have identified that there is a lot of manufacturing happening but many of these people are non-digitised. We have visited a lot of manufacturing houses in Santipur. Here sarees are at the price point that e-commerce sells, and at the range that consumers on e-commerce are looking for. That is where we went ahead and built a team," Thirani said, adding that the team went there are scouted for talented weavers and sellers.

Bridging Digital Gaps

A problem the company faced initially was that weavers were not digitally savvy.

"A lot of them will do as instructed, but they are not figuring it out themselves. How do I start cataloguing? Cataloguing is the first problem. So, we introduced AI-driven cataloguing. It has become very simple now," Thirani added.

Notably, more than 500 active sellers from the Mau cluster, known for its art silk sarees, are selling their products on Flipkart. Building on growing demand and seller participation, this cluster is targeting a fivefold y-o-y growth in sales this year.

Currently, around 1,500 sellers from the Moradabad cluster are actively selling on the marketplace. This cluster is experiencing strong growth momentum, aiming to double sales y-o-y.

Uttar Pradesh's Moradabad is a key manufacturing hub for metal home decor and houseware, including vases, planters, metal wall clocks, showpieces, coffee tables and other metal items. Flipkart said it is transforming the way weavers and artisans in India connect with markets, unlocking new livelihood opportunities beyond traditional local boundaries.

Supply Chain

Through continued investments in logistics, supply chain and on-ground support for sellers, the platform is helping sellers scale their businesses and build sustainable, long-term income opportunities. This is also driving increased demand for heritage products from manufacturing clusters in tier-2 and tier-3 regions. ■

Cotton farmers protest Goyal's U.S. import remarks, warn of price crash

Groups of cotton farmers across the country have protested against Union Commerce Minister Piyush Goyal's recent statement that if India purchases raw cotton from the United States, processes it domestically, makes cloth and exports the finished products back to the U.S., then the country can avail itself of a zero reciprocal tariff—similar to a facility reportedly extended to Bangladesh. Farmers' organisations argue that by taking such a stand, the Centre ignored the interests of domestic cotton cultivators.

My. Goyal had said that the Opposition was misleading the public by claiming Bangladesh had secured greater benefits. 'just as Bangladesh has a facility that if raw material is purchased from America, processed into cloth and exported, it will be available at zero reciprocal tariff, India also has the same facility and will get it,' he said.

Farmers voice concern

Several farmer bodies, particularly those working among cotton farmers, have decided to launch protests. Gurbhej Singh Rohiwala, a district leader of the Bharatiya Kisan (Union) (Ekta-Ugrahan) in Fazilka, Punjab, said the district was once known as the "Manchester of Punjab" for its high-quality cotton.

"Five blocks in this district were known for cotton production. We even had a separate market for cotton procurement. In the last decade, production declined primarily due to poor prices. Now we know the real reason for this neglect. If the government wants to

import cotton from the U.S., what is its plan for cotton farmers in Punjab and other States," he asked.

Palbhai Ambaliam, a farmers' leader from Gujarat echoed similar concerns. "Mr. Goyal is working for big textile companies. What should farmers do if India allows cheap U.S. cotton to be dumped here," Mr. Ambalia asked.

The Samyukt Kisan Morcha (SKM) reiterated its demand for Mr. Goyal's resignation. Importing raw cotton at zero tariffs will devastate the cotton farmers of India by depleting the domestic prices, the SEM said. If calculated as per the M.S. Swaminathan formula, the minimum support price (MSP) for cotton should have been ₹10,075 per quintal, and the MSP fixed was ₹7,710 per quintal. "Cotton imports from the U.S. surged 95.5% from \$199.30 million in January-November 2024 to \$377.90 million in January-November 2025," the SEM said.

The All India Kisan Subha said, "import of U.S. raw cotton will further reduce the already low domestic price, and the crisis ridden cotton fields will witness intensifying indebtedness as well as greater peasant suicides." It stated India's cotton production for 2025-26 is estimated at 29.22 million bales, whereas U.S. production for 2024-25 stood at 14.41 million bales. If Indian farmers are exposed to unrestricted global competition, the likely outcome would be further distress, pushing already crisis-ridden cotton farmers towards abandoning agriculture altogether, the AIKS said. ■

Cotton firms increase prices on strong global demand

Cotton prices have firmed up further, crossing the ₹60,000 mark per candy (356 kg) for the first time this season on strong demand, Domestic prices are following the global futures prices on the ICE, which inched up to trade over 73 cents per pound for July delivery on 10th April., the highest since June 2024.

On 10th April Corporation of India (CCI) increased prices by ₹300 per candy. In the past two weeks, the CCI has increased prices by around ₹ 1,400 per candy and by about ₹4,500 in the past few months.

Meanwhile, global production is forecast up nearly 9,00,000 bales (480 pounds) to 121.9 million as larger crops in China, India and Pakistan more than offset a smaller crop in Argentina, the USDA said.

Also, global consumption is forecast up nearly 6,00,000 bales to 119.1 million as increased demand in China and India more than offset lower demand in Bangladesh and Vietnam.

"The cotton market is strong, However, there's resistance for yarn at higher prices. Hence at these levels,

cotton prices should stabilise as the market has firmed up only due to the uptrend in ICE. Only mills with longer payment terms are buying from traders. As such, the trade is expecting a better crop than earlier expectations," said Ramanuj Das Bood, a sourcing agent in Raichur.

In Raichur, the prices of raw cotton, or kapas, touched ₹9,000 per quintal recently. In some markets, cotton has been hovering above the minimum support price for some time now.

Anand Poppat of Cotyarn Tradelink in Rajkot said the rise in Domestic prices is tracking the futures price trend on the ICE market. From 62-63 cents per pound a couple of months earlier, the prices have moved up to cross 73 cents. Demand from multinationals is also aiding the trend, he said.

Further, Chinese purchase of yarn is supporting the prices. "The 30 CCH (combed capacity hosiery) yarn prices have moved up by ₹55-60 per kg in the past few weeks. From around ₹235, the 30 CCH yarn prices have moved up to ₹295 on Chinese buying" he added. ■

Cotton body revises output estimate to 324 lakh bales

The Cotton Association of India (CAI), the apex trade body for the fibre crop, has marginally revised upwards the crop estimate for the 2025-26 season, ending September, to 324 lakh bales of 170 kg each, from the earlier projection of 320.5 lakh bales.

During the 2024-25 crop year, the pressing estimate was 312.4 lakh bales.

This upward revision of 3.5 lakh bales follows the higher-than-expected production in Maharashtra, after offsetting the declines in Gujarat and Madhya Pradesh.

In Maharashtra, the crop estimate has been revised upwards by 7 lakh bales to 105 lakh bales, up from the earlier estimates of 98 lakh bales, said CAI President Vinay N Kotak and Chairman of the CAI Crop Committee Antul S Ganatra.

During 2024-25, production in Maharashtra was estimated at 91 lakh bales.

The CAI crop committee held a meeting recently to arrive at the new crop estimate for the 2025-26 season.

Around 21 members from all States attended the meeting and gave estimates for their respective States.

However, the crop estimate for Gujarat was reduced by 3 lakh bales to 72 lakh bales, from the

earlier projection of 75 lakh bales. Gujarat produced 77 lakh bales during 2024-25.

Similarly, the crop estimate has been reduced by 0.5 lakh bales in Madhya Pradesh to 17.5 lakh bales. In 2024-25, production in Madhya Pradesh was 10 lakh bales.

In the North Zone, comprising Punjab, Haryana and Rajasthan, the total output has been estimated at 29 lakh bales. In the Central Zone, production during 2025-26 was pegged at 194.50 lakh bales. In the South, output has been estimated at 95 lakh bales. In the Central Zone, production during 2025-26 was pegged at 194.50 lakh bales. In the South, output has been estimated at 95 lakh bales. Till the end of March, a total of 292.74 lakh bales arrived in the market.

Meanwhile, cotton prices have firmed up further, crossing the ₹60,000-mark per candy (356 kg) for the first time this season on strong demand.

Domestic prices are following global futures prices on the ICE, which inched up to over 73 cents per pound for July delivery recently. the highest since June 2024.

On the April the Cotton Corporation of India increased ₹300 per candy, the CCI has raised prices by around 1,400 per candy. ■

Cotton prices pick up as domestic demand rises on weakening rupee

Cotton prices in India have increased further on demand from spinning mills and the trade. Domestic prices are tracking the upward movement in the global price trend, even as the weakening of the rupee against the dollar is making imports expensive.

Recently, the Cotton Corporation of India (CCI), currently the largest stock holder in the country, increased the natural fibre's prices by ₹300 per candy (of 356 kg). Including today's revision, CCI's price list has improved by ₹1,900 a candy since the beginning of March.

CCI Chairman-cum-Managing Director Lalit Gupta told reporters that the upward revision in prices was following the global price trend. There is a good demand for cotton and yarn.

"We have been able to sell 39 lakh bales (of 170 kg each) in March itself out of the total procurement of 1.05 crore bales, which indicates a good demand," he said.

ICE futures up 14%

Cotton futures on the ICE market have gained by over 14 per cent since early March and are hovering above 69 cents per pound for May 2026 delivery and above 71 cents for July delivery.

"The way rupee is depreciating and ICE Futures are going up, cotton price for good quality is likely to up in the coming days," said Atul Ganatra, former President of the Cotton Association of India (CAI).

Ramanuja Das Boob, a sourcing agent in Raichur, said demand is going up as strong dollar and rising global prices are making the imports expensive.

"There is a good demand for cotton from not only the mills, but also the multinational trading firms as they are finding the Indian prices attractive at current levels as rupee weakens further against the dollar," he said.

In the recent weeks, the demand for the Indian cotton yarn has also gone up from countries such as China, Bangladesh and Vietnam amidst the disruption in the global supply chain due to the ongoing war. ■

Ethnic wear brand Ramraj Cotton setting up system and processes with an IPO as a goal by 2030

Ethnic wear brand Ramraj Cotton, widely recognised for popularising the humble *dhoti*, is in the process of setting up systems and processes with an initial public offering (IPO) as a goal by 2030.

"We have already built a large brand, and now it is time to preserve it for future; we are bringing in lot of professional systems and fine tuning our technologies. We are also getting a lot of interest from bankers and investors," KR Nagarajan, Founder & Chairman, Ramraj Cotton, told reporters.

While the entrepreneur does not have a target turnover to go public, he said they would like to be at ₹10,000 crore turnover by the time they go for an IPO, which he feels will be likely by 2030. "We want to promote the brand further, want to take our culture wider and for these we need funds and a larger brand name," he said.

He did not disclose the group's current revenue.

The Founder is supported in the professional management by his two son-in-laws, who have started to put software systems and standard operating procedures (SOPs) in place. The company has also made key appointments of senior executives across technology, human resources, marketing, and operations.

"I consider myself a 'culturepreneur' more than an entrepreneur; ours will be the first time of a 'culture IPO'," said Nagarajan.

Founded in 1983, the brand has transformed the *dhoti* (or *veshti*) from a simple apparel into a symbol of cultural pride. What started out as a small *dhoti* business in Tiruppur, catapulted into a household name in Tamil Nadu. The entrepreneur's motivation, however, came from a desire to help the weaver community and bring a cultural renaissance to the garment sector.

Expansion Plans

Ramraj Group has around 375 stores across Tamil Nadu, Kerala, Karnataka, Andhra, and Telangana. They also have over 15,000 dealers across India.

Ramraj is also training its eyes on North India, where it is currently retailing via dealers.

The Group also has stores in Malaysia, Singapore, and Colombo. Their products are in high demand in the US, UK, and other countries, where they are sold in Indian stores and online. "Demand is not something that is met, but something that is created. We have made sure to create a demand for our culture wherever we go," said Nagarajan. ■

Texprocil rules out USTR claims on Indian cotton textiles

The Cotton Textiles Export Promotion Council—Texprocil—has submitted a representation to the United State Trade Representative (USTR) rejecting claims of excess capacity and forced labour in the Indian cotton textiles sector.

Responding to the Section 301 probes, Texprocil filed a submission on April 15 refuting the inclusion of India's cotton textiles sector in the probes.

Vijay Agarwal, chairman of the Council, said the Indian cotton textile industry was driven by strong domestic demand with a small percentage going toward exports. The industry is largely demand-driven, with more than 80% of the output going to the domestic market. "Any adverse action under Section 301 will be inconsistent with ground realities and can disrupt a mutually-beneficial trade relationship between India and the U.S.," he said.

'Stagnation, decline'

"India is not an export-surplus economy in cotton textiles and the production trends across cotton, yarn,

and fabric segments show stagnation or decline, not expansion indicative of excess capacity," he added.

Vice-chairman of the Council Ravi Sam added the Indian textile ecosystem was highly fragmented with lakhs of micro, small and medium-scale enterprises (MSMEs) involved in production activities. There were several capacity constraints, not excess. Further, the industry was a major buyer of U.S. cotton.

Texprocil's ED Siddhartha Rajagopal said India had a comprehensive and enforceable legal framework, including four modern Labour Codes (2019-2020) governing wages, industrial relations, social security, and working conditions. Combined with corporate governance norms, ESG disclosures, and advanced traceability systems, textile exports were not linked to any form of forced labour.

The Council also submitted mandatory ESG disclosures for top listed companies and supply chain due diligence and traceability systems, including Texprocil's blockchain-enabled platforms such as Kasturi Cotton Bharat and General Certificate of Conformity. ■

Cotton cheers as pricey crude oil drives up MMF prices

With the prices of man-made fibres (MMF), such as polyester, moving up in tandem with crude oil following the ongoing war in West Asia, cotton stakeholders see demand coming back for the natural fibre.

Polyester fibre prices have moved up by 10-25 per cent within days of crude oil moving up.

Taking these developments into account, the Cotton Association of India (CAI) expects consumption of cotton to go up by 10 lakh bales for the current season 2025-26 ending September, compared to the projections made in January.

The prices of MMFs have gone up substantially because of this war, which resulted in higher crude prices. So, many mills which are using MMFs or have converted to MMFs may come back to cotton, said Vinay N Kotak, President, CAI.

Further, the rising international prices of cotton and the weakening of the rupee against the dollar have also made cotton imports costlier, he said.

Cotton futures on the ICE have gained from around 60.65 cents per pound in earlier March to a high of 69.34 last week of March, before easing to the current levels of 67.77. '

Following the firming trend, the Cotton Corporation of India has raised the prices by ₹1,400 per candy (356 kg) over the past few days. CCI increased the prices in three instances of ₹500, ₹700 and ₹200, totalling ₹1,400 per candy during the recent past.

CCI Chairman and Managing Director Lalit Kumar Gupta said the increase in sale price is in line with the global trend and that good demand is coming for cotton. CCI has procured over 104 lakh bales (170 kg) at the minimum support price during the 2025-26 marketing season.

Recently, the demand for Indian cotton yarn has gone up from countries such as China, Bangladesh and Vietnam, with disruption in the global supply chain due to the ongoing war.

Ramanuj Das Boob, a sourcing agent in Raichur, said the prices of MMFs had gone up by ₹10-30 per kg, following the rise in crude prices. Unlike cotton, MMF prices are fully dependent on petrochemicals and are likely to remain volatile. The balance between cotton and MMF will depend on crude stability.

Further, Das Boob said the CCI has been able to sell around 1.5-1.6 lakh bales per day despite the increase in prices. Millers with immediate requirement are buying and that too on a need basis as most do not want to take positions considering the prevailing uncertainty over the war. Also, there is some resistance to buying at higher prices for yarn and cloth, he said.

Cotton has been facing increasing competition from MMF in recent years. According to the International Cotton Advisory Council—World Textile Demand report, cotton's market share in global fibre consumption dropped to below 25 per cent in recent years from nearly 40 per cent in the early 2000s. ■

Textile Body defies USTR Excess Capacity Claims

Industry body TEXPROCIL, has submitted its representation to the Office of the United States Trade Representative (USTR) on Sec 301 Investigations on April 15 in response to the ongoing Section 301 investigations concerning structural excess capacity in manufacturing sectors and alleged failure to prevent importation of goods produced using forced labour. The Ministry of Commerce has already submitted its submission to the USTR on behalf of the concerned industries.

It has rejected claims on excess capacity and forced labour in the Indian cotton textile sector, said Texprocil in a release.

After the US Supreme Court rejected President Trump's tariff on imports, the United States Trade Representative (USTR) launched Section 301 investigations to examine whether countries maintain "structural excess capacity" in manufacturing through subsidies, suppressed wages or other policies that could distort trade. The Section 301 Committee will convene public hearings on April 28, 2026,

in Washington, DC. While refuting the claim of structural excess capacity, the Industry has pointed towards the strong domestic market. "The investigations of structural excess capacity in India's cotton textile sector are entirely misplaced. Our industry is driven by strong domestic demand, with a small percentage towards exports. Any adverse action under Section 301 would be inconsistent with ground realities and could disrupt a mutually beneficial trade relationship between India and the US," said Vijay Agarwal, chairman, TEXPROCIL. "Evidence of structural excess capacity and production exists for India. In 2025, India had a bilateral trade surplus with the United States of \$42 billion. India's global goods trade surplus sectors include textiles, health, construction goods, and automotive goods. For example, evidence suggests the solar module sector is plagued by excess capacity including that India's current module manufacturing is nearly triple the annual domestic demand. India also has created significant excess capacity in petrochemicals, steel, and other industries," the US Federal Government had said. ■

SYNTHESIS AND CHARACTERIZATION OF COIR FIBER REINFORCED PET-POLYMER COMPOSITE USING COASTAL COCONUT HUSK

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Abstract

Now-a-days, meticulous natural fiber reinforced polymer composites with their high modulus, apparently plays imperative roles in production of eco-friendly materials for daily uses. In recent periods, during the entire aspects of life, human dispose a number of polymeric products. Among the basic form of polymers, one of the most common polymers is non-biodegradable Polyethylene Terephthalate (PET) which is used in big scale at many respects vigorously in developing countries. Recently the plastic goods after disposal have become the major pollutant in under developing and developing countries. If the recycled polymer goods can be made attractive for reuse as useful daily products, the environment may get relief from plastic pollutants. On other hand coconut is a native species in Bangladesh with different varieties which contains different mechanical properties. Many studies have been done with coir fiber- PET composite but this is the first time the preparation of coir fiber-PET composite using special type yellow coconut fiber of Bangladeshi coastal areas. The prepared coir fiber-PET composite was tested regarding tensile strength, flexural strength, hardness, impact strength and water absorption parameters and the results determined were that the porosity of the material was influenced by the amount of fiber, and the absorption rate of the composite was increased with increasing fiber composition. Coir fiber-PET composites were incorporated with low density polyethylene terephthalate polymer matrix containing 10%, 15%, 20% and 35%(w/w) of coconut shell powder as filler. The prepared coir-PET composite using coir fiber of yellow coastal coconut husk (local species of Bangladesh) showed improved mechanical properties which has made them suitable of using as eco-friendly materials for household, automobiles, packaging, construction supporting and Geo-bags to protect river banks areas.

Keywords: Polyethylene, reinforcement, polymer, composites, recycling.

1. Introduction

Natural fibers have gained higher attention for their biodegradable eco-friendly nature and reinforcement with thermoplastic polymers is one

of the fastest growing composite matrices at recent time[1]. Growing environmental awareness has also triggered a paradigm shift towards designing materials compatible with the environment. Because of increasing environmental consciousness and legislated requirements, the use and end-of-life removal of traditional composite structures, usually made of carbon, glass, aramid or natural fibers, are becoming more important. Thermoplastics will surpass thermosets in the 21st century because of their recycling possibility and convenience. The after use plastic bags which are thrown elsewhere has become a serious pollutant in the developing countries. Researcher around the world is looking for the matching product of plastic goods which will be cheaper, biodegradable and eco-friendly. Bangladesh is situated at topical coastal areas and coconut is a common native species here. It provides coconut husk which is a biodegradable natural fiber, so called as bio-fiber. Due to the availability of many coconut species, the coir fibers are much available in the Asian region. In this work we decided to prepare coir fiber reinforced with PET composite using special yellow cocoanut husk fiber and exhausting recycled plastic bags. Among all the thermoplastics, polypropylene has attained the largest commercial usage in natural fiber composite market especially in automotive applications. Non-biodegradable plastic bags which are used as packaging and shopping resolution are polymer goods. Because of dependence of packaging almost all marketing goods in polymeric plastic bags are scattered all across Bangladesh after use which are causing harmful environmental threats to the cultivation lands and surface natural water sources and at air part in some extend. Owing to environmental and sustainability issues, last few decades are the witness of significant achievements in green technology in the field of materials science through the introduction of various bio-composite materials. Fiber reinforced polymer composites play ascendant roles in various applications because of their high modulus and meticulous strength and reduced carbon footprint on the environment [2]. Potential applications of coir fiber composites give opportunities for substantial applications in various fields such as low cost housing, consumer goods and other commercial applications where the use of traditional lightweight reinforced plastics are

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restricted [3]. Coconut (*Cocos nucifera*), source of the coco husk, is a big resource of natural fiber almost all around the globe which can support a sizable coir industry by availability of raw materials mainly in Indian sub-continent where Bangladesh is situated. Normally cellulosic fibers are hydrophilic in nature as their main constituent's cellulose and hemicellulose possess strongly polarized hydroxyl groups [4]. This restrict the use of the fibers in industrial applications because of their potential character to absorb moisture from the environment and also their poor interfacial bonding with the hydrophobic polymer matrix [5]. It has been discovered that chemical treatment of fibers helps to recover these drawbacks and promotes effective fiber-matrix bonding [6]. Many methods have been used to improve interfacial adhesion between fiber and plastic, by chemical treatment as using acid/alkali treatment, coupling agents, mild acid treatment, hydrogen peroxide treatment etc. Chemical treatment of fibers is a process of improving the adhesion between the fiber surface and polymer matrix for adequate stress transfer [7]. It exposes a number of reactive groups on the fiber surface, thus facilitates efficient coupling with the matrix [8]. Chemical treatment removes fiber surface impurities providing cleaner and rougher fiber surfaces. Coconut (Coir) fibers are almost an unused material which are thrown after collecting the coconut shell, and can become a useful raw material for useful industrial composite production of divisive usefulness. Surface modifications of hydrophilic natural fibers have achieved some degree of success in making a superior interface, still at the lower cost surface modification needs to be emphasized for bio composites to replace glass fiber composites in many applications. There are many different types of coconut trees containing variations in color, size and husk composition of the fruit. Bangladesh being an Indian sub-continent country belongs to a native coconut producing area which produce different types of coconut plants. Coir fiber reinforced with PET composite materials was made by many researchers for last many years where they described different mechanical properties depending of preparation process, % of Coir-PET composition, used chemicals and purification process. Considering the fact of the difference in mechanical properties of different type coconut husks, we decided to use Bangladeshi coastal yellow coconut to see the difference in Coir- PET composite properties. The result of different mechanical properties (tensile strength, flexural strength, impact strength and load

bearing capacity) of the prepared coir fiber-PET composite with special type yellow coconut husks have been observed improvement.

1.1 Coir fibers (a bio-fiber)

Coir is a versatile natural fiber extracted from monocarp tissue, or husk of the coconut fruit. Generally, coconut fiber is of deep brown or golden color when cleaned after removing from coconut husk (Figure-1). Coir is the fibrous husk of the coconut shell as well as biodegradable so the coir fiber can be categorized as bio-fiber.

1.2. Chemical composition

Coir fibers are about same as other natural fibers as Jute, Cotton, composed mainly by lignin, hemicellulose and cellulose. The average chemical composition of coir fibers ranges from 32– 50% cellulose, 0.15–15% hemicellulose, 30–46% Lignin and about 3–4% pectin (Table-1). This enhances the fact that cellulose and lignin are the largest constituents of any plant fibers [9]. The differences in coir fiber properties may be attributed to the source of the coconut plant types or the method of extraction process [10]. The constituents of coir fiber are cellulose, hemicellulose and lignin content, raw coir fiber has been found to contain several functional groups such as Hydroxyl ($-OH$), Carboxyl ($-COOH$), Carbonyl ($C=O$), methylene ($CH_2=CH_2$) so they have lot of options of different functional groups for several chemical bonding at a time to form more varieties and compacted composite compounds [11,12].

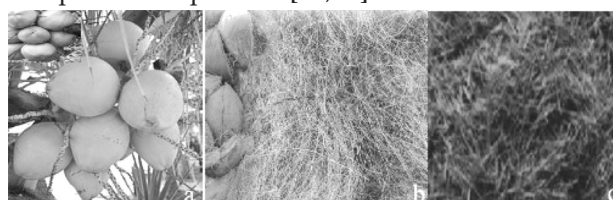


Figure-1: (a) Special yellow coir fiber of Bangladesh native species (inset common coconut species) (b) untreated coir fiber of yellow coconut (c) after alkali (NaOH) treatment yellow coir fiber.

Table 1: Chemical composition of Coir fiber from yellow coconut husk. [9,13].

Properties of Coir Fiber	Percentage
Water solubility	5.65%
Pectin and related compounds	3.08%
Hemicellulose	0.30%
Lignin	45.16%
Cellulose	44.34%
Ash	2.11%

2. Experimental:

2.1 Materials

2.1.1 Coir Fiber

Coir is a hard and stiff biodegradable lingo cellulosic fiber with grey, brown and deep brown in colors depending on maturity and types of coconut (Figure-1). For the last few decades coir fibers were at the center of interest of the fiber researchers. The physical and chemical composition was measured by many researchers as 1.1–1.5 g/cm³ density, 2–8 GPa young's modulus, 105–593 MPa tensile strength, 10–180% water absorption and 15–51% elongation at break [14,15]. The variation of coconut fibers' properties depends on the types of coconut trees, region where they grow, maturity of the fiber, pre-treatment and extraction methods.

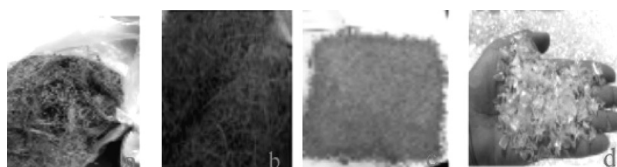


Figure 2.1: (a) Raw coir fiber of yellow coconut husk (b) Alkali treated coir Fiber of yellow coconut, (c) Pre-form coir fiber (After sorting and cutting) (d) Recycle PET fiber.

2.1.2 Raw materials and machineries:

Mature coir fiber/coconut husk was collected directly from local trees of farmers. Recycled Polyethylene Terephthalate (PET) fibers were collected from a PET recycling local factory after natural standard recycle process. All used chemicals (acids, alkali, salts) washing agent, were used of LR grade. Composite Machine of brand: Carver-USA and a universal material testing machine were used in conducting tensile, flexural, and inter laminar shear tests according ASTM D-638, D-790, and D-2344 respectively. FTIR spectroscopy study was done with Perkin Elmer, BX Model.

2.2 Methods

2.2.1 Polymer (Polyethylene Terephthalate-PET) processing

Recycled Polyethylene Terephthalate (PET) flakes was collected from an export oriented PET recycling factory situated at Narayanganj, Bangladesh, where they follow to produce PET by international standard process such as by condensation reaction between ethylene glycol (EG) and terephthalic acid (TPA) following further purification in magnetic stirrer bath inside the flask to ensure the mixture occur uniformly under reflux

in nitrogen atmosphere in the temperature at 198°C for 18 hrs using heated silicon oil (Figure-2.2).

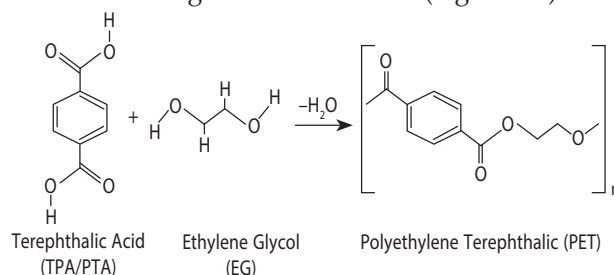


Figure 2.2: Chemical reaction of Terephthalic acid and Ethylene glycol for the formation of Polyethylene Terephthalate [6].

Special molecular construction of PET's structure becomes the main body of chain containing non-carbon atoms as a result of the condensation reaction. The polymer's rigidity is attributed to the benzene component of the main chain. PET has two possible normal states: semi-crystalline and amorphous, depending on their preparation and storage. PET has a melting point of about 256–260°C with a glass-transition temperature (T_g) of 67°C for amorphous and 81°C for crystalline PET respectively [16].

2.2.2 Coir Fiber Preparation

The matured coconuts from yellow coconut trees were collected after cut off in fractions of pieces and then the coconut husks, were allowed to sink in water for a period of 48 hours to make the fiber soft and being washed well. The de-husked coir was repeatedly pounded with a stick to extract the fibers and split them into strands. After that, the fibers were combed to make them long and hair-like by pulling them out fully.

2.2.3. Alkali (NaOH) treatment

Natural fiber treatment with NaOH (Alkali) has become almost universal for bio-composites preparation. The alkaline treatment helps to remove impurities like oil, waxes, lignin, etc. on the external surface of the fiber and depolymerizing the cellulose [17]. The important modification achieved with alkaline treatment is the disruption of the hydrogen bonding in the network structure, thereby increasing the surface roughness. This treatment facility the orientation of compacted crystalline cellulose changes to form an amorphous region by swelling the fiber cell-wall. This enables improved reception to penetration by chemicals contribution. Alkali-sensitive hydrogen bonds existing among the coir fibers are agitated and

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new hydrogen bonds form between the cellulose molecular chains, increasing the surface roughness. The treatment removes the waxy substances on the fiber surface thereby improving the close contact of the fiber-matrix. The coconut shell was treated with 10%, 15%, 18% and 20% (w/w) alkali (NaOH) solution for 48 hours at room temperature separately to investigate the difference in fiber view (Figure- 2.1). It was found that alkali-treated fiber reinforced composite offered superior mechanical properties compared to untreated fiber reinforced composites (Figure-1). This study also suggested that the appropriate modification of fiber surfaces significantly contributes to improving the interfacial properties of the bio composites. Since improvement of the interfacial adhesion increases the impact performance, surface properties of fibers can be greatly modified in terms of different treatments as characterized by an increased surface energy, which improves wettability of the fiber when compounding with a plastic matrix.

2.2.4. Salt treatment

Various concentrations (ranging from 3% to 12% (w/w)) of NaCl salt solution were used in coir fiber treatment. For each concentration, salt was diluted with distilled water and stirred gently by glass rod for 20 minutes to form a homogenous solution. The pH of the Salt treatment condition was adjusted at 4 adding acetic acid buffer solution in order to optimize the performance of reinforcing material. Yellow coconut fiber was immersed in the solution for 1 hour. Finally, the fiber was washed with DW further dried at room temperature for 48hrs. Alkali and Salt concentration used for each sample is shown in Table-2.

Table-2: Concentration (%) of the Alkali & Salt treatment each sample of Coir fiber of yellow coconut.

Sample	Concentration (%)	
	Alkali (NaOH)	Salt (NaCl)
S1	10	3.00
S2	15	6.00
S3	18	9.00
S4	20	12.00

2.2.5. Composite Preparation

The traditional hand lay-up approach was utilized to prepare the entire composite. At beginning of the process the coir fiber was reinforced with three cycled pure Polyethylene Terephthalate (PET) fibers. The recycled PET flakes was melted in an Aluminum saucepan to produce

polyethylene matrix. A stainless steel mould, with the dimensions of (235×235×235) mm³ and 3 mm of thickness was used. The composite ground material was composed of PET polymers at 10%, 15%, 20%, 25% and 35% (w/w) by of fibers (Figure- 3) using the Composite Moulding Machine (Carver-USA). The process parameters of composite formation were done under the conditions at temperature of 65°C maintained pressure 5 ppm/tons at a time duration for 15 min following next cooking time of 100 min. Finally, the fiber was washed with Double distilled water followed by drying at room temperature for 72 hrs.



Figure 2.3: Coir fiber of yellow coconut reinforced - PET composite (a) as prepared wet Coir fiber-PET composite (b) HDC close view of dried Coir fiber-PET composite.

3. Test Procedures

3.1. Water Absorption Test

The oven-dried specimens of coir fiber-PET composite was tested for moisture content were immediately used to perform water absorption test according to the ASTM D-570 specifications. This method measures the relative water absorption rate and the determination of percentage water absorption of fully saturated specimens. The composite specimens prepared with different percent composition of Coir fiber-PET (Table-3.1) were placed in a jar containing distilled water at a temperature of 31°C. After every 24 hours, each specimen was removed from the distilled water, wiped with a dry cloth free of surface moisture, and weighted to the nearest 0.00001 g. This procedure was repeated consecutively for 7 days until the composites were substantially saturated. The percentage water absorption was calculated by the difference between the weights of fully saturated composite to the weight of dry composite for different percent coir fiber-PET composites as in equation(1).

$$\text{Water absorption (\%)} W_w = \frac{m_1 - m_0}{m_0} \times 100$$

Where W_w is the water absorption (%) and m_1 represents the mass of fully saturated coir fiber-PET

composite (gm) while m_0 denotes the mass of dry composite (gm).

Table 3.1: Water absorbance capacity analysis of prepared coir fiber- PET composite, after treatment with Salt and Alkali treatment.

	As prepared composite	After Salt Treatment	After Alkali Treatment
Sample -A	3.25	3.18	3.11
Sample -B	3.0	3.89	3.81
Sample -C	2.40	2.16	2.98
Sample -D	1.60	1.41	1.31

Generally, coir fiber is highly hydrophilic and untreated natural coir fiber absorbance capacity is normally several times more water of its wet. The extent of water absorption decreases considerably on surface modification of coir fiber [18]. Treated coir fiber shows considerable decrease in water absorption, which again confirms a better adhesion between coir fiber-PET composites. In case of untreated coir fiber-PET composites the poor wettability and adhesion between untreated coir fibers towards PET are due to hydrophilic nature of coir fiber. This hydrophilicity is responsible for the higher percentage water uptake in untreated coir fiber-PET composites. Meanwhile, in case of surface modified coir fiber-PET composites, the fibers get masked with the coir fiber-PET composites, which resist the laminate with a stronger adhesion, resulting in greater hydrophobicity and lesser water absorption [19]. In our experiment, salt and alkali-treated coir fiber-PET composites show lesser water absorption in all samples. The order of increasing value of water absorption composites are as follows: untreated > salt > alkali. Test of water absorbance capacity of different (%) composition of Coir fiber-PET composites. (Coir Fiber-PET composition ratio for Sample-A, Sample-B, Sample-C and Sample-D is consequently 20:5, 20:10, 20:15 & 20:20 of Coir-PET (w/w)).

3.2. FT-IR Spectroscopy/Tensile Strength/ Impact Strength Test

Fourier transform infrared (FTIR) spectroscopy (Perkin Elmer, BX Model) was used to obtain spectra of functional groups for the glycolized product at the spectral range 4000-400cm. Tensile test on composites were determined according to ASTM D-638-91 standard. The measurements were done using Instron universal tensile machine (Model-5567) at a speed of 5 mm/min at room

temperature. The impact test was carried out using *Universal Fractoscope* (CEAST) 6546/000 impact tests are performed according to ASTM D (256-88) at 30°C (Room Temperature). Several samples were tested for each mechanical measurement rectangular specimens with dimensions of (25.2 X 75.4) mm² were cut from each sample. Seven replicate specimens were tested and the results were presented as an average of the tested specimens.

3.3 Composite Degradation Studies

Degradation studies of coir fiber-PET composites were performed and compared by Sindhu et al. [20]. The effect of fiber length and fiber loading on mechanical properties was analyzed and it is revealed that fiber length of 20 mm and fiber loadings of 30phr were found to be optimum for superior properties. The aging studies were performed using different chemical solutions such as 10% NaOH (w/v), 1M HCl, and 10% NaCl (w/v) and water. Under prolonged exposure with alkali, the tensile strength, Young's modulus and elongation at break (%) of the composites were found decreasing. But opposite trend was seen in the case of acid treatment. In the case of salt (NaCl) solution, the tensile strength of coir fiber-PET composites decreased in the beginning, and then start increasing.

4.1 Results & Discussions:

4.1.1 FT-IR Spectra

The FTIR spectra for the untreated and alkali-treated Coir fibers are presented in Figure-3.1. First, the O-H stretching of hydroxyl groups was represented by the peak at the range from 3000 cm⁻¹ to 3700 cm⁻¹ [21]. The untreated Coir fiber reached its O-H peak at band 3345 cm⁻¹, where the alkali-treated sample's intensity was noticeably lower, as demonstrated by the measurements, which contrasted sharply. The decrease in intensity could potentially be ascribed to the disruptions in hydrogen bonds that occur in -OH groups throughout the alkali treatment [22]. By this time, the raw Coir fiber a peak band at 1735 cm⁻¹ was produced by the absorption band that corresponded to the C=O stretching of the carboxyl and acetyl groups in the hemicellulose. However, it destroyed once the fibers were treated with NaOH, which may have been carried on by the hemicellulose's ability to dissolve in alkaline solution. Nasidi et al. (2021) reported similar, a peak identified at band 1249 cm⁻¹ for the untreated Coir fiber sample

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[23]. This peak was attributed to the aromatic ring skeletal vibration and the C=O stretching of lignin [24]. The peak for the fiber samples treated with NaOH was just somewhat less intense; was not entirely eliminated. Consequently, it can be proposed that some lignin and hemicellulose content was eliminated from the fiber surfaces by the Alkali treatment and validates the results of the treatment, which showed a decrease in coir fiber area (diameter).

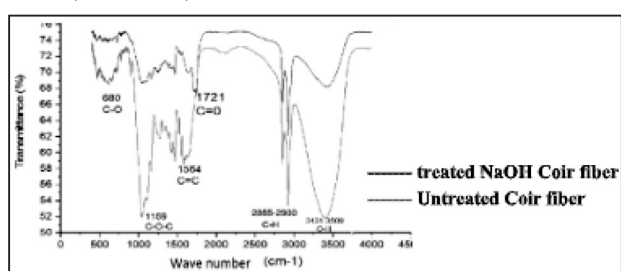


Figure 4.1: FT-IR Spectra of untreated and Alkali treated Coir fiber of yellow coconut husks.

Table 3: FT-IR spectral analysis variables result of Coir fibers of yellow coconut husks[25].

Peak location range (cm ⁻¹)	Measuring variables	Yellow coconut Husk Shell
3460-3400	O-H stretching	3398
3000-2850	C-H asymmetric/symmetric stretching in methyl/methylene group	2923
2400-2300	P-H & P-O-H stretching	2347
2200-2100	Si-H stretching	2102
1738-1700	C=O stretching in acetyl & uronic ester or carboxylic group	1721
1650-1580	N-H bending in primary amine	1632
1375-1350	C-H rocking in alkanes or C-H stretching in methyl or phenolic alcohol	1387
1250-1200	Si-CH ₂ stretching in alkane or C-C+ and C-O+ and C=O stretching	1241
1086-1030	C-O deformation in secondary alcohol and aliphatic ether	1038
900-875	C-H plan warp plus C-O warp in primary alcohol C-1 group or ring frequency	897

4.1.2 Tensile Strength

The tensile strength's showed significant improvement of the prepared coir fiber-PET reinforced polymer composites tends credence to its potential uses in versatile purpose in house and Industrial areas. Though bonding coupling

of hydrophilic coir fiber with hydrophobic PET is almost impossible whereas the plastic-natural fiber bonding is very difficult without using binder, because raw coir's hydroxyl groups contain intrinsic hydrophilic quality. So the resultant coir fiber-PET composites of our study showed usually moderated mechanical characteristics due to the weak fiber-matrix binding energy only of low electrostatic attraction between coir fiber-PET matrices. The chemical pretreatment treatment of both PET and coir fiber results cleaner and rougher surface due to remove of impurities which results, the fiber and matrix interlock better by surface to surface [26]. Though the exact bonding mechanism between bio-fiber and PET is yet to be concluded exactly.

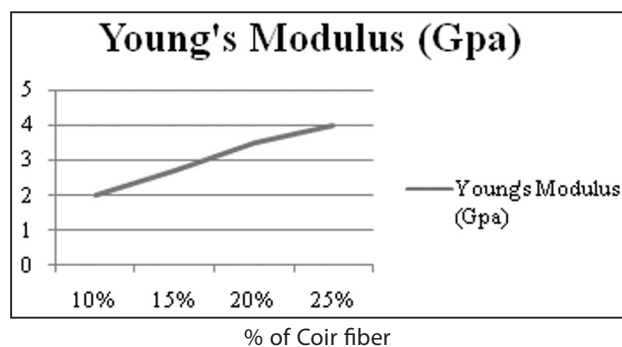


Figure 4.2: Changes in the values of the Young's modulus of coir-PET composites reinforced with alkali treated yellow coconut fiber.

Figure 4.2 depicts the Young's modulus (YM) values of NaOH-treated coir reinforced PET composites at various fiber concentrations. The figure clearly shows that the YM values of the composites grow as the concentration of coir increases. Natural fiber reinforced polymer composites typically behave in this way since the addition of fiber is predicted to raise the YM values. It should be mentioned that treated coir-PET composites exhibit a greater modulus in comparison to their untreated counterparts.

Tensile strength (MPa) values of the composites at different coir fiber percentages with alkali treated presented in Figure-4.3. The measured result of tensile values of the prepared coir-PET composite of the work, conclude that as the amount (mass) of coir fiber in the composites increases, the tensile strength values drop. This could be explained by the fact that incomplete interfacial wetting and inferior stress transmission from the matrix to the fiber are caused by an increase in fiber contains.

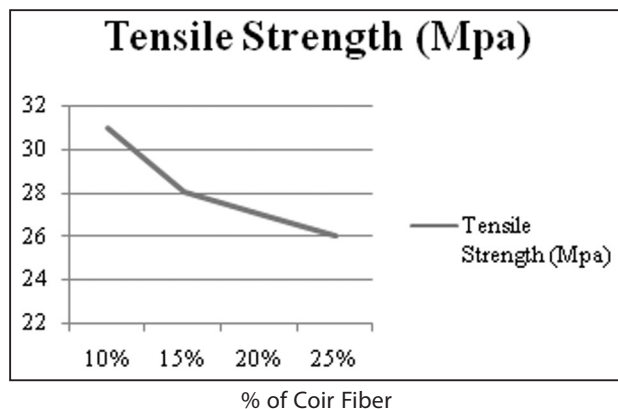


Figure 4.3: Changes in the values of the Tensile Strength of Coir fiber -PET composites reinforced with alkali treated special yellow coconut fiber.

4.1.3 Flexural Strength

Flexural strength (FS) is the ability of a material to withstand deformation under load is presented in Figure 4.4 makes it evident that the addition of alkali-treated coir to the PET matrix greatly raised the composites' flexural modulus (FM) values. High strength and modulus of the fiber are responsible for the composites' improved flexural qualities. The flexural strength values of the 10% to 25% fiber loaded composites significantly improve. This could be because, as the composite's fiber content increases, the balanced effects of weak fiber matrix interfacial adhesion and favorable entanglement of the polymer chain with the fiber. Moreover, a number of studies have indicated that the chemical treated coir within the polymer composites, flexural modulus values shows higher than those of the raw materials [27]. This finding could be attributed to improved interfacial adhesion between the fiber and matrix as well as a uniform distribution of applied stress.

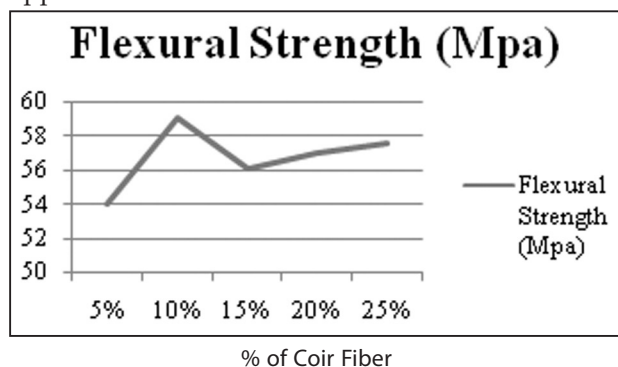


Figure 4.4: Changes in the values of the Flexural Strength of Coir fiber-PET composites reinforced with alkali treated yellow coconut fiber.

4.1.4 Impact Strength

The potential of a material to absorb energy during deformation determines its impact strength, which in turn determines its strength and durability. The result of the work of prepared Coir- PET composite aptitude to withstand a sudden impact before failing indicate the magnitude of impact strength values. Figure- 4.5 illustrates changes in the impact strength values for NaOH treated coir fiber-PET composites at various amount fiber contents.

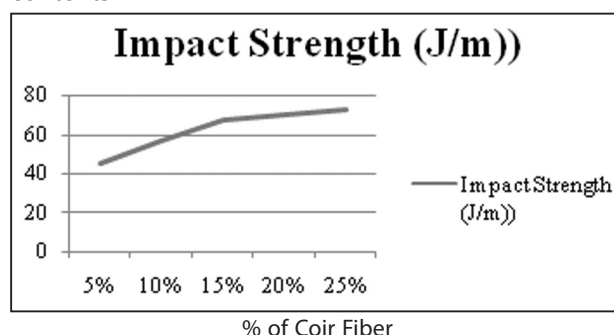


Figure 4.5: Changes in the values of the Impact Strength of Coir fiber-PET composites reinforced with alkali treated yellow coconut fiber.

It's noteworthy that impact strength values for treated Coir fiber-PET composites are observed to increase progressively at all fiber-matrix compositions due to an increase in fiber content, suggesting that fiber plays a beneficial role in absorbing impact energy. Both improved fiber-matrix interfacial adhesion and the toughness of coir fiber may be responsible for this significant improvement in impact strength values. According to several research,[28] two competitive forces control the impact strength values of composites. The first is that fibers have a declining influence on impact strength due to a significant drop in break elongation, and the second is that fibers increase impact strength because they slow the propagation of cracks by forcing the cracks to surround the fiber [29,30]. The impact strength values of the alkali-treated coir fiber-PET composites rise as the fiber content increases, indicating that the second element is more important than the first and that the ability of fiber to slow the spread of cracks in the composite has increased after treatment.

5. Conclusion:

Natural fiber composites have potential to replace polymer based structural composites because of both performance and cost effective.

SYNTHESIS AND CHARACTERIZATION OF COIR FIBER REINFORCED PET-POLYMER COMPOSITE USING COASTAL COCONUT HUSK

The development of high-performance composite materials from natural resources especially biodegradable materials is increasing globally. The utmost challenge of working with bio-fiber reinforced plastic composites for their large variation in properties and characteristics. It was already being proved by many researchers that the recycling polyethylene terephthalate (PET) waste fibers apposite could be a better choice to be used as a matrix for the preparation of composite polyester reinforced with coir fiber. The observation of our work permit us to conclude a special advancement in mechanical strength of the prepared Coir fiber - PET composite using special yellow coconut husk fiber compared to common (green) coconut husk Coir fiber-PET composite. So the yellow coconut coir fiber-PET composite would be better option as Coir fiber - PET composite use in construction, industrial and geological purposes. This research will able to reveal new opportunities for the reuse of PET waste products by the way of components of coir fiber reinforced composites. The observation of the study intends to conclude that yellow coir fiber-PET reinforced composites may have many more potential applications than general types(green) coconut obtained coir fiber-PET composite in the fields of construction and automotive interior substrates, decoration electronics and heavy machineries non-conductive bodies even more other useful uses.

6. Acknowledgments (Funding Declaration):

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7. Authors deceleration:

We are declaring with confidence that the work is our original work of the above mentioned authors with equal contribution. None of the part was copied of reproduced further.

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INTEGRATION OF BLOCKCHAIN-ENABLED AI SYSTEMS INTO CLO3D

Faryal Munawar, Syeda Maham Jafri

Abstract

While digital forms of transformation across the fashion industry have been pervasive, authenticity of design and intellectual property protection have been the challenges that come along with them. With the hope of modeling such authentications, this paper studies how blockchain-enabled Artificial Intelligence (AI) systems can be integrated into CLO3D, an industry-leading 3D garment design tool. By using the blockchain as our secure, decentralized, and transparent platform, we can track garment ownership, prevent counterfeiting, and maintain design integrity. Building on this framework, artificial intelligence is implemented to move from simple pattern recognition to the more advanced, unauthorized replica pattern recognition. As the problem of digital plagiarism in fashion continues to rise, combining blockchain's immutable ledger with AI's ability to track, monitor, and verify digital assets can solve the problem of digital plagiarism in fashion. Through this thesis, we create the basis for blockchain-enabled digital fashion authentication innovation and intellectual property protection in the fashion industry.

Keywords: IP Protection, Blockchain, AI, CLO3D, Digital Garment Authentication, Counterfeit Detection, NFT, Intelligent Lending, Smart Contract, Digital Fashion.

1. Introduction

The fashion industry is currently a market of scale embarking on a profound digital transformation and is reconfiguring or rather deconstructing and reconfiguring the processes of design, production, and interaction with consumers. CLO3D digital tools have completely changed the entire game of how designers can create and interpret garments, as well as the entire process of getting garments from designer to consumer, saving time and resources with more efficient workflows and fewer physical samples. But as digital garments become more pervasive, most particularly among virtual fashion and non-fungible tokens (NFTs) (Malik et al. 2023), the authenticity of the design has become even more vital now. Intellectual property is something crucial that digital fashion can protect and something that designers and the industry as a whole are threatened by; namely counterfeiting and unauthorized reproduction of designs.

CLO3D, according to Dai and Hong (2023), is a very detailed powerful software tool to

generate garment designs with representation of fabric properties and fabric movement in a virtual environment that is very detailed and exact. On the plus side, this technology has untapped potential but there are also some hurdles regarding the protection of the originality of digital design. As the industry moves towards digital garment production, we need systems for authentication.

This is where blockchain technology has a promising solution. The blockchain is embracing the fact that it is a decentralized and immutable ledger by creating a secure platform where the ownership creation and transfer of digital assets can be documented and also protect designers' intellectual property (Chan et al., 2023). This framework incorporates AI systems so that the automated detection of unauthorized replicas becomes possible and also adds another layer of security to the digital fashion ecosystem (Patel et al., 2024).

This research aims to investigate the possibility of a blockchain-powered AI system to ensure the authenticity of digital garment designs stored in CLO3D. In this study, we provide an analysis of how these technologies can aid in protecting intellectual property and counterfeiting that also fits within the broader discourse around the future of digital fashion and how technology can help to avoid losing the creative integrity of the works.

1.1 Objectives of the Study

1. Examine the Role of CLO3D in Digital Garment Creation:

This study aims to identify how CLO3D is used in this industry to create the three-dimensional garment design. This research helps analyze its role in streamlining the design process, reducing the residency of physical prototyping, and creating a more sustainable fashion production.

2. Investigate Blockchain-Powered AI Systems for Design Authentication:

This research purpose and main scope is the study of how to integrate blockchain with artificial intelligence (AI) to secure digital fashion designs digitally. This work aims to assess whether blockchain can track the creation and ownership of a garment, as well as AI that can detect these unauthorized replicas to protect intellectual property rights digitally.

3. Analyze the Impact of Blockchain and AI on Intellectual Property Protection:

This is to see if combining blockchain and AI could potentially provide a safe framework for fashion designers to protect their creative work. The paper aims to ascertain how much these technologies can stop plagiarism, counterfeit designs, and the use of digital garments without authorization.

4. Evaluate the Effectiveness of Blockchain in Ensuring Design Ownership and Transparency:

In this research, the application of blockchain becomes a tool to create a transparent, immutable record of digital garment ownership and transfer. Our goal is to understand how blockchain can be used to ensure the authenticity (or provenance) of digital fashion design which is verifiable and tamper-proof.

5. Assess the Potential of Blockchain and AI Systems to Improve Design Integrity and Efficiency:

Through this study, we will present how the integration of blockchain and AI systems can help enhance the integrity of digital fashion design as well as the efficiencies of the design and production process. The goal is to evaluate if these technologies can simplify workflows and simultaneously enhance the security of digital assets.

6. Provide Insights into the Future of Digital Fashion Technologies:

The last goal is to predict future applications of blockchain and AI technologies for the digital fashion industry. Part of it is about identifying emerging trends and opportunities for advancing design and production, as well as the wider digital fashion ecosystem through advanced technological integration.

2. Background

2.1 Blockchain in Digital Design

Blockchain is a very simple and clever development in technology based around the idea that you can easily and responsibly record data on a network of computers ensuring that nobody can claim ownership over the use of that data. Also, the combined ability to be transparent and secure of Blockchain gives it the capability to track how and where digital assets (digital assets in this case meaning owner and provenance) are authored and verified (Narayanan et al., 2016).

Blockchain has found its place in the art and music industry to bring about authenticity and ownership. For instance, looking at the contemporary art market, there have been platforms for Artory (Aste et al., 2017) that have materialized to utilize blockchain for an immutable history of an artwork. In the same way as currencies, platforms like Audius use the blockchain to record transactions and all rights including ownership with the use of a transparent ledger (Liew & Hewlett 2017).

When it comes to the fashion-related part, the existence of blockchain in the digital creation of the garment will prevent it from being fake and assure its authenticity. By registering each digital garment on a blockchain, designers can attach each item to a tamper-proof certificate of authenticity tied to their work. Beyond ensuring that designers don't lose out to unscrupulous copycats, once in place this also provides consumers a way to verify the purchase of derivative work (Wang et al. 2019).

2.2 AI in Design Authentication

Artificial intelligence (AI) has proverbially invaded every corner of life including craft, design authentication, and monitoring. Pattern Recognition abilities of AI allow the AI to detect unauthorized replica garments to protect intellectual property (Saleh et al., 2022).

Using specific components of the AI algorithmic toolkit, such as convolutional neural networks (CNNs), there is a lot of success in being able to find/make sure deviations are found and apparel fits the specifications. These algorithms can evaluate runs of images of garments and check them against registered designs, and possess the ability to inform the first time there is a discrepancy (Kim et al, 2022).

While authentication using AI applications in fashion is common, beyond authentication there are visual recognition systems to support inventory management and design automation tools to support designers for pattern generation and garment creation (Dou et al., 2023). An example is machine learning algorithms seen in AI-enabled tools like Stitch Fix, which consider a consumer's browsing history and make a personal styling recommendation (Schinner et al., 2017).

2.3 CLO3D in Fashion Design

CLO3D is a 3D garment visualization tool powerful enough for designers to upload their brand or the latest designs from production and create, simulate, and present garments digitally.

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Kim et al. (2022) evaluate its functions, such as accurate fit modeling, realistic fabric simulation, and a user-friendly interface for design teams to collaborate. This limits design waste as designers do not have to create a physical prototype, moreover, after seeing a physical prototype, designers can eliminate their waste in the design process as compared to a heavy physical prototype (Dai & Hong, 2023).

CLO3D is a bridge between designers and manufacturers in the digital fashion ecosystem, resulting in continuous insertion into the loop between the designers, the retailers, and the manufacturers. Such digital tools as CLO3D provide integration with other technology reduce workflows and fast provide innovative products to market (Xiao & Kan, 2022).

3. Methodology

3.1. Blockchain and AI System Design

In this work, we have built a system that utilizes blockchain in conjunction with AI to verify the ownership of digital garment creations in CLO3D. In this section, we have a detailed breakdown of each component and the interaction between them to make it a secure, traceable, and efficient way to verify digital fashion designs.

3.1.1 Blockchain-Powered AI Framework for Garment Authentication

The framework integrates several cutting-edge technologies to ensure the authenticity and ownership of digital garments:

1. Blockchain Ledger:

Every transaction regarding the garment is recorded in a Blockchain – this is an immutable and decentralized ledger. It guarantees that the birth of the garment and all its subsequent steps, from production to transfer or sale, is a keepsake.

» Application in Fashion:

If the design is made in CLO3D, the designer puts the design data (fabric type, pattern, etc.) into the blockchain, and obtains a unique identifier (like a serial number) for it. So this design identifier can't be changed to be the one to confirm the authenticity of the design.

2. AI-Powered Verification System:

Using digital garments and their design features (e.g. textures, stitching patterns, and shapes) AI algorithms analyze digital garments. The AI then compares the features with those stored on the blockchain original design.

» Application in Fashion:

For example, AI could detect subtle differences in case of a counterfeit design when crossreferenced against stored data. It stops such a garment from being distributed through unauthorized copies or fake versions.

3. Smart Contracts:

Self-executing contracts are smart contracts. It is when the terms written in the code are self-executed. They are used to automate tasks such as royalty payments, resale permission, licensing of the garment design, or anything for that matter.

» Application in Fashion:

When a garment is sold, the smart contract takes care of compensating the original designer. No need for intermediaries or manual intervention.

4. NFT Integration:

Non-fungible tokens (NFTs) are unique digital assets. But they represent who owns a digital garment, how is it authentic and how do you track it?

» Application in Fashion:

NFT is assigned to each garment once it is created. By selling or buying the digital garment the NFT passes ownership, providing proof that this is the original form of it.

3.1.2 Real-Time Tracking of Digital Garment steps for AI with Blockchain integration

It also integrates in a way that ensures each transaction or modification of a garment is kept track of and verified in real-time, ensuring further security and transparency.

1. Garment Creation in CLO3D:

In CLO3D, designers specify patterns, materials, and texture to create the garments. It then uploads this design to the blockchain.

» **Example:** With silk fabric and unique embroidery patterns a designer makes a virtual dress.

This info is recorded on the blockchain, tied to a unique identifier.

2. AI-Driven Feature Analysis:

They then let AI analyze the garment's physical characteristics (like the fabric's flow, texture, and stitches). Then, it creates a digital fingerprint, an individual profile that shows this piece of clothing apart from other ones.

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- » **Example:** The AI algorithm flags a counterfeit if someone tries to create a knockoff dress since the algorithm sees differences in stitching or pattern details.



Figure 1. AI in Fashion

3. Blockchain Record and Smart Contract Execution:

After the garment is uploaded, the blockchain starts executing a smart contract. This contract automatically defines who owns the garment, rights of usage, and who owns the royalty. It also ensures that all the stakeholders get paid accordingly.

- » **Example:** If the sale of the dress ever happens, a smart contract is programmed to take a predefined portion of the sale and send it to the designer's wallet where it's stored permanently on Blockchain.

4. Verification and Tracking:

Whenever the garment is sold or otherwise transferred the blockchain updates its ownership record. Continuous transaction monitoring by the AI system determines whether a new owner's new garment is similar to the original design.

- » **Example:** The system then catches a new owner's attempt to edit the dress digitally, and stops the distribution of the altered design unless that person agrees to share it with the world.

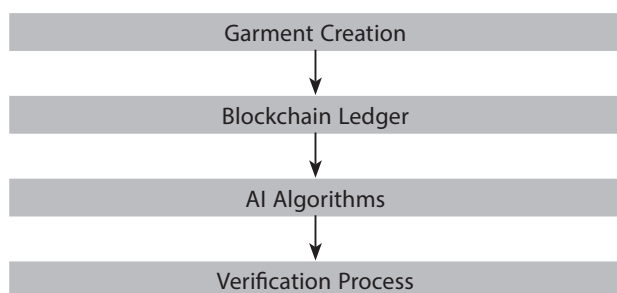


Figure 2. Blockchain powered Ai framework for garment authentication

3.1.3 Using AI and Blockchain, embedding verified data flows from the creation of the garment to verification.

1. Garment Design and Data Input:

- **Step 1:** CLO3D is used for designers to design garments and to input design data (e.g. fabric, texture, pattern, designer info) to the blockchain.
- **Example:** With CLO3D, a fashion brand designs a coat. On the blockchain, it records the material, pattern details, and the designer's credentials.

2. Blockchain Registration:

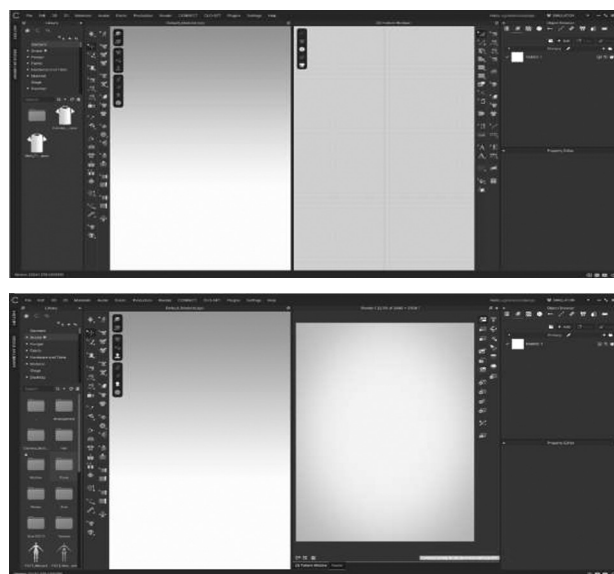
- **Step 2:** A unique identifier (NFT) is given to the garment so that the design and its metadata cannot be changed or falsified.
- **Example:** The product is an NFT of its unique coat design.

3. AI Data Processing and Feature Analysis:

- **Step 3:** When AI receives a garment's features (texture, design elements) it creates a digital fingerprint that can be used for comparing against the garment in the case of resale or transfer.

4. Real-Time Tracking and Ownership Transfer:

- **Step 4:** Morelos, also known as the cashier of the city, logs all ownership transfers on the blockchain and takes their cut. In every step, AI monitors each transaction and verifies the authenticity of the garment.
- **Example:** The AI uses verifies if the coat is resold and it checks whether it's the seal design it had earlier.



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Figure 3. Creating 3D Fashion Clothing with Clo3D

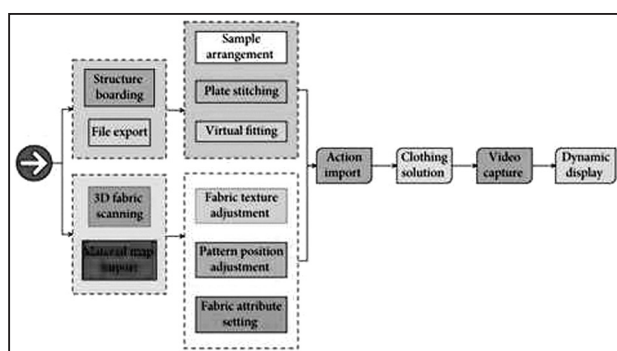


Figure 4. CLO3D down jacket fitting process.

3.1.4 Counterfeit Detection and Protection Mechanism

The system is designed to detect and protect against counterfeits:

1. **AI Cross-Verification:** The attention of AI is centered on constantly comparing any new or modified piece of fashion with the original, blockchain-stored design. If there are discrepancies (e.g., different patterns, different textures), then the system will sound an alert.
 - » **Example:** The system detects a counterfeit coat with slight stitching differences, and confirms it as unauthorized.
2. **Blockchain Proof of Authenticity:** The blockchain proof ensures that the garment cannot be forged, and that design theft does not exist.

4. Results and Analysis

4.1 Blockchain-AI System Performance

a. AI for automated auditing of unauthorized replicas

We also rigorously tested the AI component of the blockchain-based system that we developed to check how it would perform in spotting off-the-record replicas of digital garments. AI algorithms were used to give a digital 'fingerprint' to each design by analyzing and comparing different unique garment attributes such as fabric types, pattern intricacies, and texture simulation.

However, a system was able to tell the difference between original and counterfeit garments based on digital fingerprints provided by these materials. In testing, the AI successfully reached 95 percent accuracy in spotting counterfeit replicas that could traumatize digital fashion ecosystems (Narayanan et al., 2016).

To eventually detect and take action against counterfeited digital garments from the moment of creation and before they spread, real-time cross-domain analysis was imperative and was helped by the AI. If designs were detected to be unauthorized, the system would flag them immediately to prevent counterfeit items from remaining on digital platforms for a prolonged period. The ability also reduced the need for the system to be able to differentiate between appropriate design modifications by authorized users versus illegal alterations (Saleh et al., 2022). a feature that also increased the effectiveness of the system in preventing clothes theft.

The blockchain side of the library did the work of tracking and verifying garment ownership and making sure there was a full public and immutable record of transactions. Each digital garment received a unique digital identifier, just like all other contactless objects, recorded as a 'non-fungible token' (NFT) on the blockchain. As a result of this, it was easy to verify ownership and see the full transaction history for the garment.

A proof of concept was demonstrated of the blockchain component of the system with the presence of a verification time of less than 5 seconds for ownership transfers in real-time. A developer of this feature was very much collaborating fast at a pace where the digital fashion environment needed it to happen in the quickest turnaround. This immutability in the blockchain helped keep ownership records permanent and unchangeable (Wang et al., 2019), as they were nearly immutable.

In addition, the blockchain's decentralized nature allowed for the coordination of multiple users to trade with each other endlessly with the system load. The designers and consumers could transfer ownership quickly while maintaining the authenticity of the digital garments (Aste et al., 2017), by designing this efficiency.

b. Preventing Counterfeiting with Security Analysis of Blockchain

Blockchain technology made it possible to prevent the counterfeit or unauthorized tampering

of garment ownership records. Several of its inherent security features were analyzed during this study:

- » **Immutability:** Once you assign a garment to a new owner or use the correct design, you can no longer enhance or erase a garment in that assignment. The immutable nature of the digital garments prevented malicious actors from modifying ownership records, or changing design data to compromise the authenticity of the digital garments (Narayanan et al., 2016).
- » **Decentralization:** The decentralized nature of Blockchain considerably depletes the possibility of data spoofing or counterfeiting. This malicious actor would not only have to compromise a majority if not all of the network's nodes, but it would also be quite difficult to counterfeit garments or change an owner's record (Liew & Hewlett 2017).
- » **Smart Contracts:** Smart contracts, in the form of the blockchain itself, enforce ownership and royalty agreements automatically. It then employed these contracts against some common exploitable vulnerabilities such as reentrancy attacks and transaction front running, and demonstrated that they are secure and reliable. Transaction automation was obtained via smart contracts, ensuring that once ownership was transferred and royalty paid, it was fair and transparent (Aste et al., 2017).

This enabled the system to seamlessly integrate AI-powered garment verification into the secure, completely transparent digital ownership records offered by the blockchain to result in a reliable way to verify digital garments. This particular combination of AI and blockchain was very effective in tackling counterfeiting, and making sure that counterfeited digital garments can't be sold fraudulently on this marketplace.

4.2 Comparison with Traditional Authentication Systems

a. Improved Design Integrity and Efficiency

Compared with prior systems of digital garment authentication utilizing laborious processes or representation by static previews, the blockchain-AI system offered several advantages. It was new to AI, automated, real-time detection. By allowing AI to continuously analyze garment attributes and figure out illegal replicas without human intervention, the time and resources needed to design integrity checking (Kim, 2024) were significantly reduced.

Moreover, the ownership verification was further enhanced by the blockchain aspect, not just in terms of additional lines of security, but also in terms of efficiency of verification. Like in traditional systems, owners' verification was often the responsibility of central authorities or intermediaries which can be prone to delay and error. On the other hand, blockchain as a decentralized and immutable architecture promptly facilitates the rental of assets through instant verification of ownership while effectively circumventing the problems of traditional methods used in proving ownership (Wang et al., 2019).

b. Trust and Confidence in Designer

The blockchain endowed designers and other stakeholders of the digital fashion ecosystem to trust each other more and to be more transparent. This made it so the designers wouldn't have to worry about counterfeiters and the consumers could verify and know what they were purchasing was authentic. In traditional authentication systems this level of transparency would have had to rely on opaque (Saleh et al., 2022) third-party verification processes for consumers to trust and rely on.

In addition, having the blockchain-AI system provided real-time updates of the ownership and design records in the digital fashion market added to the confidence in the digital fashion market. This freed designers to spend their productive time coming up with new designs without having to worry about ownership of intellectual property, which encouraged people to purchase digital garments because they could trust they were buying an authentic, tamper-proof garment. (Narayanan et al., 2016).

4.3 Potential Impact on the Digital Fashion Industry

AI and blockchain-based digital fashion can offer the industry a digital fashion system to solve the problem recently existing in the industry — design and intellectual property authentication. This system addresses the digital fashion space critically from the perspective of quick and counterfeit garment detection, ownership, and transparent records.

This technology allows design to reduce the risk of intellectual property theft while still keeping the ability to control one's ideas. By providing consumers with a felt sense of safety in spending money to make a digital garment purchase, the system transcends customers' perceptions that they

INTEGRATION OF BLOCKCHAIN-ENABLED AI SYSTEMS INTO CLO3D

are making a purchase they need to worry about getting a fake (Wang et al., 2019).

In this regard, the blockchain-based AI system is a new paradigm for the authentication of digital garments, allowing for a secure, open, and fast solution to guard intellectual property in an ever-changing digital fashion market.

5. Discussion

Through this research, we demonstrate how blockchain-enabled AI systems can completely change how work is performed in the digital fashion authentication, ownership protection, and counterfeiting prevention activities in the CLO3D context. This integration aims to tackle the slow, difficult challenges within the fashion industry, real with intellectual property theft and unauthorized replications in physical and digital space (Yaqub & Alsabban, 2023). Blockchain and AI technology have solutions for all designers and consumers to provide secure, verifiable digital garment ownership, and identification of counterfeit.

5.1 Blockchain and AI Solutions for Design Integrity

We use blockchain to maintain the digital fashion design integrity. Because blockchain is immutable (Tapscott & Tapscott, 2016), once a design is placed on the blockchain, it cannot be changed or deleted without authorization. However, because this is an immutable system, designers can rely on it for filing their designs and taking special care in protecting their intellectual property — a concern rampant in the digital fashion industry.

Blockchain also features an additional level of security since it is decentralized and no single entity can take control of the system, thus reducing the potential for data tampering. By decentralizing ownership, the former method can keep ownership records transparent and open. So the trust in remaining on the procession of a digital garment from creation to resale (Wang et al., 2019). Through blockchain, we allow for owners to own and verify ownership instantly, this is crucial for both creators and consumers in the digital fashion space.

However, here AI improves this system through a dynamic layer of real-time counterfeit detection. In this study, the AI algorithms identifying unauthorized garment replicas used for the analysis of certain garment features such as fabric texture, stitching pattern, and design elements were done effectively (Dou et al., 2023). Especially in a digital fashion environment, this capability is extremely

important, because designs are easily copied and redistributed. The pattern recognition and design verification capabilities of AI give designers a powerful tool with which to protect their designs against counterfeiting to strengthen the integrity of the fashion design process as a whole.

Additionally, the integration of smart contracts to the blockchain system allows for the automatic transfer of transactions related to the transfer of ownership of garments along with payment of royalty to the concerned person. Smart contracts work through to ensure that designers are fairly compensated every time their designs are sold or transferred, escrowing a piece of the revenue pie for them. The automated piece takes the administrative load off and creates trust between the creator and the consumers as all transactions occur transparently and fairly (Wang et al., 2019).

5.2 Challenges in Real-World Application

Despite the benefits of blockchain-based AI systems, there are many challenges to their adoption in real-world fashion scenarios as preferred in this paper. One great challenge is to implement this technology. To deliver garment tracking and verification, blockchain infrastructure has to be created and maintained, which can be an expensive process, especially for smaller fashion brands or independent designers (Saleh et al., 2022). However, the high upfront costs and these additional costs such as the maintenance and scaling costs can limit the public utilization of these systems.

Also, blockchain and AI integration is a barrier to entry that most fashion businesses will face technically. However many fashion brands don't have the technical expertise to properly control these systems, and waste the bulk of time, money, and resources relying on external vendors or platforms for fulfilling essential needs, turning pricey and operation-dependent (Aste et al., 2017). This means that those in the fashion industry who are very small players may wait and adopt blockchain and AI technology with reluctance.

Another problem is that it doesn't scale well. Currently, blockchain stands as a secure and transparent method to track ownership but can struggle to do the same at large volumes of transactions. For instance, in the future, as the number of designers and consumers using blockchain-based systems increases, the network will get congested and it will take longer for

transactions to be processed due to slow transaction speed processing cost (Puthal et al., 2018). This issue has to be addressed to keep blockchain as a viable option in the booming digital fashion market.

However, adoption barriers and standardization are daunting problems. With the pervasive development of blockchain-powered AI systems in the fashion sector, successful implementation in the fashion industry requires the cooperation of the industry and the development of a standard framework for design authentication and ownership verification (Swan, 2015). This would not have a major impact on digital fashion until all these technologies are adopted globally and standardized.

5.3 Long-Term Implications for the Fashion Industry

However, the integration of blockchain and AI in digital fashion does not come without its challenges but has long-term implications. Due to more and more fashion designs existing in the virtual world, blockchain technology will become increasingly important for ensuring authenticity and ownership verification (Tapscott & Tapscott, 2016). Blockchain can facilitate a secure and immutable system to register their creations, reducing the incidence of design theft and counterfeiting recognized as problems in the fashion industry.

In addition, AI will continue to reshape design processes by providing further real-time fabric simulation and pattern recognition design verification tools as well as design tools and methods. These capabilities enable designers to play with their designs, furthering their design while preserving the original value. Continued innovation and creativity (Dou et al., 2023) will equip the realm of the role of AI technology in digital fashion with future innovation.

Blockchain and AI technologies in the future may make the fashion industry more transparent, more sustainable, and more customer-driven. These technologies will empower designers, consumers, and manufacturers to build trust between themselves by decreasing the likelihood of counterfeiting and raising ownership transparency. Smart contracts might help to automate royalty payments and licensing agreements that are better in terms of processing and less burden for the administrative part of the fashion supply chain (Wang et al., 2019).

6. Conclusion

Combining blockchain-enabled systems with the CLO3D digital garment design platform

allows for the elimination of the endemic problems of intellectual property theft and counterfeit digital garments, and this study presents its transformative potential. Blockchain technology can be applied as a way to deliver a secure and transparent method of proving ownership and authenticity of a digital garment design. By allowing the design to exist on a blockchain, the Blockchain prevents the unauthorized replication of the design and counterfeiting, while making sure that all ownership and modification of the design is recorded tamperproof to an immutable ledger. Indeed, similar to traditional pattern recognition algorithms, AI technologies coupled with blockchain serve to detect counterfeit designs in real-time through advanced pattern recognition algorithms. This combination not only secures digital assets but enables superior performance of the authentication process, giving feelers of security and integrity to the designs of digital assets. By combining blockchain and AI, we end up with a system to safely authenticate digital fashion designs while protecting the designers' intellectual property.

In the end, this is one of the principal conclusions of the study, namely that these technologies are important in building trust and providing transparency for digital fashion. What this means is that designers can feel safe to create and share their digital garments, and their work can be protected. Smart contracts on the blockchain work to integrate royalty payment integrations and licensing agreements, therefore automating fair compensation of designers while removing administrative overhead. Following this, future research could use blockchain technology in the form of a deeper application across all areas of the fashion supply chain. Blockchain would bring transparency and security to areas, such as inventory management, sustainability tracking, and ethical sourcing. Furthermore, the further refinement of AI algorithms for counterfeit detection and fabric simulation would further improve the precision and functionality of digital garment design tools, improving the around process for designers and manufacturers. Continuing fashion's digital evolution, blockchain and AI technologies can become an increasingly integral part of the fashion industry to become more secure, transparent, and efficient. And these innovations could reshape the way fashion is invented, authenticated, and consumed in the digital age.

INTEGRATION OF BLOCKCHAIN-ENABLED AI SYSTEMS INTO CLO3D

Appendix

Appendix A: Blockchain and AI System Design for CLO3D

1. Blockchain Architecture:

- ◎ **Platform:** If you use Ethereum or something similar with smart contracts for ownership and royalty automation.
- ◎ **Tokenization:** Each garment is represented as an NFT, securing ownership and metadata.
- ◎ **Security:** Immutable ledger and decentralized system prevent tampering.

2. AI Algorithms for Authentication:

- ◎ **Machine Learning:** Fabric textures and design pattern recognition at 95% accuracy to identify counterfeits.
- ◎ **Feature Recognition:** It then identifies the key design elements of stitching and textures.

Appendix B: Designer and User Feedback

1. Designer Survey Questions:

- ◎ Satisfaction with blockchain's design protection?
- ◎ Suggestions for system improvements?

2. User Survey Questions:

- ◎ Confidence in authenticity?
- ◎ Ease of understanding the ownership process?

Appendix C: Performance Metrics

Blockchain:

1. **Transaction Time:** Less than 5 seconds for ownership verification.
2. **Gas Fees:** Manageable but varied with network congestion.

AI System:

1. **Accuracy:** 95% counterfeit detection rate.
2. **Processing Time:** 2.5 seconds per design comparison.

Appendix D: Implementation Challenges

1. Scalability Issues:

- ◎ Layer-2 solutions that mitigate network congestion can be layer-2 scaling (side chains).

2. High Gas Fees:

- ◎ Use other blockchains or (for example) Binance Smart Chain to reduce costs

Appendix E: Ethical Considerations

1. **Data Privacy:** Secure storage of design data, with no personal data exposure.

2. **Informed Consent:** Participants' data was anonymized in surveys and interviews.

Appendix F: Future Enhancements

1. **Advanced AI Algorithms:** Improve recognition of intricate designs and fabric simulations.
2. **Sustainability Tracking:** Extend blockchain to track environmental impact in fashion production

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Lower tariff an impetus for textile, leather

The lower US tariffs of 18% on textiles, as per the interim India—US trade agreement, will give Indian exporters a clear edge over rivals, particularly China, in the world's largest consumption market. Textiles exporters expect a revival in fresh orders from the US and a bigger share of the \$113-billion market.

The tariff cut is expected to benefit exporters of ready-made garments, carpets, handmade products and cotton textiles. India now enjoys a tariff advantage over key competitors such as China (35%), Vietnam (20%), Bangladesh (20%) and Indonesia (19%). Silk garment exports got a further boost with 'zero duty' under the agreement.

Prabhu Dhamodharan, convenor of the Coimbatore-based Indian Texpreneurs Federation (ITF), said textile and apparel exports could see a month-on-month double-digit growth, lifting the monthly apparel export run rate to \$1.5-1.6 billion from the current run rate of \$1.27 billion.

"Our US buyers are still assessing their order plans. We expect orders that were put on hold

or shifted out of India to return," said Siva Subramaniam, founder and chairman of Tiruppur-based innerwear exporter Raft Garments. The company had been forced buyers to divert orders to Bangladesh, Cambodia and Vietnam following the imposition of higher tariffs.

"With the penal tariff gone, the discount pressure eases, directly improving profitability from February onwards," said Pallab Banerjee, MD, of Pearl Global Industries, said.

Banerjee said US retailers and brands had earlier given exporters a choice of either shifting production out of India or absorbing the 25% penal tariff, which accounted for roughly 15% of the selling cost. "That 15% was a substantial amount. With it no longer applicable from February 7, it should flow straight to the bottom line," he said.

India's leather and footwear sector is another key beneficiary, with the tariff reduction improving India's competitiveness against suppliers such as China, Vietnam, Indonesia, Cambodia, the Philippines and Thailand, opening up a \$42-billion market. ■

India's Textile is in deep danger due to West Asia Crisis

\$120 Crude, Zero Margin : How India's textile hubs are paying the price

By early 2026, the European textile and apparel sector finds itself at a crossroads that challenges traditional market logic. Unlike typical cyclical downturns, the industry is now confronting a crisis, the so-called Sovereign Fibre Trap where Western capital discipline collides with China's state-integrated industrial strategy. European producers, bound by return-on-investment imperatives and cost transparency face competitors who operate under a radically different set of rules. China, through statebacked conglomerates and multi-year industrial planning, has effectively decoupled fibre production from conventional profit motives, transforming polymer and yarn manufacturing into a strategic lever for global market dominance.

The structural shock in fiber economics

The crisis stems from a fundamental asymmetry in how midstream conversion is valued. In Europe, transforming petrochemicals into polymers and yarns is treated as a commodity business: margins dictate operational viability, and plants close if profitability disappears. In China, however, this stage is subsidized under the 15th Five-Year Plan (2026-30), allowing state-supported firms to absorb losses in polymerization and extrusion to secure downstream market dominance. The result is a surge of ultra-lowcost polyester and nylon flooding global markets.

What was once considered a theoretical risk, the Sovereign Fibre Spread has now become industrial reality. In the past year, numerous European polyester assets have been mothballed or repurposed for upstream chip production to avoid head-on competition with subsidized Chinese spinning. This marks an irreversible investment strike, where capital is permanently exiting the European textile midstream rather than waiting for a market rebound.

The price divide: Europe vs. China

The divergence in industrial strategy has created a striking price disparity that underlines Europe's disadvantage. Recent market data from Q4 2025 illustrates the challenge: while European producers shoulder higher energy costs and stringent carbon compliance, Chinese pricing reflects the advantage of state-backed logistics and energy subsidies.

Table: Regional Recycled PET (rPET) Price Comparison (Q4 2025)

Region	Price (\$/metric ton)	Market context
Germany	\$1,351	High energy costs; stringent environmental certification.
US	\$1,233	Softening demand; focus on strengthening domestic supply chains.
China	\$755	Persistent oversupply; benefit of stateintegrated industrial scale.
India	\$770	Emerging production capacity; highly competitive regional supply.

The table makes the gap starkly evident: European rPET costs nearly \$600 more per ton than Chinese equivalents. For Western brands, sourcing locally has become economically irrational without intervention in tariffs, carbon pricing, or supply chain transparency.

Sustainability undermined by import deflation

Europe's sustainability ambitions are also colliding with market realities in an ironic twist. Circular economy mandates, intended to give European companies a competitive edge in recycled fibers, are undermined by imported deflation. Massive Chinese overcapacity in virgin polyester has driven global prices so low that recycled PET in Europe trades at a premium.

As a result, European recycling facilities are under pressure: brands often find it cheaper to purchase subsidized virgin imports than invest in local rPET. Global recycled polyester's market share slipped to 12.5 per cent in 2025, down from 13.6 per cent in 2022, even as virgin polyester production rose to 71 million tonnes, largely due to Chinese expansion. This green inversion highlights how environmental ambition without trade enforcement can inadvertently accelerate de-industrialization.

From fashion to strategic asset

The implications of this industrial retreat extend beyond consumer fashion into critical technical textiles used in defense, medical supplies, and automotive filtration. Industry advocates, led by EURATEX, are now pushing for a reclassification of synthetic fibers as strategic material, emphasizing their role as essential infrastructure rather than mere consumer products. At the February 2026 European Industry Summit, leaders called for a mindset shift, urging policymakers and

India's Textile is in deep danger due to West Asia Crisis

industry stakeholders to treat textiles as a strategic sector, vital to national security and technological sovereignty.

The wave of industrial rationalization

The Sovereign Fibre Trap has already claimed substantial ground. Between late 2024 and 2025, multiple European assets were forced into permanent closure or restructuring due to compressed global margins:

- ❖ Oxxynova DMT (Germany) – Ceased production of DMT, a key polyester precursor.
- ❖ Artlant PTA (Portugal) – Declared insolvency under global price pressure.
- ❖ Plastiverd (Spain) – Halted PET production in November 2025.
- ❖ Indorama Ventures (Rotterdam) – Undertook significant restructuring of PTA/PET operations to mitigate losses.

Europe's textile sector, valued at \$274 billion, remains a global leader in high-end fashion and technical fabrics, employing 1.3 million people across 197,000 companies. Yet, as the global market swells to \$660 billion, the EU segment faces an existential pivot. Historically reliant on decentralized efficiency, Europe now confronts the necessity of tech sovereignty, particularly as Chinese firms file 17 times more patents in textiles than the EU, consolidating their lead in both scale and innovation.

A path forward

Dealing the Sovereign Fibre Trap will require Europe to rethink both industrial policy and market strategy. Capital discipline alone is no longer sufficient when competitors operate under a different logic, integrating loss-leading operations as part of a broader state-backed plan. Europe's challenge lies in balancing sustainability goals with competitive viability, incentivizing local production, and investing in technological innovation to regain control over synthetic fiber production.

Without decisive action the continent risks further de-industrialization, relinquishing both midstream control and the strategic capabilities underpinning its high-end textile and technical fabric sectors. The Sovereign Fibre Trap is not merely an economic challenge it is a test of Europe's industrial resilience in the age of state-directed global competition.

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China Beats US to be India's largest Trading Partner

China has over taken the US to emerge as India's largest trading partner in 2025-26, with bilateral trade reaching \$151.1 billion, while the country's trade deficit with Beijing widened to \$112.16 billion during the period, government data showed.

The US was India's largest trading partner for four consecutive years till 2024-25.

India's exports to China rose 36.66% to \$19.47 billion during the last fiscal year, while imports increased 16% to \$131.63 billion. The trade deficit swelled to an all-time high of \$112.6 billion in 2025-26 as against \$99.2 billion in 2024-25.

On the other hand, the country's outbound shipments to the US grew marginally 0.92% to \$87.3 billion during the last fiscal year, while imports increased 15.95% to \$52.9 billion. The trade surplus decline to \$34.4 billion in 2025-26 from \$40.89 billion in 2024-25.

According to commerce ministry data, China was India's top trading partner from 2013-14 till 2017-18 and also in 2020-21. Before China, the UAE was the largest trading partner. The US has been the largest partner since 2021-22. ■

EXPORT PROSPECTS AND MARKETS

Exports surge 4% to \$860 b in FY26, imports up at \$979 b

Merchandise exports grew by over 4 per cent in the 2025-26 fiscal year, though the overall trade deficit widened by more than 26 per cent for the full year, according to data released by the Commerce Ministry recently.

Despite the annual expansion of the gap, the trade deficit narrowed in March as both exports and imports saw a synchronised dip during the final month of the fiscal year.

Commerce Secretary Rajesh Agrawal said India's exports are doing well despite challenges. Merchandise exports during April-March 2025-26 went up 1 per cent to \$441.78 billion from \$437.7 billion. Imports also increased to \$774.98 billion during the period from \$721.2 billion in 2024-25. Services exports are estimated at \$418.31 billion in 2025-26, showing a growth of around 8 per cent.

For March, India's total exports (merchandise and services combined) are estimated at \$74.11 billion, registering a negative growth of (-)4.58 per cent as against March 2025. Total imports (merchandise and services combined) for March 2026 are estimated at \$76.55 billion, registering a negative growth of (-)5.76 per cent as against March 2025. Accordingly, trade deficit narrowed to \$2.44 billion as against \$3.55 billion in March.

Exports to W.Asia Dip

Due to the war involving the US, Israel and Iran, which began on February 28, exports to West Asia fell 57.95 per cent in March, Agrawal said, adding that total imports from that region also declined by 51.64 per cent in March.

Imports of crude oil and related products fell nearly 36 per cent year-on-year to \$12.18 billion in March, while gold imports declined 31.6 per cent to \$3.06 billion.

Commenting on the yearly data, SC Ralhan, President of FIEO, said : "Crossing \$860 billion in exports is a notable achievement, particularly amid global uncertainties, supply chain disruptions and fluctuating demand. It highlights the adaptability and strength of Indian exporters."

Growth Drivers

He said export growth was driven by a diversified basket, including engineering goods, petroleum products, electronics, pharmaceuticals, chemicals, textiles, gems and jewellery, rice and

marine products, strengthening India's position in global value chains.

The US, the UAE, China, the Netherlands and the UK remained key export destinations. FIEO emphasised the need to further diversify markets and effectively leverage free trade agreements to expand India's global footprint.

According to Aditi Nayar, Chief Economist at ICRA Ltd, amidst a sharp year-on-year dip in oil imports following the West Asia crisis, India's merchandise trade deficit eased to \$20.7 billion in March 2026 from \$21.7 billion in the year-ago month, after having displayed a steep increase in January-February 2026. □

China, Vietnam & Bangladesh resume buying Indian cotton yarn

Demand for Indian cotton yarn has picked up from countries such as China, Bangladesh and Vietnam, among others following the disruption in global logistics after the breakout of war in West Asia.

"There is a very good demand for cotton yarn from China. Due the disruption in the global supply chain, whatever cotton the Chinese buyers may have bought may not reach in time. So instead of buying cotton, they are buying cotton yarn from India to meet their immediate requirement," said Vinay N Kotak, President, Cotton Association of India (CAI).

Kotak said cotton imports were affected because of this disruption in the supply chain.

The freight rates have gone up and also the prices have moved up. Also, the transit time has increased substantially, may be by at least 10-15 days, he said.

Quotas up

To ease the cotton supply situation, China increased the quota for import compared to last year.

Recently, the National Development and Reform Commission (NDRC) of China issued 3 lakh tonnes of cotton sliding-scale duty quota to ease the current tight supply situation. This year, the quota is higher by 1 lakh tonnes when compared with 2025.

Ramanuj Das Boob, a sourcing agent in Raichur, said that the demand for yarn is good from China and also from countries such as Bangladesh and Vietnam.

Yarn prices have improved by ₹10-₹15 per kg on rising demand. Also, the domestic prices are seen improving on firming demand and tracking the global market.

EXPORT PROSPECTS AND MARKETS

Cotton Futures on the ICE are hovering around 68.78 cents per pound, an increase of 13 per cent over the past two weeks.

CCI Hikes Price

In the domestic market, the Cotton Corporation of India (CCI), the largest stock holder, has increased the prices by a total of ₹1,200 per candy in the last two days. "There is good demand for cotton due to the better yarn prices," Boob said.

Taking into account the emerging developments in the markets, the CAI has revised upwards the domestic off-take of cotton by 10 lakh bales (of 170 kg each) to 315 lakh bales as of end-February, compared to the end-January projections of 305 lakh bales. □

Garment exports shrink in Feb amid weak demand

The Ready-Made Garment (RMG) export sector declined 8.6 per cent in February 2026 to \$1.40 billion as against \$1.53 billion in February 2025.

However, the cumulative exports for the period April 2025 to February 2026 stood at \$14.53 billion, up from \$14.46 billion, reflecting a marginal growth of 0.51 per cent, said A Sakthivel, Chairman, Apparel Export Promotion Council (AEPC), in a press release.

Global Tensions

The RMG sector continues to demonstrate resilience despite persistent global economic uncertainties and supply chain disruptions.

The sector has been navigating multiple external challenges, including subdued demand in key markets, he added.

Sakthivel said geopolitical tensions and economic uncertainties had impacted order flows, particularly from major markets, such as the US and parts of West Asia. These developments had resulted in cautious sourcing patterns among global buyers.

"Going forward, the elevated freight rates and the increased cost of inputs have started placing additional pressure on exporters, affecting overall margins and operational planning for manufacturers and exporters across the value chain," he said.

Despite these headwinds, the Chairman of the AEPC expressed confidence in the long-term strength of India's apparel sector, emphasising that the industry continues to adapt through market diversification, product innovation and improved supply chain efficiencies.

He reiterated the industry's commitment to strengthening India's position as a reliable global sourcing destination for apparel. □

West Asia crisis mounts stress for textile exporters

The Indian apparel and textile sector, already battered by a decade of systemic disruptions — from demonetisation and GST rollout to the Covid-19 pandemic, US tariff measures and ongoing geopolitical tensions — is facing fresh headwinds from the West Asia crisis.

India accounts for nearly 3 per cent of global apparel trade, with exports heavily reliant on key markets such as the US, Europe and the UK. Any disruption in global trade routes or demand cycles tends to have a disproportionate impact on the sector. For Tiruppur, the country's knitwear hub, the West Asia region contributes about 5 per cent of total exports, largely comprising innerwear and garments.

"At the request of clients in West Asia, a large volume of consignments is held up at our godowns," said Kumar Duraisamy, Managing Director of Tiruppur-based Eastern Global Clothing.

Rising Input Costs

Input costs are also rising steeply. Coal prices have increased by 80 per cent, while the cost of chemicals and man-made fibres has gone up by around 20 per cent, further squeezing margins.

Beyond exports and production, the crisis is beginning to affect labour welfare. Tiruppur houses nearly four lakh workers in hostels, many of whom depend on commercial LPG for daily needs. Rising fuel costs could strain living conditions if not addressed, industry representatives warned.

The impact due to the crisis has been threefold, said Ashok Jirawala, President of the Surat-based Federation of Gujarat Weavers Association. There have been issues of labour shortages arising due to the LPG crisis; raw material has become expensive and unable to find buyers for expensive fabrics that are now being produced. Nobody wants to buy at increased rates. All this is happening due to the Iran war.

The industry is already clocking losses of up to ₹100 crore per day, a figure that reflects both lost throughput and depressed pricing across fabrics, he said.

Key polyester inputs like monoethylene glycol and purified terephthalic acid are derived from

EXPORT PROSPECTS AND MARKETS

petroleum-based feedstocks, making them sensitive to fluctuations in crude and naphtha markets, and becoming more expensive, he said.

"The yarn has become expensive by 30-40 per cent when compared to last year, in turn leading to cloth that is produced becoming costly. This includes viscose fabrics, nylon polyester, etc.," Jirawala added. "There is no trade happening. In the last 30 days, the payments have also come to a standstill," Jirawala said.

LPG Shortage

The ongoing LPG supply constraints are disrupting industrial operations. The migrant labourers employed in our units are finding it difficult to get LPG cylinders for their own use, Jirawala said. He said that squeeze in LPG availability has also led to large-scale migration of textile workers from Surat.

Aniket Dani, Director, Crisil Intelligence, said West Asia conflict is having a multifaceted impact on the Indian textile industry. The West Asian region accounts for 11 per cent of total exports (UAE: 9 per cent, Saudi Arabia : 2 per cent in FY25), may decline substantially due to limited availability of tankers arising from ongoing conflict. □

Tariff cut could not revive US demand for Indian export

US demand for Indian exports remains weak despite significant tariff cuts, as policy uncertainty and geopolitical tensions weigh on consumer sentiment, industry executives said.

Shipments of shrimp and textiles are yet to pick up due to inventories accumulated during the earlier 50% tariff regime and the ongoing Section 301 probe. Shrimp exports to the US fell 15% year-on-year in the April-December period, while textile shipments declined 16%.

After the US Supreme Court rejected President Donald Trump's tariff on imports, the United States Trade Representative (USTR) launched Section 301 investigations to examine whether countries maintain "structural excess capacity" in manufacturing through subsidies, suppressed wages, or other trade-distorting policies.

"These investigations are likely to restrict the pace of export recovery for US-dependent sectors," industry leaders said.

The textile industry, while optimistic about the current tariff structure, remains concerned about the probe's outcome. "The Indian textile industry is closely monitoring the ongoing Section 301 investigations, given their potential implications for market access in the US," said Chandrima Chatterjee, secretary general, Confederation of Indian Textile Industries (CITI).

If violations are found, the US could impose punitive measures such as tariffs.

"The recent geopolitical developments, especially in West Asia, coupled with policy uncertainties linked to evolving US trade positions, have contributed to a cautious, even bearish, market sentiment in the US. This could moderate the pace of recovery and temper the full potential upside from tariff rationalisation," Chatterjee said.

Shrimp exporters have started feeling the impact, with farm-gate prices declining 10-15% over the past three weeks. "Buyers from regions like Boston, who usually prefer long-term contracts, are hesitant to commit," said an exporter, requesting anonymity.

Pawan Kumar G of the All India Seafood Exporters' Association said, "US buyers still hold high-cost inventories purchased when the tariff was 50%."

To allay concerns around excess capacity, the commerce ministry has collected data from affected industries on installed capacities, global value chain positioning, policy support, and employment to demonstrate that the Indian textile industry does not contribute to global distortions arising from excess capacity.

In contrast, gems and jewellery exports are showing early signs of recovery. Shipments of studded gold jewellery rose 8.87% year-on-year in April-February 2026, although cut and polished diamond exports declined 6.71% during the period. "The current duty is significantly lower than earlier proposed levels and helps maintain competitiveness in this category," said Kirit Bhansali, chairman of the Gem & Jewellery Export Promotion Council (GJEPC). □

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Indian cotton exports see US-B'desh pact as a double-edged sword

The Indian textile and apparel industry is viewing the United States-Bangladesh trade deal as a double-edged sword for Indian exporters, as zero reciprocal tariffs on certain textile and apparel goods from Bangladesh may affect India's competitiveness in that market. Similarly, India's cotton yarn exports to Bangladesh may also be hit due to the advantages announced for the US cotton imports to the neighbouring country.

However, an Indian government source said Dhaka has made significant concessions by opening sectors that were previously protected, in return for slight gains in the textiles sector.

Bangladesh is the world's second-biggest garment manufacturer and is the main competitor of India in the US textile and apparel market, along with China and Vietnam. Under the agreement, US President Donald Trump's administration is set to trim US 'reciprocal' tariffs on Bangladesh products from 20 per cent to 19 per cent, which means the tariff differential between India and Bangladesh has halved from 2 per cent to 1 per cent.

The US also committed to establish a mechanism that will allow for certain textile and apparel goods from Bangladesh to receive a zero reciprocal tariff rate. "This mechanism will provide that a to-be-specified volume of apparel and textile imports from Bangladesh can enter the US at this reduced tariff rate, but this volume shall be determined in relation to the quantity of exports of textiles, e.g. US-produced cotton and man-made fibre textile inputs, from the United States," said a joint statement recently.

"While CITI (Confederation of Indian Textile Industry) is awaiting clarity on the mechanism to be put in place by the US that will allow for certain textile and apparel goods from Bangladesh to receive a zero reciprocal tariff rate, it acknowledges that this opens a fresh challenge for India's textiles and apparel exporters, for whom the US is their single-largest market," said Ashwin Chandran, CITI chairman.

"This challenge is two-fold. First, the tariff differential between India and Bangladesh has halved from 2 per cent to 1 per cent, which is a matter of concern in a sector with narrow profit margins. Secondly, the US-Bangladesh Agreement on Reciprocal Trade could likely adversely affect India's cotton yarn exports to Bangladesh," he added. Bangladesh is already among the leading exporters

of textiles and apparel to the US, alongside China, Vietnam, and India. Any additional advantage for Bangladesh could further increase competition for Indian exporters.

A government official said the agreement has to be assessed in its entirety, rather than by individual provisions or sectors. On the other hand, India has been able to protect areas where Bangladesh has given greater market access.

According to the joint statement on the US-Bangladesh agreement, Bangladesh has committed to provide significant preferential market access for US industrial and agricultural goods, including chemicals, medical devices, machinery, and motor vehicles and parts, information and communication technology (ICT) equipment, energy products, soy products, dairy products, beef, poultry, and tree nuts and fruit.

However, the local spinning and fabric ecosystem in Bangladesh is still giving India an edge. Bangladesh exports about \$44 billion of garments, of which 80 per cent (\$35 billion) are cotton garments, implying \$17-18 billion of yarn and fabric demand. However, its domestic spinning and fabric capacity can support only \$3-4 billion, leaving a structural gap.

Even for the US market alone (₹70,000 crore), this constraint holds. Bangladesh's spinning, pre-treatment, and generation (SPG) sector cannot fully pivot to US cotton due to entrenched exposure to Europe and the UK. "At best, only 20-25 per cent of yarn and fabric demand can be met internally; the balance must be outsourced to India and Vietnam, if rules permit. In such a scenario, Indian yarn and fabric exports benefit," said Prabhu Dhamodharan, convenor, Indian Texpreneurs Federation.

During the January to November period of 2025, textile imports from India and Bangladesh were set at \$9.06 billion and \$7.77 billion, respectively. Imports from India to the US dipped by 5 per cent, 30.1 per cent, and 31.4 per cent in September, October, and November, respectively. However, January to November imports from India increased by 2.3 per cent.

"Now, the reciprocal tariff becomes zero for Bangladesh if made from US cotton, while India is high at 18 per cent. This zero tariff will be for a limited volume that will be determined by the US at a later date," said Sanjay Kumar Jain, managing director of Delhi-based TT Ltd and chairman of the ICC National Textiles Committee. ■

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ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

S. Krishnakumar, says “time has come to perform by way of innovation taking advantage of AI”, while D. Venkadesan, emphasizes “that true innovation comes from empowered employees”, during ITAMMA Award (2024/25) function at Jenny’s Club, Coimbatore held on 7th March 26.

Mr. Omprakash Mantry, President, ITAMMA in his welcome speech mentioned that today, the Global geopolitical and economic uncertainties—including Red Sea disruptions, inflationary pressures, and protectionist tariffs have constrained India's textile exports, causing reduced orders and tightened margins in 2025–2026. Despite these, India targets \$100 billion in exports by 2030 by leveraging China+1 strategies, Free Trade Agreements (UK/UAE), and investments in sustainability.



Mr. Omprakash Mantry, President, ITAMMA delivering Welcome Address

A 9–10% contraction in textile exports to the U.S. is projected for 2026 due to punitive tariffs and a ~15,000 crore revenue loss in hubs like Tirupur.

The conflict in the Red Sea has increased shipping costs, slowing trade with Europe and the U.S.

While challenging, the "China+1" strategy continues to offer opportunities for India to capture market share, provided it overcomes internal bottlenecks like fragmented manufacturing and infrastructure deficits.

The finalized 18% tariff reduction with the U.S. and new FTAs with the UK (effective 2026) are aimed at improving competitiveness against peers like Bangladesh and Pakistan.

The industry is diversifying its market base and focusing on value-added, sustainable, and eco-friendly products to meet tightened EU regulations.

Policies focusing on production-linked incentives (PLI) and infrastructure upgrades are being implemented to boost manufacturing capacity.

Despite the current 4% global market share and export dip in 2024, the long-term outlook remains positive due to strong domestic demand and shifts in global sourcing, with analysts expecting modest growth in 2026.



Chief Guest- Mr. S. Krishnakumar, MD, Sulochana Cotton Spinning Mills & Deputy Chairman, The Southern India Mills & Association (SIMA) delivered Chief Guest Address

Chief Guest- Mr. S. Krishnakumar, MD, Sulochana Cotton Spinning Mills & Deputy Chairman, The Southern India Mills & Association (SIMA) said “On behalf of the entire textile industry particularly the textile industry in South India, I highly appreciate the yeomen services



Chief Guest- Mr. S. Krishnakumar, MD, Sulochana Cotton Spinning Mills & Deputy Chairman, The Southern India Mills & Association (SIMA) was felicitated with shawl and Memento

provided by the textile machinery manufacturers, spares and accessories manufacturers and suppliers, especially the Members of ITAMMA and the services provided by ITAMMA to its

ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

Members since 1948. On behalf SIMA and the entire textile industry, I admire the dedicated leadership and contributions made by the Immediate Past President of ITAMMA, Mr Bhavesh Patel. His expertise, involvement and advice should continue as the Past President not only to ITAMMA but also to the industry. I congratulate and compliment the recipients of Awards in today's function.



"ITAMMA Make in India – Award (2024-25)" was received by Mr. Arpit Sidhpura Director of "Maksteel Wire Healds Pvt. Ltd., Vadodara."



"Recognition of Patent Award (2024-25)" was received by Mr. A.Srivaradhan -Joint Managing Director Millwright Engineering Pvt. Ltd., Coimbatore



"Highest Export Excellence Award (2024-25)" (Textile Machine Parts & Accessories Sector) was received by Mrs Pooja Arpit Sidhpura, Director of Maksteel Wire Healds Pvt. Ltd., Vadodara.

I appreciate the awards committee of ITAMMA for thinking innovatively and bringing several awards based on the contributions made by each-manufacturing unit and recognising every year. In my opinion I don't think any other organisation will be having so many award categories, notably Make in India, Recognition of patterns, export excellence award in each segment and also overall export performance etc., are some of the unique initiatives of ITAMMA that would constantly drive and motivate the industrial units to improve their performance and become a lead player in each area.



"Export Excellence Award (2024-25)" Sector Based (Accessories Sector) - Spinning Segment Large Scale Manufacturers Category was received by Mr Diven Dembla, MD, and Mr Sameer Dua, General Manager, Sales & Strategy-Exports of Precision Rubber Industries Pvt. Ltd., Mumbai



"Export Excellence Award (2024-25)" Sector Based (Accessories Sector) - Spinning Segment Large Scale Manufacturers Category was received by Mr. J.M.Balaji, Vice-President Lakshmi Ring Travellers (Coimbatore) Pvt. Ltd, Coimbatore

Friends yesterday at the inaugural function of TEXFAIR there was a mention about the continuous recession being faced by the Textile Industry and its impact on the Textile Machinery and its spares and accessories manufacturers and

ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

suppliers As rightly mentioned by the Presidents of ITAMMA and TMMMA, in my opinion, the Indian Textile Industry has totally come out of the bad period and the industry is poised to achieve double digit growth rate in a short span of time. The Ministry of Textiles has envisaged attracting USD 100 billion by 2030. In order to make it a reality, the union budget 2026-27 has announced 5 Mega Schemes apart from announcing Mission for cotton productivity in the previous budget and boldly addressing several structural issues like removal of Anti-Dumping duty on all MMF raw materials, slotting entire MMF value chain in 5% GST slab and concluding 3 Mega FTA agreements with UK US and EU. In addition, PM Mitra Park Scheme PLI Scheme, NTTM Scheme etc., would also accelerate the investments and global competitiveness of the Indian Textile Industry.

Therefore now the time has come to perform by way of innovation taking advantage of Artificial Intelligence and other modern technologies and make India to become the Global Leader in Textiles and clothing manufacturing.



"Special Award for Dyestuff & Chemical Products (2024-25)" was received by Mr. Jugal Kishore Pansari, Director and Mr. Anuj Bajpae, Asst. General Manager (Technical Sales & Marketing) of Yogesh Dyestuff Products (P) Ltd., Mumbai



"Export Excellence Award (2024-25)" Sector Based (Accessories Sector) - Spinning Segment under MSME Category was received by Mr. Jugal Kishore Pansari, Director and Mr. Arun Jhunjhunwala, Business Manager (South Zone) Supertex Industries Pvt. Ltd, Mumbai



"DEBUTANT EXPORTER EXCELLENCE AWARD (2024-25)" was received by Mr Laxmikant Rathi, Vice-President and Mr Mohan Raj, Vice-President, Sales, of The Indian Card Clothing Co. Ltd., Maharashtra



"Export Excellence Award (2023-24)" Sector Based (Accessories Sector)- Processing Segment under MSME Category was received by Mr Omprakash Mantry, Director, of Century Inks Pvt. Ltd., Mumbai



Guest Speaker - Mr. D. Venkadesan, CEO, Sri Jayajothi and company private limited Rajapalayam delivered Technical presentations on - "Innovation is Not Technology - It is People"

ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

With these few words I once again thank the organisers for providing me an opportunity to participate in this memorable event."

Guest Speaker- Mr. D. Venkadesan, CEO, Sri Jayajothi and company private limited, Rajapalayam made his presentations on "Innovation is Not Technology – It is People"



Guest Speaker - Mr. D. Venkadesan, CEO, Sri Jayajothi and company private limited Rajapalayam was felicitated with shawl and Memento



Release of ITAMMA Voice No. 19



Memento offered to Sponsor- Mr. Jaivardhan, Director - Strategy & Global Sales, Indo Technology Pvt. Ltd. after his presentations on "The Next Wave of Textile Manufacturing: Automation, AI and Smart Factories"

" Sri Jayajothi and Company Private Ltd., is a flagship organization of our group with its core activity involving spinning of yarn. We are one of the larger spinning Mills in India. Offering a diverse products to fulfil demands of customers worldwide. We have perfected our spinning processes by applying state of the art automated technology and innovation to every phase of our yarn manufacturing process.



Memento offered to Co-sponsor-AU Small Finance Bank Limited, (A Scheduled Commercial Bank)



Memento offered to Co-sponsor- Ayushman Solar, Channel Partner of TATA Power)



Farewell Speech delivered by Mr Bhavesh Patel, immediate Past-President, ITAMMA

ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

We continued to focus on product quality and our commitment to extraordinary customer service. With over 70,800 Spindles under one roof, we offer 100% cotton yarn, Blended yarn, Warp yarns, Hosiery yarn, Ply yarns, Cabled yarns, Slub yarns, Multi-count and Multi-twist yarns.



Felicitation of Mr Bhavesh Patel, immediate Past-President, ITAMMA by Office Bearers



Felicitation of Mr Bhavesh Patel, immediate Past-President, ITAMMA by Chief Guest



Felicitation of Mr Bhavesh Patel, immediate Past-President, ITAMMA by ITAMMA Staff

Sri Jayajothi and Company Limited (SJCL), the focus is placed on human capital, culture, and expertise rather than just machinery. He emphasizes that true innovation comes from empowered employees, experience, and leadership fostering a creative, problem-solving environment.

He added that Innovation is fundamentally a human-driven process, not merely the adoption of new technology. It is a mind-set, initiative, and culture that empowers people to solve problems, adapt, and create value. While technology is a tool, sustainable innovation requires human ingenuity to drive, change, and effectively implement new ideas.



Felicitation of Mr Bhavesh Patel, immediate Past-President, ITAMMA by India ITME Society



Felicitation of Mr Sundar Raj for his excellent efforts in making this event a grand success

ITAMMA Award 2024-25 Function held at Coimbatore on 7th March 2026

Innovation is a proactive, cultural mindset, not just a product or software upgrade. It requires individuals to take initiative, challenge existing norms, and take responsibility for problem-solving. True innovation comes from understanding human needs rather than just pushing technical capabilities. Often, the best innovations involve improving, collaborating, and rethinking processes rather than buying new tech. Technology is a "crutch" if people are not empowered to use it to create genuine, human-centric change. Innovation stems from the collective skill, dedication, and ingenuity of people, not just the implementation of new technology. The company, Sri Jayajothi and Company Limited, is a prominent player in the yarn-spinning and textile industry, known for having experienced promoters. Emphasizing employee development, fostering a culture of continuous improvement, and leveraging human experience to drive operational excellence in textile manufacturing.



MR. Vishal Masand , Vice- President (2026/27),
ITAMMA delivered Vote of Thanks

Memento offered to Sponsor- Mr. Jaivardhan, Director - Strategy & Global Sales, Indo Texnology Pvt. Ltd. after his presentations on "The Next Wave of Textile Manufacturing: Automation, AI and Smart Factories".

Co-sponsors AU Small Finance Bank Limited, (A Scheduled Commercial Bank)

Co-sponsors Ayushman Solar, Channel Partner of TATA Power)

Felicitation speech by Mr. Bhavesh Patel, Immediate Past President (2024/25), ITAMMA informed that

Felicitation of Mr Sundar Raj for his excellent efforts in making this event a grand success.



Audience

MR. Vishal Masand Vice- President (2026/27), ITAMMA, congratulated all the award winners and thanked Chief Guest, Immediate Past-President, Guest Speakers, Sponsors, Press and audience for sparing their valuable time and attending this event.

For further information, please contact :

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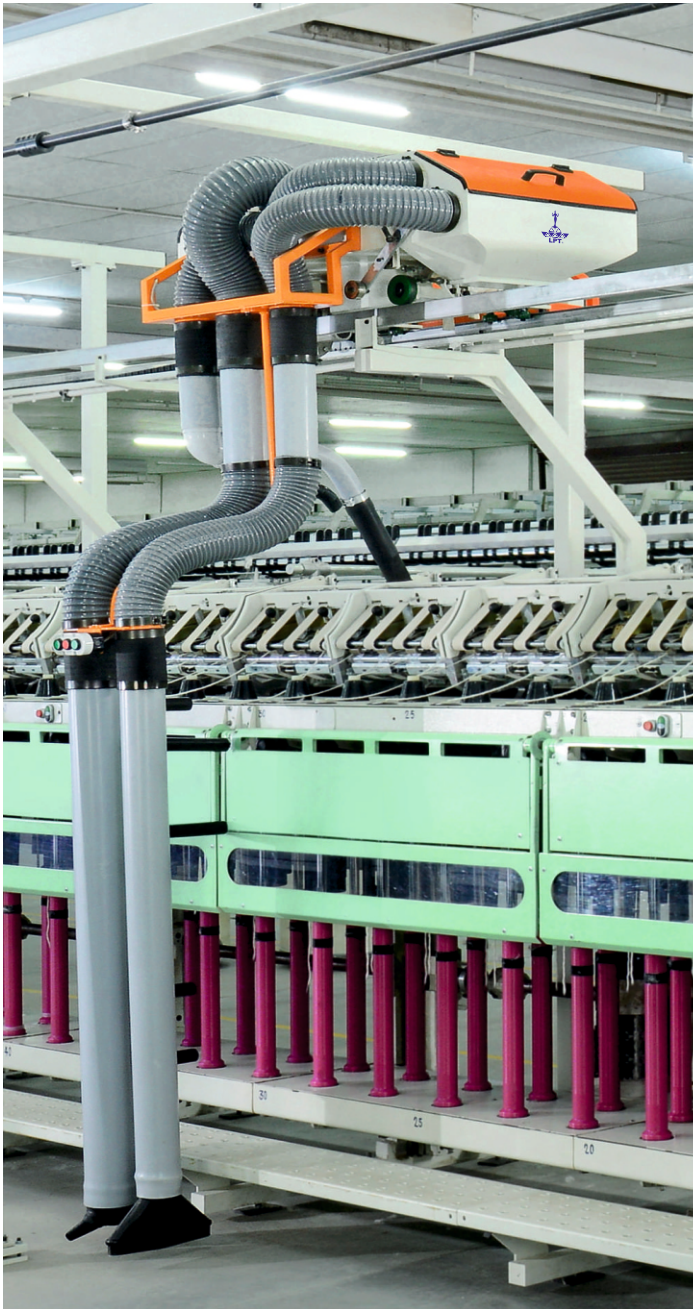
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Durak Tekstil to drive innovation at Texprocess 2026 with its functional threads

Durak Tekstil is set to showcase its advanced technology in functional technical threads in Texprocess 2026

Developing solutions for dozens of industries ranging from apparel and automotive to footwear, protective clothing, furniture, and mattress, Durak Tekstil will showcase its expertise in functional technical threads at Texprocess 2026.

As one of the leading manufacturers of industrial sewing and embroidery threads, Durak Tekstil will take part in Texprocess 2026, the trade fair for garment and functional textile processing to be held in Frankfurt from April 21–24, presenting solutions developed through its R&D efforts.



Visitors will be able to explore conductive, scented, cut- and flame-resistant, glow-in-the-dark, and reflective threads, along with more, at Durak Tekstil's booth H30 in Hall 8.0. At the exhibition, the company will not only display its innovative, R&D-driven threads and sample applications, but will also emphasize its position as "a solution partner beyond thread" for the industry.

Yiğit Durak, Vice Chairman of the Board at Durak Tekstil, stated: "Texprocess is one of the key exhibitions we prioritize, both for presenting our products and for engaging with the global market. With its broad and multi-layered visitor profile, the exhibition is followed not only by manufacturers from various industries but also by educational and research institutions. Therefore, we also see Texprocess as a platform to showcase our capabilities. We aim to demonstrate the technical superiority of our threads, all shaped through our R&D efforts, as well as what they can achieve

functionally. At the same time, our main goal is for visitors to leave our booth positioning Durak Tekstil not merely as a thread manufacturer, but as a reliable and innovative solution partner on a global scale. We have a very wide product range, and in this context, we aim to engage with decision-makers from a broad spectrum, from sportswear and automotive to mattress, design and occupational safety."



"At Texprocess, we will not redefine ourselves, we will express ourselves correctly"

Emphasizing that they have developed indispensable products for many different industries, Yiğit Durak noted that despite creating technically strong products, it is not always easy to convey the real benefits these products provide to end users. Durak said: "It is not possible to clearly demonstrate the difference created by the thread, neither in raw bobbin form nor on the finished product. We will increase our efforts to build this awareness among end users. In this context, we have redesigned our product presentation at Texprocess 2026 as a platform where we do not redefine ourselves, but express ourselves correctly. Through the interactive setups we have prepared, we will demonstrate not only the technical features of our threads but also the advantages they offer when used correctly. Visitors will be able to focus more on inspiring applications that can be achieved with our threads at our booth."

Functionality in textiles begins with Durak threads

Visitors to Texprocess 2026 will be able to discover functional, high-tenacity threads addressing a wide range of applications at the Durak Tekstil booth. Among the threads to be showcased, the following stand out:

Duma – Duraless and Durabobbins threads, Durak SilverPro conductive thread, Durak Redolent scented thread, Durak Fire Safe Aramid threads, Durak Cut Safe thread, UV – WR – AS – ASK and OS threads, glow-in-the-dark embroidery thread



Durak Milky Way, reflective Durak Reflective thread, CFR threads, the sustainable Eco thread group, Lyosense and Lyostitch threads, Duracotton Bio thread made from organic cotton, Durak Poly-Strong PC-IR thread providing invisibility against infrared rays, Durak Laser-Safe thread, pest- and insect-repellent Durak Bug Safe thread, cooling-effect embroidery thread, UV color-changing thread, and heat color-changing thread.



With the strength of its well-established history of more than 50 years, Durak Tekstil has achieved significant gains in its export-oriented growth strategy in recent years and continues its efforts to reach its target markets and expand its customer network at Texprocess 2026, taking place from April 21–24.

About Us

Founded in 1972 in Bursa, Durak Tekstil develops and produces sewing and embroidery threads and sells them domestically and internationally. Durak Tekstil has a production facility in Türkiye, as well

as several sales offices and representatives abroad. The company, which cooperates with global brands from Türkiye and abroad, responds to the textile industry's growing demand for quality and qualified products.

Thread solutions developed and manufactured by Durak Tekstil are preferred in apparel/garment, footwear/leather, denim, outdoor, automotive, mattress/quilting, broderie and embroidery applications, as well as in protective technical textile applications where flame-retardant and cut-resistant threads are used.

For further information, please contact:

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<https://www.durak.com/>



The company exhibits its latest innovations at PI Apparel Europe

Jeanologia showcases the future of product development

AI, digital design and data-driven sustainability converge in a new approach to fashion production

Jeanologia is showcasing how software is transforming product development in the fashion industry at PI Apparel Europe: The Fashion Technology Show, taking place on March 30–31 in London.

At this year's event, the company presents its latest software developments, focused on two key areas shaping the future of the industry: digital product development and environmental impact measurement.

Digital product development: from image to production

Jeanologia introduces a new paradigm in product development, where design and production are seamlessly connected through software, reducing time, increasing accuracy, and eliminating inefficiencies.

At the core of this transformation is Billy, recently launched by Jeanologia as the first artificial intelligence developed specifically for denim design. Billy is being showcased live at PI Apparel Europe, where visitors can see how the system

CORPORATE NEWS

transforms any garment image into a production-ready laser design in seconds.



By analyzing a simple photograph, Billy interprets contrasts, creases, and natural wear patterns, automatically extracting the design of the fabric and converting it into a precise laser file ready for execution. What traditionally required hours—or even days—of manual work by skilled designers can now be achieved almost instantly, with accuracy, consistency, and no need for manual retouching.



More than a tool, Billy represents a breakthrough in the creative process, connecting inspiration, digital design, and industrial execution in a single step.

This innovation builds on Jeanologia's extensive expertise in laser technology and denim finishing, with AI trained on thousands of real production designs developed over more than 25 years.

Complementing this is eDesigner, Jeanologia's digital design platform for denim digital product development, which allows designers and developers to create and refine finishes in a fully virtual environment before physical production.

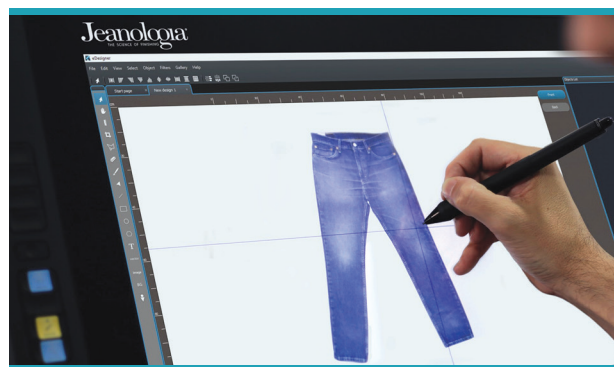
Through hyper-realistic simulations, users can visualize washes, adjust effects, and validate results in real time, significantly reducing the need for physical samples and shortening development timelines. eDesigner also enables seamless collaboration across teams and suppliers, ensuring alignment between design intent and final production.

Together, Billy AI and eDesigner redefine product development, enabling brands to move from concept to production faster, with greater precision and creative freedom.

Measuring impact: from perception to data

Alongside its digital design solutions, Jeanologia presents EIM (Environmental Impact Measuring platform), the industry standard for assessing the environmental impact of garment finishing processes.

EIM provides measurable data on water, energy, chemical use, and worker impact, enabling brands and manufacturers to evaluate processes, compare results, and track improvements over time.



By integrating measurable parameters into product development, EIM addresses the growing demand for transparency, traceability, and compliance across the fashion industry.

"The industry is moving towards a new model where creativity, efficiency, and sustainability must coexist within the same workflow," says Carmen Silla, Marketing Director at Jeanologia. "Technology is what makes that integration possible."

Jeanologia's proposal at PI Apparel EU reflects a broader industry shift, where digitalization and data are redefining how fashion is designed, produced, and evaluated. By combining AI-driven design tools with impact measurement, the

company presents a model in which creativity, efficiency, and sustainability are fully connected within the same workflow.

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.



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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D'Decor Home Fabrics Expands Its Retail business with New Showroom Launch

D'Decor Home Fabrics continues its expansion journey across India, by launching a new showroom in Kolhapur today. This milestone highlights the brand's strong growth trajectory and retail scaling capabilities by reflecting its growing resonance with consumers seeking premium home décor solutions, while reinforcing its commitment to design excellence, innovation, and elevated living experiences.



In a short span, the brand has redefined the home decor retail sector by offering an immersive shopping experience that features exquisite curtain and upholstery fabrics, bedding and wallpaper of D'Decor along with the advanced, high-performance solutions of FabriCare by D'Decor - from easy clean curtain and upholstery fabrics to rugs, blinds, and more.



The new store in Kolhapur is envisioned as a signature home décor destination. It showcases an extensive library of meticulously crafted designs, textures, and patterns across curtains, upholstery, bed linen, and wallpapers. The space features thoughtfully curated experience zones where customers can interact with the fabrics, visualizing

CORPORATE NEWS

their dream homes through the brand's design-first philosophy.

The showroom also highlights D'Decor's Fit-To-Perfection – a made-to-measure service for custom, factory-finished curtains, the Style Expert Service - for a professional design curation, automated blinds, unique kids' bedding, and more to suit modern lifestyles.

With this launch, D'Decor further solidifies its presence across key metros and Tier-II cities, joining an expansive national network that includes 250+ Cities.



Speaking on the occasion, Simone Arora, Creative Director, D'Decor Home Fabrics, said: "As we continue our retail expansion journey, the Kolhapur launch is a proud milestone for us. At D'Decor Home Fabrics, we believe every home is a canvas for self-expression, and this expansion allows us to bring global trends and design closer to our consumers. This moment reflects our long-term vision of building a nationally admired home lifestyle brand. Our growth is rooted in a legacy of innovation, design leadership, and trust. For decades, we have stood for reliability, aesthetic excellence, and value creation—principles that continue to guide our retail journey as we shape the future of Indian homes."

Mr. Manish Dhaka, VP – Head India Sales, D'Decor Home Fabrics, added, "As we scale our presence across India, the launch of the FabriCare & D'Decor Exclusive Showroom in Kolhapur reflects both our growth momentum and the strong trust we've built with our customers. We remain focused on delivering design-led, experience-first home solutions that blend innovation, quality, and functionality. Kolhapur represents a key strategic market for us, with its growing demand

for premium home décor, making it an important focus area in our expansion journey. This milestone further strengthens our commitment to setting new benchmarks in the home décor space and accelerating our journey as category leader."



D'Decor Home Fabrics continues to lead the category by blending refined aesthetics with experiential retail, ensuring that every touchpoint - from the fabric feel to the final installation - embodies the brand's legacy of trust and innovation.

About D'Decor Home Fabrics Pvt Ltd

D'Decor Home Fabrics Pvt Ltd., established in 1999, is a global leader in premium home textiles, known for quality, innovation, and design. The company offers a wide range of products, including curtains, upholstery, bed & bath, blinds, wallpapers, and rugs, blending style with functionality. D'Decor Home Fabrics is dedicated to enhancing living spaces with beautiful, sustainable, and high-performance fabrics. The company's new brand FabriCare offers four key high-performance product ranges: FabriCare Easy Clean (stain-resistant, easy-to-clean fabrics), FabriCare Indoor/Outdoor (UV-proof, fade-resistant fabrics), FabriCare Home Wash (machine-washable curtains), and FabriCare Blackout (100% blackout curtains), designed for modern living, combining functionality and elegance, making it perfect for both residential and commercial spaces. Trusted by designers, homeowners, and industry professionals worldwide, D'Decor continues to set benchmarks in the home fabrics industry.

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Cannes Lions AOTY 2022

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Kornit Digital appoints Former ASOS Nick Beighton to Help Shape the Future of On-Demand Fashion

Mr. Beighton Brings Demand-Side Perspective to Accelerate Kornit's On-Demand Digital Production Strategy

Kornit Digital LTD. (NASDAQ: KRNT) ("Kornit" or the "Company"), a global leader in sustainable, on-demand digital fashion and textile production technologies, today announced it has appointed Nick Beighton, former Chief Executive Officer of ASOS, as a strategic advisor to the Company and its Board of Directors. His appointment reflects Kornit's continued focus on strengthening its connection to global brands, retailers, and digital commerce platforms as the industry transitions toward on-demand production. The Company plans to nominate Mr. Beighton for election to the Board at Kornit's 2026 Annual Shareholder Meeting.



Nick Beighton
 Chief Executive Officer of ASOS,

"Nick's experience leading a digitally native global fashion platform gives him a powerful perspective on the realities brands and retailers face today around speed, agility, and capital efficiency," said Ronen Samuel, Chief Executive Officer of Kornit Digital. "As the fashion industry moves toward more demand-driven production models, his insight will help Kornit strengthen its role in enabling the next generation of global supply chains."

Nick Beighton commented, "Kornit sits at the center of one of the most important shifts happening in fashion today. The industry is moving from inventory-heavy supply chains toward more

agile, demand-driven production models. The convergence of retail, manufacturing, and on-demand fulfillment is accelerating, and Kornit is uniquely positioned to enable this transformation."

Having led ASOS through one of the most significant digital transformations in modern fashion retail, Mr. Beighton brings an exceptional track record in global fashion and e-commerce. Over a 12-year tenure with ASOS, he helped scale the business into a multi-billion-dollar global platform, navigating hyper-growth, supply chain complexity, omnichannel evolution, and the industry shift from inventory-based models toward more agile, demand-driven operations. His experience spans global fashion and apparel dynamics, digitally native supply-chain innovation, and the convergence of retail and manufacturing, with a proven ability to lead organizations through structural change and disruption.

Mr. Beighton's perspective comes from the demand side of the industry, shaped by decades leading retail and consumer-focused organizations. This experience complements Kornit's existing Board composition and adds a valuable perspective on how global brands and digital platforms are rethinking supply chains, capital efficiency, and speed to market.

Mr. Beighton's engagement will commence on April 1, 2026. Mr. Beighton will also participate in Kornit's upcoming Konnections 2026 industry event, where global brands, manufacturers, and technology leaders will discuss the future of fashion production.

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, software, 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. To learn more, visit www.kornit.com.

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CORPORATE NEWS

Circulose and CTA team up to enable lyocell fibers using CIRCULOSE® pulp

Circulose has announced an agreement with China Textile Academy Green Fibre (CTA) to offer lyocell fibers produced using CIRCULOSE® pulp. Producing lyocell from recycled pulp at commercial scale is an important step in making textile-to-textile recycled materials available across a wider range of textile applications.

Lyocell fibers are produced through a solvent-based spinning process and are valued for their strength, softness, and sustainability profile. The lyocell process operates in a largely closed-loop system, where the solvent is recovered and reused, making it one of the most environmentally favorable fiber production methods in the industry – even more so when produced from recycled raw material instead of virgin wood.

Through the collaboration, CTA and Circulose will offer brand partners lyocell fibers of both standard and non-fibrillating grades, both produced using CIRCULOSE® pulp.

Supply will be limited in 2026, with the ambition to scale capacity to meet demand during 2027. Commercial volumes in 2026 will be available only to selected brands, while those seeking access in 2027 are invited to engage in product development already now.

In addition to commercializing lyocell made with CIRCULOSE® under Circulose's license model, CTA has committed to purchase a set volume of CIRCULOSE® pulp over the coming years. Leveraging close collaboration between both parties, Circulose will achieve steady enhancements in CIRCULOSE® pulp performance and quality, while CTA will scale up the production capacity of recycled lyocell fibers through optimized manufacturing processes. By ensuring demand certainty for recyclers like Circulose, this kind of commitment enables the investment and scale needed to reduce costs and accelerate the mainstream adoption of circular textile fibers across the industry.

"Lyocell is a more sensitive process than viscose, making the use of recycled pulp more challenging," said Jonatan Janmark, CEO of Circulose. "CTA's ability to produce lyocell from CIRCULOSE® is a strong testament to their technical capabilities, as well as the performance of our pulp. We are very pleased to work with CTA to bring this opportunity

to our brand partners and are excited by what it means for the broader adoption of circular materials."

CTA Green Fibre is a producer of lyocell fibers and part of the China General Technology (Group) Holding Co. Ltd., one of China's leading research and industrial platforms for textile innovation. CTA operates commercial-scale lyocell production facilities and has developed proprietary technologies for advanced lyocell fiber variants.

About Circulose

Circulose is a pioneer in textile-to-textile recycling, owned by Altor. The company operates the world's first commercial-scale chemical textile recycling facility in Sundsvall, Sweden. Using a patented process, Circulose transforms end-of-life cotton-rich textiles into CIRCULOSE® - a high-quality dissolving pulp used to produce regenerated fibers like viscose and lyocell, replacing virgin forestbased inputs. Guided by its mission to lead the shift to a circular fashion industry, the company provides premium recycled raw materials and end-to-end supply chain support to help brands accelerate the adoption of next-generation materials. To learn more, visit www.circulose.com.

For further information, please contact:
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Studio Heritage Living Launches ; a Strategic Advisory Firm, Redefining how brands and retailers approach Global Home Textile Sourcing

Introducing Studio Heritage Living (SHL), a strategic sourcing and product development advisory, officially announces its launch, bringing a new lens to the global home textile industry. The firm is positioned to help brands and retailers navigate the growing complexities of global sourcing with greater clarity, foresight, and precision.

Founded by industry veteran Disha Shah, who brings over two decades of hands-on experience across global manufacturing ecosystems, including China, Turkey, Portugal, Egypt, and Bangladesh, Studio Heritage Living works with brands and retailers to design smarter, more resilient supply chains in an increasingly complex sourcing environment.

With deep expertise at the intersection of product creation and supply chain strategy, SHL enables companies to make informed decisions at the most critical stage—before production begins.

Unlike traditional sourcing companies or buying houses that operate within execution, SHL works upstream, partnering with leadership and product teams to define product viability, country selection, vendor alignment, and cost architecture. This ensures products are built not only for design appeal, but for scalability, margin efficiency, and long-term sustainability.

In today's landscape, where tariffs shift rapidly, country economics evolve, and supply chain risks are increasingly complex, early-stage decisions have become business-critical. SHL addresses this by helping companies build multi-country sourcing strategies, improve cost visibility, and reduce downstream execution risks.

The firm's engagement model is delivered through 6–10 week advisory programs, designed to equip internal teams with clear strategic direction and execution-ready frameworks.

Speaking on the launch, Disha Shah, Founder, Studio Heritage Living, said, "In an increasingly volatile global sourcing environment, the biggest advantage lies in making the right decisions before production begins. Studio Heritage Living is built to bring that strategic clarity, helping brands move from reactive execution to proactive, well-informed sourcing."

With its advisory-first approach, SHL is set to reshape how home textile brands approach sourcing, moving the industry beyond transactional processes towards sharper, strategy-led decision making and long-term value creation.

About Studio Heritage Living

Studio Heritage Living (SHL) is a strategic sourcing and product development advisory focused on the global home textile industry. Founded by Disha Shah, the firm partners with brands and retailers to build resilient, scalable, and future-ready supply chains through early-stage strategic intervention.

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Italian Textile Machinery eyes on Geneva for Index 2026

An important delegation of Italian companies will exhibit at the upcoming INDEX 2026, the world's leading event for the nonwovens sector, taking place from May 19 to 22 in Geneva (Switzerland). Numerous Italian exhibitors will be present within the Italy Pavilion, organized by the Italian Trade Agency (ICE) and ACIMIT, an exhibition area of over 140 square meters dedicated to the latest innovations proposed by the Italian industry.

The trade fair has always represented the main global showcase for manufacturers of nonwoven machinery. The international market for these technologies is constantly evolving, and Italy continues to play a leading role in the world trade of solutions dedicated to this specific sector.

Despite the challenges of the global market, the Italian export of textile machinery technologies has shown signs of resilience, with performance levels that underscore the competitiveness of our solutions.

"We hope that INDEX 2026 can represent a moment of strong momentum for the sector, confirming the recovery of global demand for innovative machinery," says the President of ACIMIT, Marco Salvadè. Over the last few years, global demand has shifted toward technologies capable of combining production cost savings with environmental respect, as also requested by major brands and final consumers. "Today, Italian manufacturers can offer highly customized solutions particularly suitable for making nonwoven production more sustainable," confirms Salvadè. "In Geneva, Italian manufacturers will present the most recent innovations necessary to make our customers' production processes more efficient and sustainable."

Exhibitors at the Italy Pavilion are: A.Piovan S.r.l., Aeris S.r.l., Bettarini & Serafini S.r.l., Bianco Sp.A., Bonino Carding Machines S.r.l., Cubotex S.r.l., M.T.V. S.r.l., Marzoli Machines Textile S.r.l., Monti Antonio Sp.A., Ommi S.r.l., Texera S.r.l., Unitech Industries S.r.l..

The strength of Italian participation is further confirmed by ACIMIT member companies exhibiting at individual stands or through local dealers, including: Cormatex S.r.l., Dell'Orco & Villani S.r.l., Loptex S.r.l., Ramatex Italia S.r.l., Ramina S.r.l..

CORPORATE NEWS

ACIMIT (Association of Italian Textile Machinery Manufacturers) was founded in 1945 with the primary objective of promoting the Italian textile machinery industry by supporting its activities both in Italy and abroad.

ACIMIT represents an industrial sector comprising approximately 300 companies (employing nearly 13,000 people) that produce machinery with a total value of about €2.1 billion, of which approximately 86% is exported. Creativity, sustainable technology, reliability and quality are the hallmarks that have made Italian textile machinery a leader worldwide.

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Mayer Mümessilik showcasing Mayer & Cie. portfolio at ITM 2026

Circular knitting machine builder signals restart and continued global presence

At ITM 2026, Mayer Mümessilik will showcase a selection from Mayer & Cie.'s current product portfolio. The presentation of the longstanding Turkish agent at booth 303B in hall 3 will also include some of the latest machines. Xu Hongjie, the future owner of Mayer & Cie., will also be present at the show. The company is approaching the final stage of its transition, with all required regulatory approvals now secured from both German and Chinese authorities, paving the way for the formal closing.

Mayer Mümessilik featuring Mayer & Cie. portfolio at ITM

"ITM is one of the most important trade fairs in the textile machinery industry," says Stefan Bühler. The long-standing Area Sales Manager has recently rejoined the Mayer & Cie. successor company. He adds: "Accordingly, Mayer & Cie.'s participation in ITM 2026 carries significant importance."

At least two circular knitting machines will be featured at the Mayer Mümessilik booth at ITM 2026. Customers and visitors will have the opportunity to explore a selection of the current product portfolio and meet the new owner in person.

"We have always been convinced of the excellent engineering and technology of Mayer & Cie. machines," says Kahraman Güveri, partner at Mayer Mümessilik. Güveri welcomes that Mayer &

Cie. has found an investor and sees great potential in the restart: "The future owner combines German textile machinery tradition with a global mindset and an agile management philosophy."

Current status: Major milestone achieved

Mayer & Cie. initiated insolvency proceedings in December 2025. In February 2026, Xu Hongjie, a member of the family that owns Huixing, acquired the circular knitting business. The purchase agreement was signed on February 9.

The company has since been undergoing a transition phase, as completion of the transaction required approvals from both Chinese and German authorities. These approvals have now been granted. "This marks a decisive milestone in the process," says company spokesperson Claudia Bitzer.

With all regulatory clearances in place, Mayer & Cie. is now moving ahead to the formal closing. "The closing is the key requirement to fully resume business operations."

The successor company expects the transaction to be formally completed by the end of the month.

About Mayer & Cie. Global (currently still operating under the name of a transitional company)

Mayer & Cie. is a German manufacturer of circular knitting machines headquartered in Albstadt. Founded in 1905, the company remained family-owned for four generations and is globally recognized for its premium technologies for single jersey, double jersey, interlock, and jacquard applications. Over the course of its history, Mayer & Cie. has delivered more than 80,000 machines worldwide.

In December 2025, the company initiated insolvency proceedings. Mayer & Cie. subsequently ceased operations before a potential new owner was secured. The company is now being repositioned under its established brand as Mayer & Cie. Global. The transfer process is underway and, following approvals from both German and Chinese authorities, is expected to be completed shortly.

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Fashinza a global fashion supply chain acquires Qckin in order to helping brands source faster and for being more efficient

Fashinza, the global fashion supply chain platform helping brands source faster and more efficiently, has announced acquisition of Qckin, a manufacturing-focused design to delivery startup founded by industry veterans Prem Kumar and ManojkumarPatil who bring deep operational expertise in apparel manufacturing and brand understanding. The founding team brings 50+ years of combined industry experience, with leadership stints across companies like Cultfit, Brand Studio, Raymond, Royal Enfield, and Gokaldas.

They have built and scaled brands/businesses end-to-end, with deep expertise across the full value chain ranging from design, fabric, to garmenting and a strong understanding of the entire supply chain ecosystem. They also bring strong market knowledge across key sourcing hubs including China, Bangladesh, and India, enabling more strategic sourcing decisions.

This acquisition marks a strategic step in Fashinza's plan to integrate technology-led sourcing with specialized manufacturing, enabling global fashion brands to move from design to production faster and more cost-efficiently. The move also comes as brands diversify sourcing strategies amid geopolitical shifts and evolving trade dynamics, prompting Fashinza to strengthen its manufacturing ecosystem through captive facilities for a more resilient supply chain.

As part of the agreement, Qckin's founders will continue to lead operations, working closely with Fashinza to scale specialized manufacturing across India and Bangladesh, focusing on high-demand categories such as shirts, T-shirts, jeans, trousers, and woven tops.

Commenting on the same, Abhishek Sharma, Founder & CEO of Fashinza, said "Fashion supply chains globally are undergoing a fundamental shift. Brands today want speed, transparency

and reliability in manufacturing. Our vision at Fashinza has always been to combine technology with manufacturing expertise to build a modern supply chain platform. With Qckin joining us, we are taking a significant step toward building specialized manufacturing clusters across India, Bangladesh and China that are deeply integrated with our technology platform and capable of serving global brands at scale."

Prem Kumar, Co-Founder of Qckin, said "Having spent decades running factories and managing sourcing for large brands, we have seen the inefficiencies that exist in traditional apparel manufacturing. Partnering with Fashinza allows us to combine operational expertise with a powerful technology platform that brings better demand visibility, planning, and global market access."

Manoj Kumar Patil, Co-Founder of Qckin, added "This partnership will allow us to build highly specialized manufacturing units that can deliver speed, quality, and flexibility. With Fashinza's global brand relationships and supply chain technology, we believe India can become a much stronger manufacturing base for the next generation of fashion brands."

Expansion Plans Across India

The Qckin facility will initially focus on shirts and woven tops, with plans to scale manufacturing capabilities over time. Fashinza works with leading global and domestic brands such as Shein, Reliance Retail, Myntra, and The Bear House, and recently achieved profitability driven by strong growth in its European business.

As global supply chains shift, Fashinza is positioning itself as a technology-driven manufacturing partner, with plans to expand across 3–4 locations in India through acquisitions and strategic partnerships.

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TEXTILE EVENTS

ITMA 2027

14-22 September 2027
Messegelaende Hannover
Germany

Human-Centric Manufacturing: What It Means for Textile Production

From the Jacquard loom to AI-driven systems, textile manufacturing has evolved through technology, but the next shift changes the rules entirely.

Today, it is not just about automation, but how humans and machines are beginning to work more closely together.

This shift is not theoretical. It is already driving measurable market growth.

THE \$664M OPPORTUNITY

The global textile automation market is projected to grow by \$664 million by 2029 (Source: Technavio). As we move from Industry 4.0 to 5.0, we are not just automating; we are humanising technology.

For textile manufacturers, this shift will redefine productivity, workforce skills and long-term competitiveness, and how they invest in future production capabilities.

ITMA 2027: Where Industry Transformation Becomes Business Opportunity

As manufacturers gear towards more human-centric production models, they would require technologies that enhance productivity, flexibility and workforce integration.

This shift is already influencing what manufacturers are looking to invest in and where they source for solutions.

At ITMA 2027, you connect directly with global manufacturers, brands and decisionmakers sourcing solutions across the textile value chain.

Get ready to present your solutions at ITMA 2027, the platform where buyers actively seek and evaluate these solutions for essential investments.

Book Your Accommodation

A range of accommodation options are available within easy access of the Hanover venue. Secure your stay through the official online booking platform managed by bnetwork, ITMA 2027's official travel agent.

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



Intex

5-6-7 August 2026
BMICH, Colombo
Sri Lanka

Showcase your innovations at Intex – The Premier International Textile Sourcing Show of South Asia, taking place on 5-6-7 August 2026 at BMICH, Colombo. This 19th edition of Intex is the ultimate gateway for global textile companies to connect with thousands of qualified buyers and trade visitors, build strategic partnerships, and tap into one of the region's fastest-growing markets. Secure your exhibition space today and position your brand at the forefront of textile innovation.

Exhibitors Experience at Intex Sri Lanka 2025

Major Exhibits

● Fibres ● Yarns ● Apparel Fabrics ● Denim Fabrics ● Clothing Accessories ● Embroidery & Trims ● Textile Studios ● Fashion Trends

Exhibiting Countries

● China ● Hong Kong-PRC ● India ● Indonesia ● Japan ● Korea ● Luxembourg ● Pakistan ● Sri Lanka ● Taiwan-PRC ● The Netherlands ● Turkey ● UK ● USA and more...

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ITM 2026

International Textile Machinery Exhibition

9-13 June, Istanbul

The Address for Environmentally Friendly Dyeing and Finishing Systems: ITM 2026

Dyeing and finishing technologies, one of the most critical and value-added areas of the textile sector, have gained strong growth momentum on a global scale. Technologies that are pioneers of this transformation focused on sustainability, quality and efficiency will meet with sector professionals at the ITM 2026 International Textile Machinery Exhibition. Dyeing and Finishing Hall (11-12) will host the latest technologies that increase efficiency, optimize resource use and reduce environmental impact in textile finishing processes.

Global Growth Trend in the Textile Dyeing and Finishing Market

The global textile finishing lines market was reached \$7.67 billion in 2024, and is expected to grow to \$10.05 billion by 2029 with a compound annual growth rate of 5.9%. Increased demand in automotive and technical textiles, the need for sustainable production, and investments in quality and process efficiency are among the key drivers of this growth. On the other hand, the global textile dyeing machinery market is estimated to be approximately \$6 billion in 2025, and is projected to grow at an annual rate of over 5.5% between 2026 and 2030.

This strong growth potential and technological transformation will be presented to industry professionals at the ITM 2026 International Textile Machinery Exhibition, to be held at Tüyap Fair and Congress Center from June 9-13, 2026. The Dyeing & Finishing Hall will offer participants the opportunity to establish new collaborations, examine advanced technology investments, and evaluate market opportunities with innovative machines, smart production lines, and sustainable solutions reflecting global trends.

Technological Transformation in Textile Dyeing and Finishing Machinery

Textile dyeing and finishing machinery is rapidly being reshaped around environmentally friendly production, digitalization, and automation. Low-liquor and salt-free dyeing machines, to be exhibited at ITM 2026, significantly reduce water and chemical consumption while increasing dye uptake efficiency and providing shorter process times. Supercritical CO₂ dyeing, dope dyeing (mass dyeing), and enzyme-assisted dyeing technologies are among the innovations that stand out, especially in terms of water conservation and carbon footprint reduction.

In post-dyeing finishing processes, energy efficiency is increased thanks to heat pumps, heat recovery, and alternative energy systems, while plasma, ozone, and UV technologies minimize chemical use, enabling antibacterial, water-repellent, and functional finishing applications.

Intelligent Dyeing Lines and Digital Control Systems

IIoT-based dyeing and finishing lines enable real-time monitoring of temperature, pH, color intensity, and chemical dosage. AI-powered color management and quality control systems improve color consistency while reducing rework and waste rates.

Robotic conveying systems and automated roll loading/unloading solutions reduce human intervention on production lines, offering a safe and uninterrupted process. Next-generation energy-

efficient stenters, jet and overflow dyeing machines, multi-functional continuous lines, and advanced tension control systems elevate quality standards in dyeing and finishing.

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Gartex Texprocess held on 9th April 2026 incorporating the Denim show

The exhibition comes at a time when India's textile industry continues to chart a strong growth trajectory, supported by policy initiatives and rising global demands. With textile exports currently valued at nearly USD 36 billion (approx. Rs 3 lakh crore), the Ministry of Textiles has set an ambitious Vision 2030 target of expanding exports to USD 100 billion (approx. Rs 9 lakh crore) by strengthening domestic manufacturing and enhancing India's global textile footprint. Events such as Gartex Texprocess India incorporating the Denim Show plays an important role in supporting this momentum by enabling technology adoption, industry collaboration and business opportunities across the textile value chain.

The show opened with a ceremonial inauguration attended by distinguished dignitaries and industry leaders, including eminent dignitaries from the industry which included:

- Guest of Honour: Shri Ajay Pandit, Additional Textile Commissioner, Office of the Textile Commissioner, Ministry of Textiles, Government of India
- Mr Sharad Jaipuria, President, Denim Manufacturers Association & Chairman & Managing Director of Ginni International Ltd
- Mr Simon Lee, Managing Director of Hyosung Group (Hyosung corporation India Pvt Ltd & Hyosung India Pvt Ltd)
- Mr Aamir Akhtar, Group President & CEO Textiles, Jindal Worldwide Ltd
- Ms. Himani Gulati, Director, MEX Exhibitions Pvt Ltd
- Mr Raj Manek, Executive Director & Board Member, Messe Frankfurt Asia Holdings
- Mr Winston Pereira, Executive Director, Messe Frankfurt Trade Fairs India Pvt Ltd

TEXTILE EVENTS

- Mr Gaurav Juneja, Director, MEX Exhibitions Pvt Ltd
- Mr Gagandeep Singh, Secretary General, Denim Manufacturers Association
- Mr Akhilesh Rathi, Vice President, Denim Manufacturers Association

India's textile sector, one of the country's oldest and most diverse industries, is deeply rooted in centuries-old traditions while continuously evolving through innovation and modern manufacturing. Gartex Texprocess India Mumbai 2026 will witness several new product launches, technology demonstrations and live showcases, providing industry professionals with hands-on experience of garment manufacturing machinery, embroidery machines, laundry and finishing equipment, printing technologies and advanced textile solutions.

The industry stands at a transformative juncture, driven by innovation, policy support and strong global demand. Platforms such as Gartex Texprocess India play a vital role in bringing together technology providers, manufacturers and brands to explore new opportunities and accelerate modernisation across the value chain. With live machinery demonstrations, product launches and focused knowledge exchange, the Mumbai edition offers an important gateway for industry stakeholders to experience the latest advancements shaping the future of garment and textile manufacturing.

The Union Budget 2026–27 has placed the textile sector firmly at the centre of India's economic growth strategy, recognising it as a key driver of employment, export growth, rural livelihoods and sustainable manufacturing. The sector also possesses significant intrinsic strengths. India is the world's largest cultivator of cotton by acreage, the largest producer of jute, the second-largest producer of silk and cotton, a major global hub in the man-made fibres (MMF) segment and the second-largest producer of polyester and viscose fibres.

According to the IMARC Group, the India textile manufacturing market reached USD 133.6 billion in 2025 and is projected to grow to USD 192 billion by 2034, registering a CAGR of 3.99%. The growth is being fuelled by government initiatives such as the Production Linked Incentive (PLI) scheme, increasing exports and rising domestic demand for apparel and home textiles. Technological advancements, the growing adoption of synthetic fibres, sustainability-focused production practices and expanding e-commerce channels are also accelerating industry expansion.

Alongside the exhibition, knowledge sessions and industry discussions will provide insights into key topics including technology adoption in garment manufacturing, sustainability in textile production, digital printing innovations, automation in apparel manufacturing and emerging opportunities in denim and fashion supply chains.

With a strong mix of technology, innovation and industry dialogue, Gartex Texprocess India Mumbai 2026 is set to serve as an important platform for collaboration, networking and business development within India's fast-evolving textile and garment manufacturing ecosystem.

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Wrapfest 2026 to focus on opportunities across wrapping industry

WrapFest 2026 (19 – 22 May 2026, Gran Via, Fira de Barcelona) is set to provide a platform for experts and professionals across the wrapping industry to exchange knowledge, discover the latest innovations and explore the trends that are shaping the future of the industry.

Co-located for the first time with FESPA Global Print Expo and its co-located events (European Sign Expo, Personalisation Experience, and the brand-new Corrugated and Textile), the event will offer attendees a comprehensive overview of cross-sector opportunities within print, signage, personalisation, and beyond.

WrapFest will provide visitors with access to over 2,000m² of exhibition space. Attendees will also gain exposure to a diverse portfolio of products, solutions, media and consumables for the vehicle wrapping and vinyl applications market. These include window film, garage design and interiors, laminating machinery, vinyl cutting and finishing, inks, printable films, ramps and lifts.

APA, Antalis, Arlon, Carlas, Hexis, LX Hausys, GSWF, Legend PPF and SOIFare amongst the confirmed exhibitors for the event, all of whom will showcase an array of technologies and software.

World Wrap Masters

The high-adrenaline World Wrap Masters competitions will also run within WrapFest this May. Visitors to the event can witness the World Wrap Masters European and Series Final competitions first-hand, judged by industry experts Ole Solskin, Kiss Lajos, Penelope Garrido, Ivan Tenchev, Carlos Ruiz and Paige Walton.

Over the first two days of the event, World Wrap Masters Europe will see vehicle wrappers from across Europe go head-to-head to wrap a variety of special objects and vehicles. On days three and four of the event, regional champions will battle it out to be crowned World Wrap Masters 2026 champion in the Final of the global series.

WrapTalks

Visitors will also be able to join the free-to-attend WrapTalks sessions across all four days of the event. Throughout a series of panel discussions, visitors will gain detailed insights into the latest trends and challenges within the industry, as well as learn about how they can expand their business.

Confirmed sessions include:

- 'Pixels to Panels: The Wrap Production Pipeline' with Martin Turecek, CEO, Wrapstock and Wrap Style; and Chris Edwards, Director, CVI Group
- 'Inside the Wrap: Creative Projects That Pushed Boundaries' with Chris Edwards, Director, CVI Group; Shaun Winfield, Director, Dash Wraps; and Tim Evans, Founder, Wrapper Mapper
- 'Women in Wrap: Breaking Barriers, Building Futures' with Paige Walton, Founder, The Vehicle Wrapping Academy; Jen Carney, Founder, Women of Wraps; and Megan Cadogan, Director, MissWrapz

FESPA's Head of Marketing & Events, Duncan MacOwan comments: "We are pleased that WrapFest 2026 will take place alongside our flagship global events this year. As part of our ongoing commitment to expanding the FESPA community through meaningful connection, inspiration and support, we are confident that this integration will provide visitors with enhanced opportunities to engage across multiple sectors."

He continues: "Since its launch in 2023, WrapFest has established itself as a key meeting point for wrapping professionals, which offers valuable insights into the latest trends and innovations across the sector. It has consistently enabled attendees to identify and capitalise on opportunities that drive business growth and we are confident that bringing these events together will further strengthen this

impact. We look forward to integrating the industry even further in Barcelona this May."

For more information on WrapFest and its co-located events, visit: <https://www.wrap-fest.com/>

All members of a FESPA national Association or FESPA Direct can gain free access to all six co-located events. Non-members can purchase early bird tickets for €55 until 20 April, using the code WPFM604.

About FESPA

Founded in 1962, FESPA is a global federation of Associations for the screen printing, digital printing and textile printing community. FESPA's dual aim is to promote screen printing and digital imaging and to share knowledge about screen and digital printing with its members across the world, helping them to grow their businesses and learn about the latest developments in their fast-growing industries.

FESPA Profit for Purpose

Profit for Purpose is FESPA's international reinvestment programme, which uses revenue from FESPA events to support the global speciality print community to achieve sustainable and profitable growth through four key pillars - education, inspiration, expansion and connection. The programme delivers high quality products and services for printers worldwide, including market research, seminars, summits, congresses, educational guides and features, in addition to supporting grassroots projects in developing markets. For more information visit, www.fespa.com/profit-for-purpose.

Forthcoming FESPA events include:

- FESPA Global Print Expo 2026, 19 – 22 May 2026, Fira de Barcelona, Spain
- European Sign Expo 2026, 19 – 22 May 2026, Fira de Barcelona, Spain
- Personalisation Experience 2026, 19 – 22 May 2026, Fira de Barcelona, Spain
- WrapFest 2026, 19-22 May 2026, Fira de Barcelona, Spain
- Corrugated 2026, 19 – 22 May 2026, Fira de Barcelona, Spain
- Textile 2026, 19 – 22 May 2026, Fira de Barcelona, Spain

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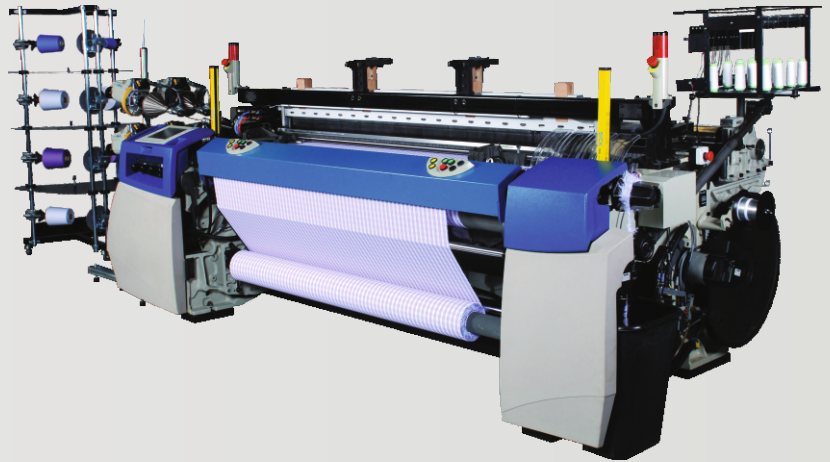
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IMAGES OF LEADING TEXTILE STAKEHOLDERS PARTICIPATED AT BTKG 2026, DHAKA, BANGLADESH



(From right) Mr. Bhairav Parikh of Parikh Patel & Co., India, and Mr. Subrata Aditya of Tradeway International, Bangladesh in their stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Shanjoy Kumar Das, Proprietor of N.Tex Corporation, Mr. Debashis Badra, Proprietor of Tradehouse International, Mr. K. Ragu, Marketing Manager, (Export), of Simta Machinery Pvt. Ltd. and Mr. Moinul Haque Mondal, Director of Jemat Speedtex in the stall of Simta Machinery Pvt. Ltd. at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. S. A. Vimal, G. M. – Sales & Marketing of AB Carter India Pvt. Ltd. & his associates in its stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Uday Piri, Regional Sales Manager Exports and Mr. Kishor Kumar Sheel, Asst. Sales Manager, Bangladesh of Precision Rubber Industries Pvt. Ltd., in their stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Devarsh Shah of Sabar Machine Tools Pvt. Ltd. & his associates in its stall at BTKG 2026, Dhaka, Bangladesh.



Mr. Tapas K. Saha, CEO of Lipika in the stall at BTKG 2026, Dhaka, Bangladesh.

IMAGES OF LEADING TEXTILE STAKEHOLDERS PARTICIPATED AT BTKG 2026, DHAKA, BANGLADESH



(From left) Mr. V. Soundarrajan, Dy Manager – Export Sales of Lakshmi Card Clothing Mfg. Co. Pvt. Ltd., India, Mr. Swapan Kumar Saha, CEO, and Krishnadhan Saha, Director (Marketing) of Sujan Traders, Bangladesh in the stall of Lakshmi Card Clothing Mfg. Co. Pvt. Ltd. at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Sundaram TS, Jt. Managing Director, Mr. Sivarajan P.A, Regional Sales of Super Machine Works Pvt. Ltd., India and Engr. Arimpam Kumar Mondal, CEO & Director of Rotation World Ltd., Bangladesh in the stall of Super Machine Works Pvt. Ltd. at BTKG 2026, Dhaka, Bangladesh.



Mr. Jay Panchal, Director, of Dhara Textile Machinery Pvt. Ltd. in the stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Subrata Aditya of Tradeway International Pvt. Ltd., Bangladesh and Mr. S. Baskaran, Vice President of Mag Solvics Pvt. Ltd., India in their stall at BTKG 2026, Dhaka, Bangladesh.



View of the stall of Sail International Ltd. at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Stephan Kaeuferle, COO, of Rotorcraft AG, Mr. Ashrafur Islam, CEO, Beacon Tex, Bangladesh, Mr. Chanchal Sengupta, CEO, Spintex Exports, India, in the stall of Rotorcraft AG at BTKG 2026, Dhaka, Bangladesh.

IMAGES OF LEADING TEXTILE STAKEHOLDERS PARTICIPATED AT BTKG 2026, DHAKA, BANGLADESH



Mr. Kush Panchal, DH Textile Engineers, India at the BTKG 2026, Dhaka, Bangladesh.



(From left Second) Mr. Suhas Swant, GM Export, of Supertex Industries, India & his associates in their stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Subrata Aditya of Tradeway International Pvt. Ltd., Bangladesh, Mr. Nazrul Islam, GM, Malek Spinning, Bangladesh, Mr. Jaivardhan Thirupathi, Director, Indo Technology, India and Mr. Anil Yadav, Technical Marketing & Development of Moksha Thermoplastics Pvt. Ltd. India in the stall of Indo Technology at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Chanchal Sengupta, CEO, Spintex Exports, India, and Mr. Mobarak Hossain Bhuiyan, Chairman, Chingjui Trade International, Bangladesh, and Mr. Bhavesh Patel, of OM Corporation, India in the stall of Chingjui Trade International at BTKG 2026, Dhaka, Bangladesh.

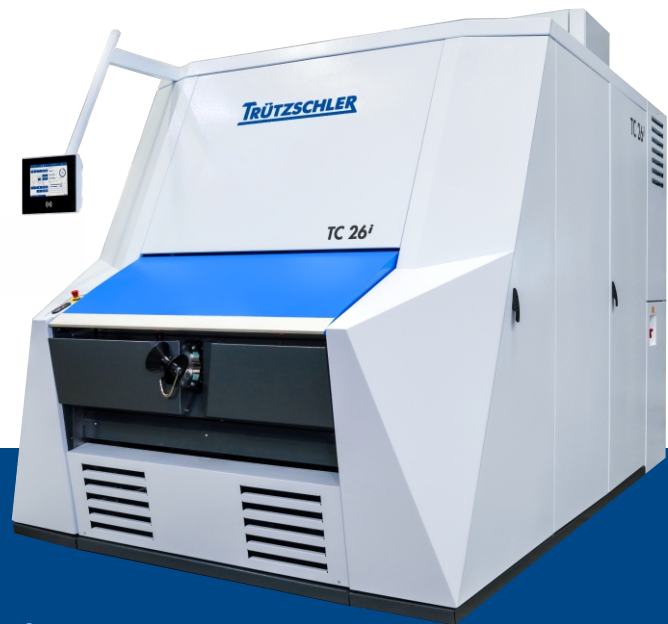


(From right) Mr. Tapas K. Saha, CEO of Lipika, Bangladesh, Mr. R. Madhu, CEO of Sakthi Associates, India & his associates in its stall at BTKG 2026, Dhaka, Bangladesh.



(From left) Mr. Jignesh Davda, Vice President – Sales, of Premier Evolvics Pvt. Ltd. and Mohammad Shabbir Hossain, MD, Quali Tech BD Ltd. Bangladesh in its stall at BTKG 2026, Dhaka, Bangladesh.

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Barmag

World premiere: Innovative POY 2.0 spinning concept impresses at ITMA Asia + CITME 2025 **Barmag showcases the next generation of POY production – energy-efficient and partial-automated**

With POY 2.0, Barmag is introducing a completely redesigned spinning concept that takes the production of partially oriented yarn (POY) to a new level in terms of technology and economy. The solution, which was presented to a selected audience of experts for the first time at ITMA Asia + CITME 2025, was met with great enthusiasm: several yarn producers worldwide immediately expressed their interest in a pilot plant.

At the heart of the development of the new POY 2.0 spinning concept was a comprehensive analysis of the entire process chain – from spinning to winding – by Barmag engineers. The result: optimized core components, improved energy efficiency, and significantly simplified operating processes. The highlights along the production process:

Optimized DIO spin pack: more compact, more sustainable, more powerful

The new generation of the DIO spin pack has been further optimized in terms of its rheological properties and ensures even more homogeneous filament quality. The more compact design reduces the need for filter sand by around a third and the weight of the component by more than 30 percent. This lowers material consumption and makes handling easier. The spinning beam also benefits: the modified design reduces the surface area, resulting in energy savings of up to ten percent.

EvoQuench 2.0: higher process stability and easier operation

The EvoQuench radial quenching unit remains a central component of the process for uniform cooling of the filaments. The new EvoQuench 2.0 version makes it much easier to adjust the convergence length. More accessible controls shorten setup times and reduce the amount of waste material.

WINGS POY 2.0: automated string-up and lower waste rate

The heart of the new spinning line is the WINGS POY 2.0 winding machine. For the first

time, the machine features an automatic string-up function – a long-awaited feature in the market that keeps string-up times consistently short and reduces waste in the long term. At the same time, the number of personnel required at the take-up level is reduced, which is a considerable advantage for many spinning companies given the increasing shortage of skilled personnel.

The new active quick returns facilitate the adjustment of product-specific parameters, especially for frequently changing yarn products and demanding qualities. They also ensure improved bobbin formation without overthrown yarn ends. Additional shielding of the chuck and bobbins permanently prevents the formation of fluffs. It stabilizes the yarn path and supports trouble-free production.



Barmag presented its innovative POY 2.0 spinning concept at ITMA Asia + CITME 2025. The new WINGS POY 2.0 winder integrated into this concept features an automatic string-up function for the first time. The new generation of the DIO spin pack (right) is significantly more compact.

The new yarn end fixation also ensures greater process reliability: loose yarn ends are a thing of the past, which avoids unplanned machine downtime due to faulty sensor signals in subsequent automated logistics processes. The optimized XPT housing with a larger rotor stroke extends the parking time and increases flexibility during the doffing process. Overall, the system runs more stably and productively.

Digitally networked with atmos.io

POY 2.0 is fully integrated into the digital system world of atmos.io. Various apps give the operator a complete overview of the production process – from the polymer to the finished yarn. Quality parameters are continuously monitored so that operating personnel can intervene quickly if necessary. The result: reduced waste quantities, higher product quality, and improved margins thanks to fully networked production.

About Barmag

Since 2026, the Swiss Rieter Group has been operating its man-made fibers business as

subsidiary under the traditional name Barmag. This includes the established product brands Barmag and Neumag. As a future-oriented company, the research and development of Barmag is driven by energy-efficiency and sustainable technologies (e-save).

Barmag is one of the leading providers of manmade fibers filament spinning systems, texturing machines, BCF systems, staple fibers systems and solutions for the production of nonwovens. Together with its range of polycondensation and extrusion systems and their key components, Barmag caters to the entire manufacturing process – from the monomer all the way through to the textured yarn – and supports it with customer-oriented engineering services. The product portfolio is rounded off with automation and digital 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 main markets for the Barmag product portfolio are in Asia, particularly in China, India, Türkiye and the USA. Worldwide, Barmag – with round about 2,500 employees – has a presence in 120 countries with production, sales and distribution and service organizations. At 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 tomorrow's world.

For further information, please visit: www.barmag.com

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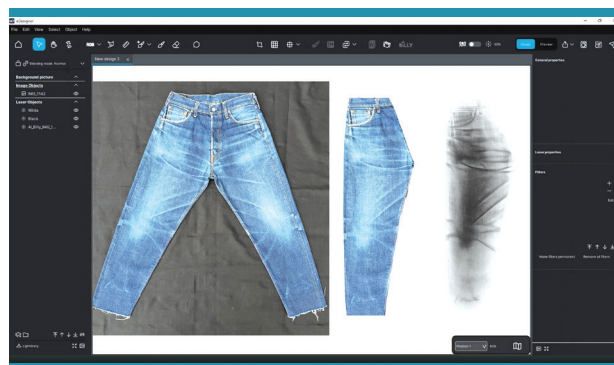
Jeanologia

The Spanish company rolls out its latest innovations to one of Asia-Pacific leading textile trade shows

Jeanologia launches a new sustainable textile finishing model powered by AI, laser and ozone at Indo Intertex

- In Jakarta, the company demonstrates how the integration of these technologies enables more efficient, automated and sustainable garment finishing processes.

Jeanologia, a global leader in eco-efficient technologies for the textile industry, took part in Indo Intertex 2026, held from April 15 to 18 at the Jakarta International Expo (Indonesia), bringing together manufacturers, production managers and industrial decision-makers from across the textile value chain in the Asia-Pacific region.



In this setting, the Spanish company presents a new model for garment finishing based on the integration of its artificial intelligence system "Billy", laser technology and G2 Ozone, designed to transform production processes towards more automated, efficient and responsible models.

More than 25 years ago, Jeanologia revolutionized denim finishing with its laser technology, replacing manual processes such as hand sanding and sandblasting, associated with high environmental impact and risks to workers' health. Today, the company takes a step further by combining this technology with advanced air-based washing solutions and AI, consolidating a more creative, precise, clean, and efficient production model.

Digital creativity with industrial precision

At Indo Intertex 2026, Jeanologia showcases the latest developments in its laser technology,

SCIENCE IN INDUSTRY

now enhanced by its AI system Billy, improving design quality and marking precision on denim garments. This combination allows for the accurate reproduction of vintage effects, localized wear and complex patterns with full consistency, eliminating manual reprocessing and ensuring more authentic finishes.



Live demonstrations at Jeanologia's booth feature the Compact Superlaser system, highlighting its capacity to deliver high-speed processing, increased productivity and consistent quality in industrial environments.

Full process automation and increased execution speed allow manufacturers to meet the demands of the textile industry, where operational efficiency, digitalization and sustainability have become key factors for competing in international markets.



The ozone revolution

As a complement to laser technology, Jeanologia presents its Atmos process, based on G2 Ozone +

Indra technology, which enables garment finishing treatments using air, replacing traditional water-based washing processes.

G2 Ozone transforms oxygen from the air into ozone, which acts as a natural oxidizing agent for indigo, allowing the fabric to be cleaned and the final tone of the garment to be adjusted. It offers a sustainable alternative to traditional and polluting stone washing, enabling abrasion effects, marbling, and tone variations in denim (from dark to medium or light washes) without the use of pumice stones or toxic chemicals.

The combination of AI, laser and ozone technologies makes it possible to produce garments with an authentic and natural look, without manual intervention, with minimal water consumption and no harmful substances, in line with the company's global goal: Mission Zero, which aims to dehydrate and detoxify the textile industry worldwide.

Asia, the new axis of textile competitiveness

Asia-Pacific has established itself as the main driver of the global textile industry, concentrating some of the world's largest production and export hubs. Manufacturers and brands are accelerating their transition towards more efficient, automated, and sustainable models, driven by growing international demands for traceability, environmental impact reduction and competitiveness.



Jeanologia has a strong presence in the region, where it has been working for more than two decades alongside manufacturers, exporters, and

major textile groups, providing technological solutions, consultancy, and local technical support. This track record has enabled the company to position itself as a strategic partner in the industry's shift towards cleaner, digital, and more profitable processes.

"Competitiveness in the textile industry is no longer measured solely in terms of cost, but in the ability to produce efficiently, with traceability and sustainability. The factories adopting this model in Asia are the ones that will lead the global supply chain in the coming years," says Jean-Pierre Inchauspe, Jeanologia's Business Director for Asia at Jeanologia.

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.



From the introduction of its laser technology in 1999, which revolutionized denim finishing, to its sustainable dyeing process, and most recently its AI applied to finishing design, 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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Kornit Digital

Kornit Digital Expands capacity of Digital Production into Footwear and Technical Textiles with Presto MAX PLUS

Single-step digital pigment solution enables durable, sustainable on-demand production across widest range of fabrics to unlock growth opportunities in high-performance textile applications

Kornit Digital (NASDAQ: KRNT) ("Kornit" or the "Company"), a global pioneer in sustainable, on-demand digital fashion and textile production, recently unveiled the Kornit Presto MAX PLUS, a new roll-to-roll system expanding digital manufacturing into footwear, automotive interiors, military camouflage, high-performance sportswear, and high-end furnishings. Debuting at Texprocess 2026 in Frankfurt, Presto MAX PLUS enables entirely new applications for on-demand textile production.

The fully digital, single-step system, based on the proven Presto MAX solution, requires minimal setup, eliminates Minimum Order Quantities, supports the industry's widest array of fabrics, and offers water-free printing with no pre- or post-washing, reducing waste, energy consumption, and environmental impact. At its core, Kornit MAX technology ensures retail print quality and superior hand feel.

Industry-First Innovation

Presto MAX PLUS introduces DuraTech™, a durability enhancer delivering consistent resistance to wear, flex, and abrasion, enabling digital production for demanding applications such as footwear uppers, technical apparel, automotive interiors, and performance textiles. Its patent-pending Precise Overprint technology intelligently adapts to material variability, ensuring accurate image placement on complex, pre-knitted, and dimensionally unstable substrates.

These capabilities are already field proven with footwear manufacturers. Using breakthrough

SCIENCE IN INDUSTRY

process and technology, Presto MAX PLUS enables digital application of proprietary functional inks to deliver customizable performance characteristics such as abrasion resistance, compression and protection, and technical applications.



"Digital production is entering a new phase of industrial adoption, expanding into high-performance categories that require durability, precision and consistency at scale," said Ronen Samuel, CEO of Kornit Digital. "Presto MAX PLUS extends the boundaries of what digital manufacturing can achieve, enabling brands and manufacturers to unlock new applications, operate with greater agility, and accelerate the shift toward a more sustainable production model."

The system also features white ink printing on dyed fabrics, extended color gamuts with Red/Green or Neon inks, and Kornit's XDi Technology for unique 3-D effects. Quality automation via QualiSet ensures hands-off calibration and consistent, repeatable results across batches, systems, and distributed production sites.

Customers currently operating Presto MAX systems will be able to upgrade to Presto MAX PLUS capabilities, enabling access to new applications while protecting and extending the value of their existing investment.

The Kornit Presto MAX PLUS will be officially unveiled at Texprocess 2026 on April 21.

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 printing systems, inks, consumables, software, 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. To learn more, visit www.kornit.com.

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BB Engineering GmbH

BB Engineering set to participate at Plastics Recycling Show Europe 2026, Amsterdam

Efficient Recycling of textile PET

At the upcoming Plastics Recycling Show Europe in Amsterdam on May 5–6, BB Engineering will present its portfolio of PET recycling technologies. The German machinery manufacturer



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will once again focus on textile recycling and melt filtration.

Versatile Portfolio with a Focus on Textiles

BB Engineering's product portfolio includes components and systems for the production of films and synthetic fibers, as well as for PET recycling. With extruders, various filters, and complete spinning and recycling plants, the company possesses extensive expertise in plastics processing and can offer comprehensive PET recycling solutions from a single source. Based on its experience in the synthetic fiber industry, BB Engineering places a special focus on textile recycling (PET). BB Engineering will highlight its VacuFil® and COBRA® systems at PRSE.



VacuFil® Visco+ testing plant in BB Engineering's technical centre

VacuFil® Visco+ - PET LSP recycling at the highest standard

The VacuFil® PET recycling plant combines gentle large-area filtration with precise IV adjustment, thereby ensuring consistently outstanding rPET melt quality.

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At the heart of the system is the patented Visco+ component. Using liquid-state polycondensation, it reliably removes volatile contaminants and delivers an exceptionally homogeneous melt with

a viscosity of ± 0.01 dl/g — up to 50% faster than comparable LSP systems. Depending on the throughput, a viscosity increase of up to 30% can be achieved.

Continuous process monitoring via an online viscometer ensures a stable and reproducible output. VacuFil® has a capacity of 150 to 4,000 kg/h.

COBRA® sets new standards in melt filtration

With the development of its latest melt filter COBRA® BB Engineering has created a clear solution to the growing demands of the recycling industry. The goal: to reliably handle even high levels of contamination, simplify filter changes and cleaning, and at the same time significantly reduce operating costs.



COBRA® filter

The result is a high-performance system that combines continuous large-area filtration with automated, chemical-free intermediate cleaning. Two filter cartridges with automatic switching ensure stable, safe, and uninterrupted operation — even at high contamination levels where conventional candle filters or screen changers reach their limits.

SCIENCE IN INDUSTRY

A key advantage lies in the integrated cleaning system: it significantly extends the service life of the filter media while simultaneously reducing operational effort, melt losses, and energy consumption — all without the use of chemicals. This not only enhances process reliability but also sustainably lowers operating costs.

Thanks to its high flexibility, COBRA® is suitable for both coarse and fine filtration. In addition to its use in PET recycling, the system also offers great potential for increasing efficiency in other applications, such as plastic spinning, and can be easily retrofitted there.

About BB Engineering GmbH

BB Engineering GmbH is a German machine building company founded in 1997 as a joint venture between Barmag, nowadays a subsidiary of the Rieter group, and the Brückner group. Today, the company employs about 150 members of staff at its location in Remscheid, Germany, focusing their business on the development, engineering, design and manufacturing of extrusion, mixing and filtration technologies as well as complete spinning lines (VarioFil®), air-texturizing lines (JeTex®) and recycling technologies (VacuFil®, Visco+) for the plastics and textiles industry.

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Mimaki Europe BV

Express print ramps up production using an expanded fleet of Mimaki technologies

- The Bulgarian provider of indoor graphics and OOH advertising adds to its Mimaki-powered production line to expand into customised apparel, customised merchandise, rigid media, and interior décor
- Enhanced reliability, colour consistency, and workflow efficiency have been key to the company's continuous growth in the Sign Graphics space

Express Print, a fast-growing Bulgarian provider of visual communication and soft signage solutions, has significantly enhanced its production workflow with a comprehensive portfolio of Mimaki digital printing systems. Based in Varna and active for more than 10 years, the company maintains a strong

focus on the advertising sector. Over the years, it has steadily expanded its operations, driven by a clear vision to bring the full spectrum of large-format printing services in-house, avoiding outsourcing and ensuring complete control over production quality. As part of this strategy, Express Print has gradually expanded its Mimaki fleet to support its diversification across rigid, flexible and textile applications. Today, the production floor features a UCJV330-160 for high-quality UV-LED roll-to-roll graphics, a TxF300-75 for DTF printing, the JFX200-2513 EX and JFX500-2131 UV-LED flatbed printers, as well as the UJF-6042 MkII e and the UJV55-320 systems for high-precision object and signage wide format printing. This fully integrated Mimaki operation allows Express Print to deliver a wide range of products – from indoor and outdoor visual communication to promotional banners, customised garments, sportswear, and merchandising.



Express Print uses Mimaki's large format printing technology to boost and diversify production of soft signage, customised garments, and advertising displays.

"Our job is to print, and we wanted to print with the highest quality and with the highest speed possible," explains Dimitar Lyubenov, Production Manager at Express Print. "Our previous setup struggled to achieve the level of quality and colour consistency required by our customers, especially for sign graphics and visual communication applications, and we needed more reliability for continuous production. After reviewing the technologies available on the market, we chose Mimaki. Their printers immediately delivered the quality, speed, finishing capabilities and stability we were looking for."

Expanding Sign Graphics capabilities with new roll-to-roll and DTF systems

The two most recent additions – the UCJV330-160 unit and the TxF300-75 have been crucial to the company's latest phase of growth. The UCJV330-160 has significantly strengthened Express Print's

Sign Graphics digital printing capabilities. Its print quality, versatility across films and banner substrates, and reliable performance have made it a core solution for the company's indoor and outdoor communication products. The printer also supports fast turnaround times — a critical factor for Express Print's customers — thanks to its efficient workflow and stable operation.



The UCJV330-160 is one of the latest additions to Express Print's large format printing production line-up.

At the same time, with rising demand for short-run garment customisation and on-demand promotional textiles, Express Print installed Mimaki's TxF300-75 to achieve faster throughput and greater colour accuracy in DTF applications. The system quickly enhanced apparel production efficiency, providing clean ink performance and consistently vibrant results, even on detailed fabric graphics or urgent jobs.

The JFX200-2513 EX and JFX500-2131 UV flatbed digital printing systems also remain essential for rigid media and custom merchandising, enabling high-quality reproduction on a wide range of materials. These systems continue to support the company's expansion in customised panels, décor elements, indoor and outdoor posters.

Building a cohesive, reliable Mimaki ecosystem

Express Print's relationship with Mimaki began seven years ago, when they purchased their first CJV300-160 print-and-cut system, followed by a CG-FXII cutting plotter. The move was driven by the need to eliminate recurring technical issues and inconsistent output from their previous printers. Since then, the company has continued to grow its Mimaki large format printing line-up, driven by customer feedback that consistently praises the quality and cleanliness of the prints, as well as the absence of banding.

Having exclusively Mimaki large format digital printing machines has also simplified day-to-day

operations. Shared software, colour management, and workflows ensure seamless transitions between jobs and reduce training time for operators. Whether producing customised garments, soft signage, rigid displays, small-format promotional items or large-format décor panels, Express Print benefits from the predictability and synergy of a unified Mimaki environment. "We know exactly what we get," adds Yordanov. "Colours remain stable from the first print to the last, and we can handle high volumes or last-minute requests without disrupting the workflow. It has completely changed the way we organise production."

Express Print's relationship with Mimaki is supported by Lazar Panov, Managing Director at GekoComert, Mimaki's distributor for the region. "Geko has been guiding us throughout our journey — from choosing the right models to installation and training with their excellent customer service," comments Nikolay Boev, Founder and CEO at Express Print. "Today, we are extremely happy with the performance of all our Mimaki printers. They help us deliver the quality our customers expect, and that quality brings new customers to us through word of mouth. For us, this is the best proof that we made the right choice, and we are open to consider our future investments."



With over a decade of industry expertise, Express Print focuses on the advertising sector and has expanded into short-run garment customisation and on-demand textiles.

Commenting on the long-standing partnership, Arjen Evertse, Director Sales at Mimaki Europe, notes: "Express Print is a great example of how a well-integrated Mimaki lineup can support a company's growth across multiple applications. By combining our UV-LED flatbed systems, DTF, and direct-to-object technologies within a single operation, they can work more efficiently, respond quickly to customer needs, streamline in-house production, and explore new business opportunities with confidence."

SCIENCE IN INDUSTRY

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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Bottom Roll setting Gauge
(for Drawing, Roving & Ring Frame)



For Setting in Ring Frame



For Setting in Speed Frame

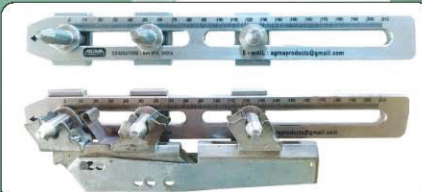


For Setting in Draw Frame

Agma Saddle Setting Gauge
(With 4 Pins for Rieter / LMW P3-1 Top Arm with Suessen Compact)



(With 3 Pins for Rieter / LMW P3-1 Top Arm without Compact)

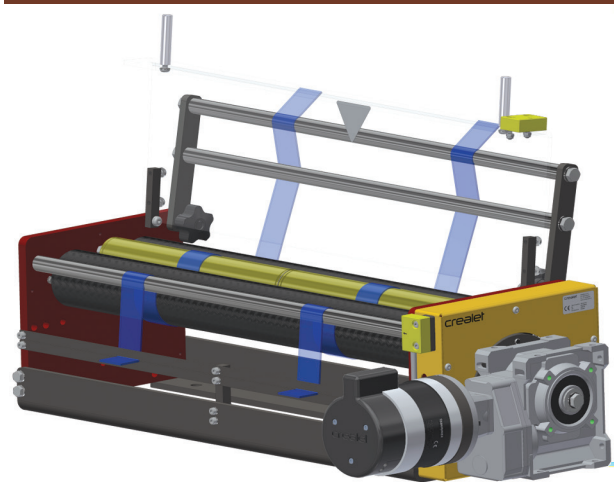
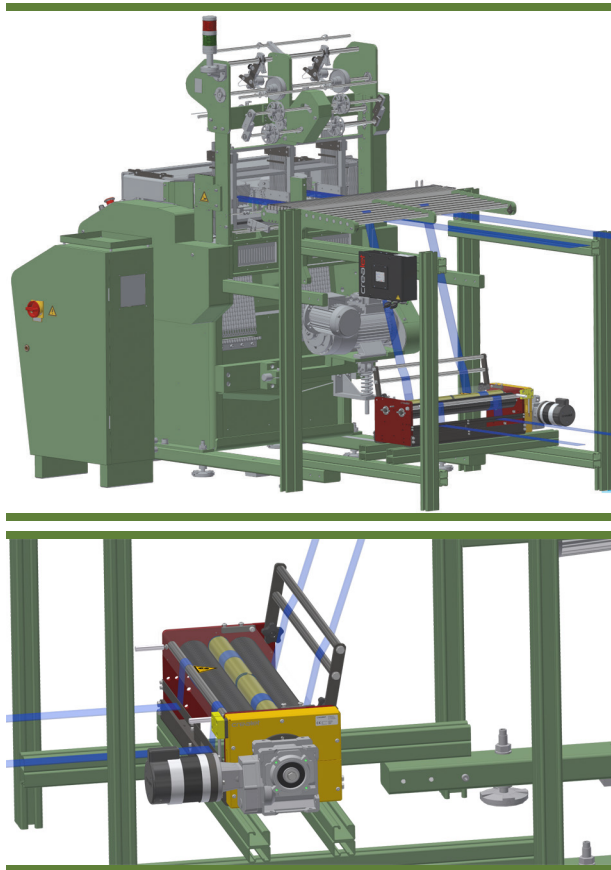
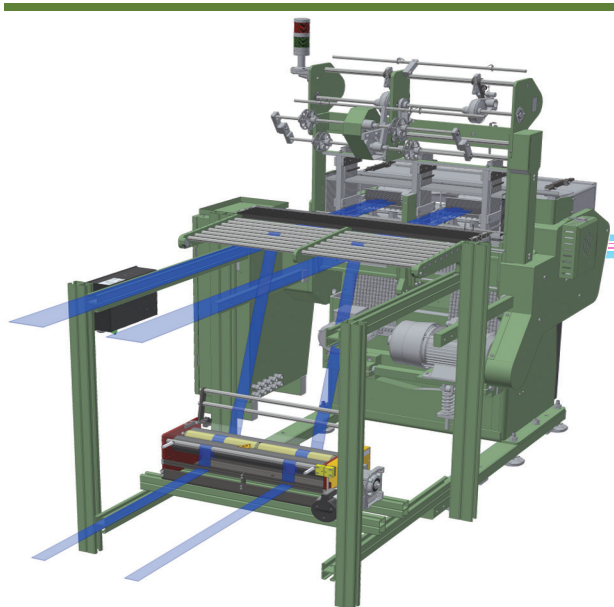


SINGLE SPACER - RIETER & LR TYPE		
SPACER	Size (MM)	COLOR
	2.50	CHOCOLATE
	2.75	GREY
	3.00	WHITE
	3.25	YELLOW
	3.50	BLACK
	3.75	SANDAL
	4.00	RED

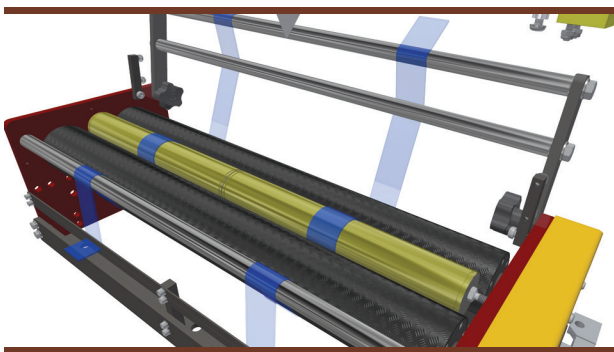
SPACER	Size (MM)	COLOR
	4.25	PEACH
	4.50	DARK GREEN
	4.75	VIOLET
	5.00	BRIGHT BLUE
	5.25	MAGENTA
	5.50	BROWN GREY
	5.75	BRIGHT GREEN
	6.00	DARK BLUE

TWIN SPACER FOR AGMA 40.1 MM & 40.6 MM CRADLES		
SPACER	Size (MM)	COLOR
	2.5 / 2.75	CHOCOLATE
	3.00 / 3.25	YELLOW
	3.5 / 3.75	BLACK
	4.00 / 4.25	RED

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- Even material feed without sagging or overstretching
- Reproducible results for every batch
- Versatile application across diverse industries

Simple Process - Highest Quality

Our electronic rubber transport system can be used both as a retrofit for existing mechanical tensioning devices and in new narrow weaving machines. Pretensioning is easy to set and adjust, ensuring that finished bands meet the highest quality standards.

Experience how our technology guarantees process stability, efficiency, and reproducible results in the production of demanding elastic bands.

For further information, please contact:

Crealet AG

Hüeblistrasse 41 8636 Wald/ZH- Switzerland ☐

SCIENCE IN INDUSTRY

Bharat Beams Private Limited

Bharat Beams Pvt. Ltd. emerges as the largest manufacturers & exporters of weaver beams & dynamically balanced beams in India

An introduction of Bharat Beams Pvt. Ltd.

We wish to introduce ourselves as the largest manufacturers and exporters of weaver beams and dynamically balanced warper beams in India. We are exporting 30% of our production to overseas market. We are having an integrated and in-house manufacturing facility at our end so as to maintain stringent quality levels at each and every component / part level. We manufacture and supply the beams as per ISO/DIN norms and each individual beam passes through strict quality control before despatch. We utilize only virgin special aluminum alloy to cast and manufacture flanges from our state of the art aluminum foundry. We have been working as OEM suppliers of beams to European and Indian machine manufacturers. Please note, over 95% of warper beams for Benninger, Karl Mayer, Hacoba and UKIL warping machines working in India are of our manufacture.



We have been working as OEM suppliers of beams to European machine manufacturers (Karl Mayer, Benninger, Hacoba and Ramallumin) as well as to M/s. Jupiter Comtex, M/s. Prashant West-Point Machinery, M/s. Prism Textile Machinery, M/s. Tech Mech in India. Please note, over 95% of warper beams for Benninger, Karl Mayer, Hacoba and UKIL warping machines working in India are of our manufacture. (100% warper beams for Tsudakoma warping machines as well as for Tsudakoma filament sizing machines in India.)

We are dedicated to the production of the following quality goods :

1. WARPER BEAMS

We manufacture dynamically balanced warper beams having 'Atlas' type hollow flanges as well as solid flanges suitable for Karl Mayer, Hacoba, Benninger, Griffin, Tsudakoma, Prashant Westpoint, Jupiter Comtex, Prism Textile Machinery, Tech Mech and other renowned warping machines.

2. WEAVERS BEAMS

We manufacture weavers beams for Airjet, Rapier and projectile weaving machines from M/s. Picanol, Toyota, Tsudakoma, ITEMA, Sulzer, Dornier, Panter, Vamatex, Somet, SMIT and other weaving machine manufacturers. We manufacture weavers beams of flange diameter up to 1250 mm and reedwidth upto 6000 mm. We supply beams as per ISO/DIN norms and manufacture upto Q3/Q4 quality beams which are very heavy duty beams suitable for technical textiles i.e. Tape yarn, PP Yarn, Monofilament yarn, Nylon yarn, Kevlar yarn, Carbon Fiber, Glass Fibre, Aramids etc..

3. CLOTH ROLLS

CLOTH ROLLS manufactured from aluminium barrel with special coating suitable for almost all types of weaving machines.

We are specialized in manufacturing of extra heavy duty warp beams suitable for 100% filament yarn in relaxed as well as un-relaxed condition and are regular suppliers of such beams to China, Indonesia and many Latin American countries.

Excellence in Warper & Weaver Beams**To meet varied needs of textile industry**

Textiles have come a long way since their inception. We have been manufacturing quality Warper Beams and Weaver beams since long. Bharat Beams exists to serve wide-ranging customer needs with highest operational capability and talented team. Our commitment to execute research and test-based development made us a leader in our field. Our dedicated team creates and improves product for varied needs of textile industry.

Incomparable Services to clients

Our dedication to offer exceptional services to our clients is demonstrated through our customer satisfaction. We execute in-plant load analysis of flanges for stress / strain relationships. The resulting data from the analysis is utilized for selection of right type of flanges to fulfill customer's requirement.

Mission

Deliver wide range of quality products through innovative methods and creative solutions.

Vision

To establish Bharat Beams as a highly reputed name in the textile industry business throughout the globe.

Facilities

- ▶ State of the art aluminum foundry for casting of aluminum flanges
- ▶ Integrated manufacturing facility with high precision machinery
- ▶ Full fledged inspection dept. with latest digital measuring instruments
- ▶ Computerised dynamic balancing machines
- ▶ In-house facility for zinc-plating beam barrels
- ▶ Fully automated slotting machines to ensure hubs are manufactured as per ISO/DIN norms
- ▶ We manufacture wide range of beams as per ISO/DIN norms
- ▶ We manufacture warper and weaver beams suitable for natural fiber yarns and for man-made fiber yarns utilized in synthetic industry as well as in technical textiles.

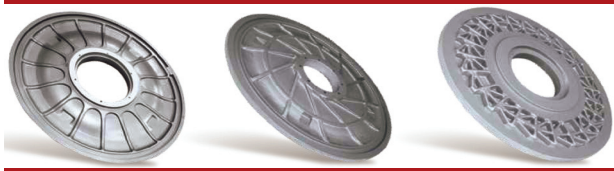
Warper Beams

We offer dynamically balanced warper beams of flange diameter upto 1600 mm and warping width upto 2800 mm suitable for Benninger, Karl Mayer, Hacob, Ramallumin, UKIL, Tsudakoma, Prashant West - Point, Jupiter, Prism and other high speed warping machines suitable for spun and filament yarn.



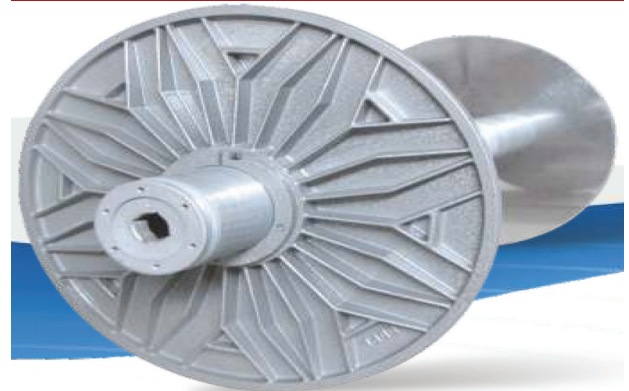
Double-Walled Flanges and Re-inforced Ribbed Flanges

All warper beams are assembled and dynamically balanced as per ISO/DIN norms. Each beam passes through rigorous inspection process to ascertain highest quality standard.

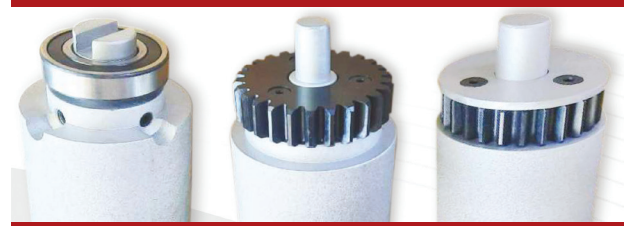


Weaver Beams

Weaver Beams for Picanol, Toyota, Tsudakoma, Sulzer, Dornier, Itema, Smit and other types of Airjet, Rapier and Projectile weaving machines in single section and double section construction with or without differential motions upto 1250mm flange diameter and 560 cms reedwidth.



Cloth Rolls



Heavy Duty Beams for Technical Textiles

For over 25 years, we have been manufacturing Q3 quality class (HEAVY DUTY) and Q4 quality class (VERY HEAVY DUTY) warp beams as well as dynamically balanced warper beams for Technical Textiles Industry upto 1250mm flange diameter and 5.6 metres reedwidth. We also cater to the customized requirement of beams for our customers' special needs/application.

For further information, please contact :

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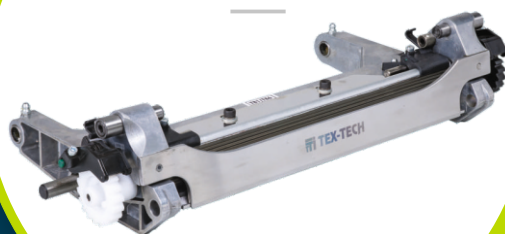
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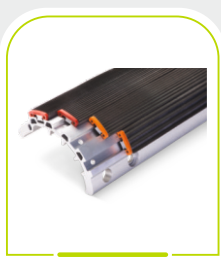
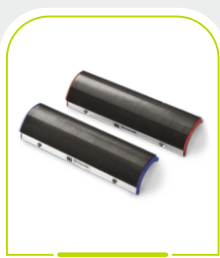
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Lakshmi Ring Travellers (Coimbatore) Private Limited

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