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- Mandril (Import substitute) for texturing / yarn.
- Rubber tension springs for Dobby machine.

#### Advantages

- Cost effective.
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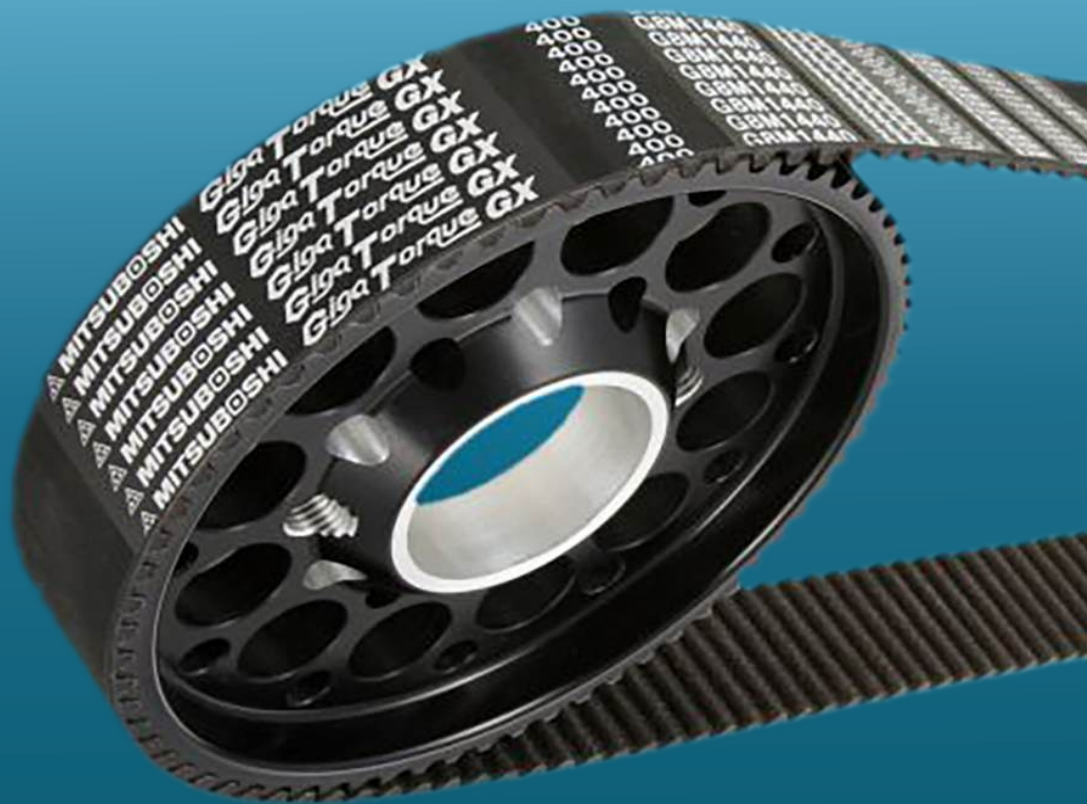
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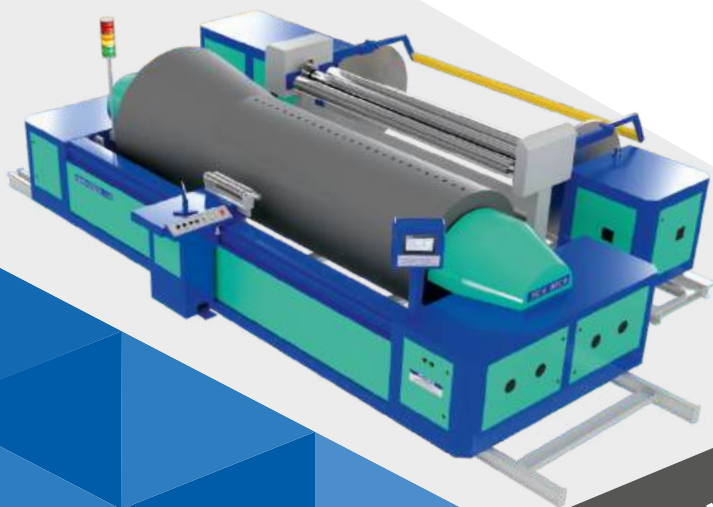
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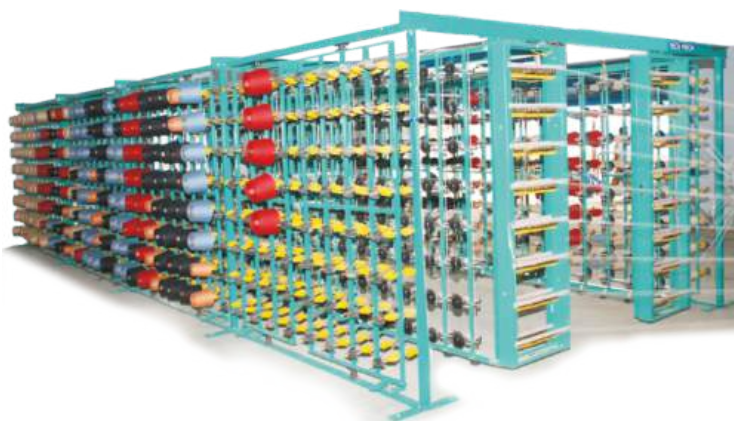
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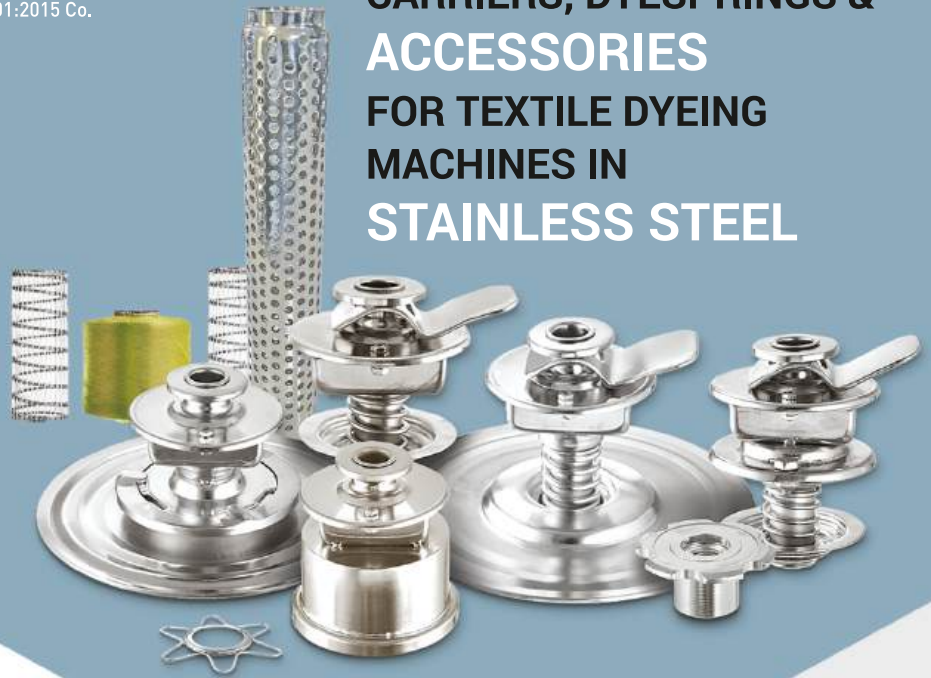
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# VETRI TOP ROLLERS

**“AVAILABLE AT SHORT NOTICE”**

IN THIS PRESENT TEXTILE INDUSTRY RECESSION, WE BELIEVE SPINNERS CAN NOT AFFORD TO STOCK TOP ROLLERS FOR PREVENTIVE MAINTENANCE.

IN SUCH SITUATION, **VETRI** WITH ITS EXTENDED STATE OF ART **“IN HOUSE”** MANUFACTURING FACILITIES, **STANDARD & REGULAR TOP ROLLERS WITH END BUSHES** CAN BE MADE AVAILABLE WITHIN 24 HRS TO 72 HRS\* FROM **VETRI STOCK**.



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**THUS WE ADD “VALUE” IN THE TEXTILE INDUSTRY.**



## VETRI ENGINEERS

TECHNOLOGY - QUALITY - VALUE - RELATIONSHIP



\* CONDITIONS WILL APPLY



# EFFIMILL

Monitoring System for Spinning Mills The solution for your spinning mill management, by reducing costs, quality and optimization of labour.

## HARDWARE OPTIFIL OPTICAL YARN DETECTOR

Another big LED with two colors for every 24 spindles alarms the personnel about any irregularity from long distance.  
RED LED : Alarms the Operator

By detecting the movement of the traveller it controls continuously the status and RPM of each Spindle

One LED in front of each Spindle shows the STATUS of the yarn by the use of different COLOURS.



LED display can be installed on each ring frame. It shows the Ring frame production data in real time

From the New Touch Screen control unit it is easy to manage setting, options, troubleshooting.



helping fibers spin profits



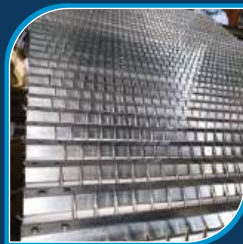
# BE GENTLE AND THRIVE!

For spinning, it's crucial to provide Gentle Opening Action to fibres to prevent rupture and ensure high quality of yarn while minimising waste.

Pins ensure gentle opening while also providing better cleaning and lower waste generation. Long life of pins also reduce cost and provide consistent yarn quality.

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### HVT Genius 2 Fully Automatic High Volume Fibre Tester



#### HVT Genius 2+

It is a combination of HVT Genius 2 & AccuTrash, Fully automatic trash separator.

### MotoHank Wrapping on Wheels



#### Models Available

- MotoHank L
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New Product

### SpliceRay Portable Splice Strength Tester



- Precise portable splice strength tester to ensure the splice quality at winding position.
- Testing is upto 1000 mm/min in steps of 10mm.
- Auto pretension ensures the accurate measurement of breaking force.
- Statistical results such as Average, Maximum, Minimum, SD and CV% in display after every test completion.

New Product

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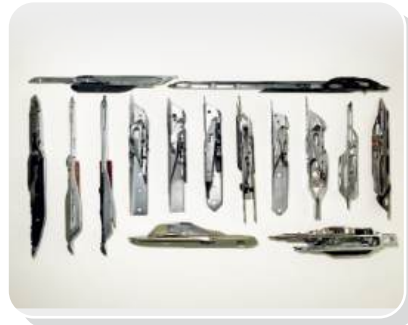
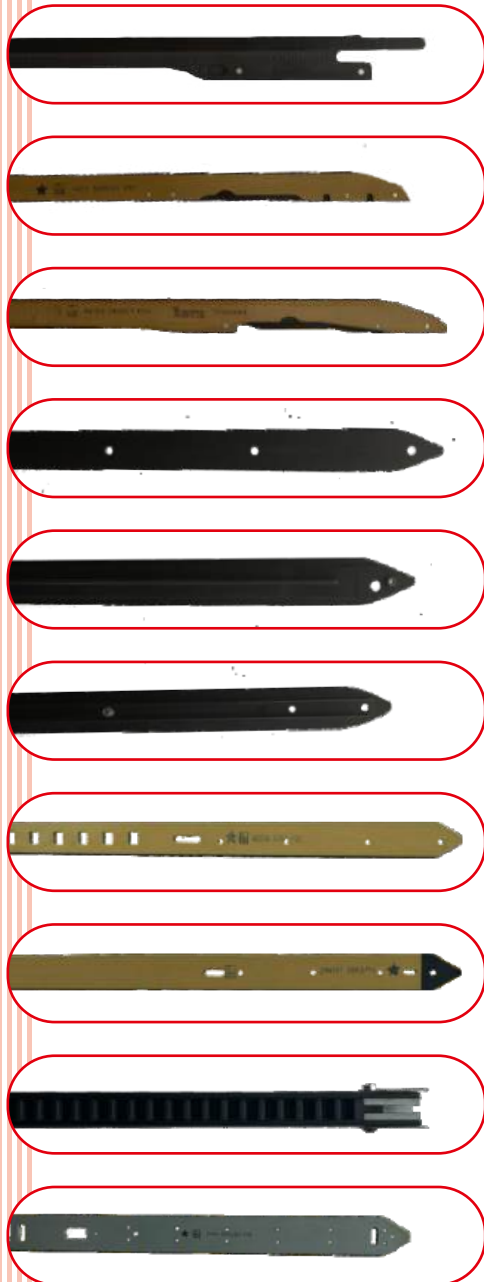
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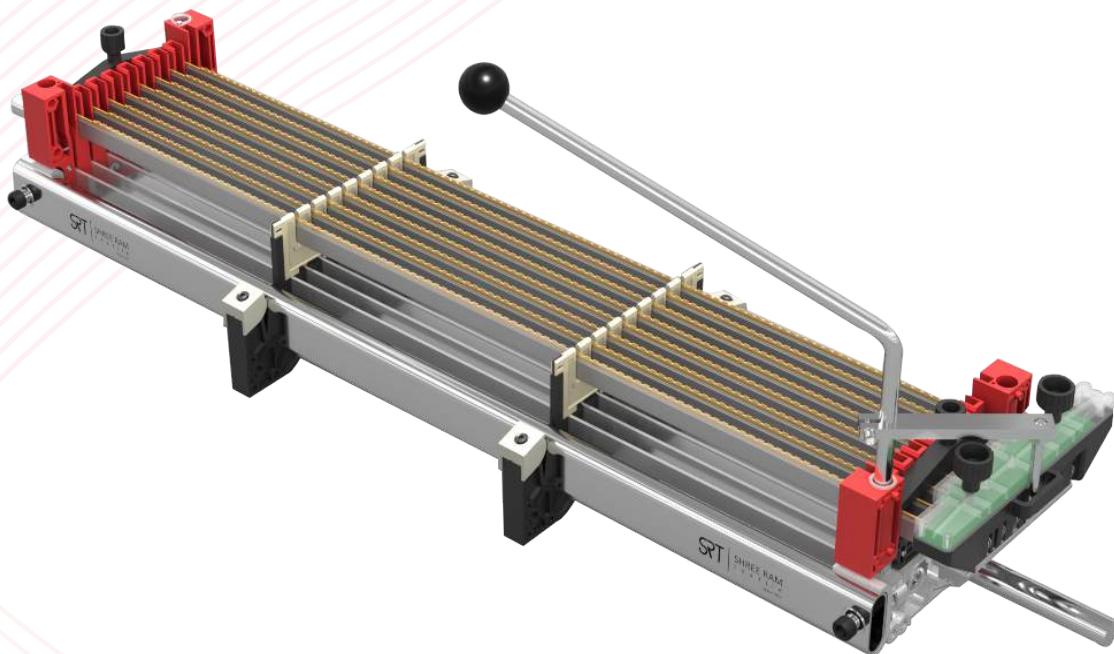
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Our products are specifically engineered and designed for meeting the needs of spinning industry, with our expertise and continued in quality, we are providing leading solutions allowing you to increase efficiency and gain competitive advantage.

## Other Range of Products

- ◆ Eccentricity & taper tester machine
- ◆ Ultra violet treatment machine
- ◆ Top roller greasing machine (Vertical)
- ◆ Top roller greasing machine (Automatic)
- ◆ Top roller de - greasing machine
- ◆ Clearer roller cleaning machine
- ◆ Fluted roller truing machine
- ◆ Cot mounting machine (Hand/Pneumatic)



Auto Feeder with Flocked Clearer  
Roller Cleaning Machine



Flocked Clearer Roller  
Cleaning Machine



Cot Grinding Machine  
Model-GCGHY-200



Cot Grinding Machine  
Model GCGHY-200-25-AF



Hydraulic Cots Mounting &  
De-Mounting Machine



Spindle Lubricating  
Machine



Cot Grinding Machine  
Model-GCGH-200



Cot Grinding Machine  
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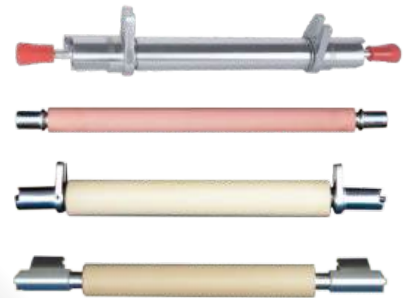
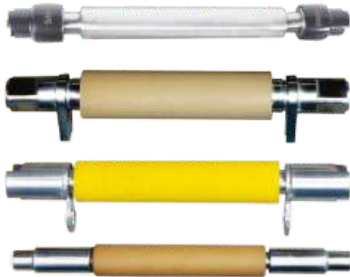
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# Sakthi

## TOP ROLLERS

SINCE MILLENNIUM

'Sakthi' Top roller quality is taken care in every stage of operations up to final assy by QC team. As per customer choice any make and kind of cots can be duly mounted and supplied with our top roller.



### Excellence Driven By Experience

The new generation preparatory machines in spinning industry demands more precision to yield maximum productivity with high quality yarn. Latest development of Draw frame top roller from Reiter and Lakshmi with non-greasing type to serve the said purpose. 'Sakthi' is the only manufacturer can supply the same in the replacement market. In addition modified greasing type also can be supplied at par quality which can be labour friendly and easy handling.

#### Shells & End Bushes

Manufactured by CNC m/c ensuring high precision tolerance, our Top Rollers are made of High Grade Alloy Steel as per OEM recommendations.

To ensure proper hardness on bearing seating neck portion and cots mounting centre position, induction hardening process is done. Cylindrical grinding ensures concentricity of the Top roller and black oxide/chrome/zinc oxide prevents formation of rust due to oxidation.

#### End Bush Bearing and Grease

**Bearings:** To extend life and minimum wear and tear, Sakthi End bushes are being fitted with INA-Germany NTN, IKO-Japan needle/cage bearings.

**Grease:** Periodic lubrication is recommended for extended life of the bearings. Sakthi End bushes are packed with high speed grease during delivery. For subsequent lubrication ISOFLEX TOPAS NB 52/ISOFLEXLDS 18 SPECIAL A is recommended for needle bearing END bush and STABURAGS NBU 12/300KP for Ring Spinning by OEM like Rieter, Suessen and Vouk.

#### Synthetic Rubber Cots

**Imported Cots:** Imported Twin layer, Press Fit cots like Accotex, Daytex, Berkal & Yamuchi etc., can be supplied with Sakthi Top roller duly mounted.

**Indigenous Cots:** Indian Glue on, Twin Layer, Press fit cots can be supplied with our Top roller duly mounted. Periodic buffing is recommended based on the shore hardness of the cots, count of cotton and basic raw material of the yarn.

**Mounting and Buffing:** Inhouse mounting facility will ensure the accurate fitment of all kind of cots.

## SAKTHI TEXTILE ENGINEERS

207-A, Sama Thottam, Bharathiyar Road, Ganapathy, Coimbatore - 641 006, Tamil Nadu, INDIA.

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Editorial	----	23
World Economy and Trade Trends	----	24
Indian Economy and Trade Trends	----	27
Dressed represented India in Paris Olympics-2024	----	29
Textile Stocks pick up likely market share gain	----	30
Denim maker's global operation should take a cue from India: Levi Strauss & Co CEO	----	31
FM: Garment sector witnessing uncertainty	----	31
ILO willing to help cotton-farmers wipe out child labour, forced work in cotton fields	----	32
Khadi Gramodyog's business exceeds Rs. 1.5 lakh crore, says PM	----	32
A success story of selling iconic Nalli silk sarees over the five generations	----	33

Several schemes carried out for handloom sector:		
Textile Ministry	----	33
The Role of Artificial Intelligence in Textile Design:		
A Comprehensive Analysis of its Applications, Benefits, Challenges and Future Prospects		
— Anjali Bhardwaj, Sonal Chaudhary		
Dr. Shalini Juneja	----	34
A Comprehensive Review of Banaras Brocade		
— Sakshi Raj, Smriti Rekha Sarkar	----	39
India has recorded trade surplus with 151 nations: GTRI	----	46
"Knitting as an Art" and its prevalence in India		
— Shivanand Sharma	----	47
International Conference on Automation and Robotics in Textile & Apparel Industry	----	54
Export Prospects and Markets	----	56
CMTI organised an Industry meet on Textile Machinery: Technology Challenges & Innovation Ecosystem	----	60
Corporate News	----	66
Textile Events	----	75
Science in Industry	----	82
Index	----	92



**THE R&D HOUSE OF SPINNING**

DEVELOPED FOLLOWINGS TO IMPROVE YARN QUALITY BY MINIMUM 20% IN IPI & CLASSIMAT

From The Result of 36mm short Cradle & 43mm Medium Cradle

Cradle Size	Yarn Type	Can Be Used for
AGMA 43mm LR P3-1 Top Arm	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 40.6mm LR P3-1 Top Arm	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 40.6mm SKF/TEX PARTS, PK 2025	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 40.6mm SUSSEN HP- A	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 40.6mm SUSSEN HP- GX	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 50mm SKF/TEX PARTS, PK 2015 Medium cradle	Normal Melange, Slub,	Lycra, Eli Twist Compact
AGMA 50mm LR P3-1 Medium cradle	Normal Melange, Slub,	Lycra, Eli Twist Compact

AGMA Saddle setting Gauge for Rieter / LMW P3-1 Top Arm with Sussen Compact



Bottom Roll setting Gauge for all Roving & Ring Frames



Single spacers  
P3-1 from 2.5mm to 6.00mm

Twin Spacers - P3-1  
From 2.50/2.75mm to 4.00/4.25 P3-1

**AGMA CRADLE**

Improves YARN QUALITY (From existing yarn quality) (or) Improves YARN REALISATION % (From existing yarn quality) (or) Improves SPG PRODUCTIVITY (From existing yarn quality)

**BENEFITS OF USING AGMA CRADLES**

- Improves YARN QUALITY minimum 20% in IPI & Classimat fault against 36mm cradle. (For Cotton, Viscose, PV, PC...& compact, slub yarn, siro...etc)
- Reduces A1, A2, B1, B2 and H1 faults in classimat.
- Reduces WARPING BREAKAGES.
- Increases YARN REALISATION with existing Quality and CSP/RKm.
  - a) By reducing CARDING WASTE % in carded count.
  - b) By reducing COMBER NOIL % in combed count.
- Can increase CARDING M/C PRODUCTION with existing yarn quality.
- Can increase RING FRAME PRODUCTION, 5-10% with existing yarn quality.

NOTE :

- No quality improvement in 100% Polyester can be expected

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# PROCESS CONTROL INSTRUMENTS FOR SPINNERS

## DRAW FRAME TOP ROLLER LOAD GAUGE - SUNRISE NILOMETER

(For individual & independent end load measurement of top rollers)

(With 2 Dials  
&  
Planometer)



(For draw frame,  
comber, sliver  
lap, ribbon lap.)

It helps decrease Sliver CV%, Strength CV% and count CV% besides improving appearance.  
It is a must for better Uster Values.

## SUN TARP GAUGE (TOP ARM LOAD GAUGE)



Replaceable adaptor  
for various Top Arms

Replaceable varying sized rollers for specific  
roller cover size running in the mill

## YARN SPLICE TESTER (PORTABLE)



**ANALOG MODEL  
RANGE**  
500, 1000, 1500 &  
& 2000 GMS.

**DIGITAL MODEL  
RANGE UP TO  
2000 GMS.  
LEAST COUNT 1 GM.**

## DIGITAL YARN TENSION METER



**RANGE  
UP TO  
200 GMS,  
500 GMS &  
1000 GMS**

## DIGITAL MOISTURE METER



**RANGE UP TO 50%  
(For Cone, Loose Cotton, Bale)**

## PACKAGE HARDNESS TESTER



(For Cone, Warp Beams, Bobbin)

## DIGITAL STROBOSCOPE



**LED  
FLASH  
TYPE**

(For Spindle RPM Measurement)



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### *Textile exports heralding a bright future*

The Indian textile industry plays a key role in the Indian economy. The industry has been growing significantly over the years taking advantage of opportunities opened up for the sector in the international markets. Leading exporter of cotton textile has made excellent performance in achieving the goals envisaged for the growth of India's textile exports. They hold resolute efforts for consolidation of trade and enhancing competitiveness in global marketing, and in term it will raise productivity, improve quality of textile products.

The Indian textile and clothing is one of the mainstays of the national economy. In the face of recent market challenges induced by Russia-Ukraine war and Israel-Hamas conflict many Indian textile entrepreneurs continue to preserve and pursue higher cotton textile export targets. Indian entrepreneurs need to be commended for progressively adapting to the advancements in technology in order to meet with stringent global standards. With endeavor they are relentlessly working in order to convert challenges into opportunities. Due to this massive efforts there has been possible of geographical diversification of exports destination to improve developing economy.

Going forward, by the year 2030, government has set a target of US \$100 billion export for textile and clothing sector. In order to achieve this target, India needs to focus aggressively on maintaining its competitiveness in cotton-textile sector by leveraging its advantages of sustainable fiber and cost of labour. In this regard it is worthy to mention that India's 'KASTURI COTTON' may be a game changer. In the next hub of current decade, the textile industry is eagerly awaiting the signing of the UK—FTA and a possible FTA with EU. These FTAs are expected to boost India's textile—cotton exports as the disadvantages currently being faced by Indian exporters ranging between 9.36 to 12% will be removed.

Apart from above, a modified Product Link Incentive(PLI) will enable India to become a hub of fabric production and value addition. Exporters have to take resolute efforts towards expansion of diversification with enhancing competitiveness of their exports. In this case TEXPROCIL is playing a crucial role of promoting exports of cotton textile from India.

### Chinese economists call on Beijing to borrow more to spur growth

A growing chorus of Chinese economists are calling on the central government to take on more borrowing to support growth as the economy continues to struggle from a lack of demand and low inflation. Authorities should consider raising the Budget deficit in a timely and appropriate manner, said Chenjie Liu, chairman of Upright Asset Management. That's not without precedent — China made a rare revision to its deficit ratio late last year to 3.8 per cent of gross domestic product from the original 3 per cent. A more active fiscal policy is needed to deal with the challenges of the property market slowdown, weaker fiscal position of local governments and sluggish household consumption, Liu said in a note posted on WeChat. "Raising the fiscal deficit ratio is an appropriate and effective policy tool," he added. Liu's views on more aggressive borrowing by Beijing echo that of other Chinese economists and former officials, including retired finance minister Lou Jiwei and Yu Yongding, and ex-central bank advisor. China's economic growth slowed to the worst pace in five quarters, drawing renewed attention to the need for more fiscal stimulus to help Beijing hit its full-year growth goal of about 5 per cent. Despite the rare budget revision in October last year, which resulted in the sale of 1 trillion yuan of additional sovereign bonds, China kept the deficit ratio at an implicit ceiling of 3 per cent this year. Liu said the figure should be raised by 3 percentage points — or 4 trillion to 5 trillion yuan based on the estimated size of GDP this year — mainly in the form of higher central government borrowing. "Increasing the fiscal deficit in the short term is mainly to deal with the problem of insufficient demand," said Liu. China has tried to boost growth by cutting interest rates but they've failed to move the needle for borrowers in the face of a persistent housing downturn and gloomy job market. The focus now should be on preventing short-term economic long-term issues, said Huang Wentao, Chief Economist of China Securities Co. Huang called for the government to steer funds toward stimulating consumption

as well as strengthening the social safety net and public services. This could address issues such as overcapacity and low-efficiency investment, he added. Government spending has been slow this year, mainly because local authorities struggled to find quality projects to invest their money raised from special bond issuance. Expenditure under the government fund budget, which includes infrastructure investment, slumped 17.6 per cent year-on-year in the first half. Policymakers have pledged to allow local governments to use money raised from special bonds in broader areas. They are considering a proposal to let local authorities use these bonds to fund their purchases of unsold homes as part of efforts to prop up the housing market, Bloomberg reported recently. Liu said China needs to shore up economic growth to improve the return on investment to keep debt risks in check. Authorities could use a third of additional funds to potentially boost the deficit ratio to spur consumption, such as by handing out direct subsidies to less well-off families. Another one-third could be given to local governments to repay debt owed to private companies. The rest could be invested in technology development and high-end manufacturing, Liu added. □

### China eyes on EU dairy in probe as trade tensions rise

China has launched an anti-subsidy investigation into dairy imports from the European Union, the latest development in a tit-for-tat trade dispute between the two sides. The probe will target several dairy products including fresh and processed cheese, China's Ministry of Commerce said recently. Beijing announced an anti-dumping investigation into EU pork exports in mid-June. The latest move escalates a growing tussle over subsidies that started with EVs and has spread to pork and cognac. Earlier this year, the EU determined that Chinese subsidies had given the country's car-makers and unfair cost advantage over local companies, and moved forward with added tariffs on battery-electric vehicles shipped from China. The bloc said of late that it intended to move forward with the import levies, and also announced tariffs on Tesla cars



## WORLD ECONOMY AND TRADE TRENDS

made in China. The dairy probe, initiated at the request of industry groups in China, will review 20 EU subsidy programs, including some under the Common Agricultural Policy and others available in Italy and Finland, the ministry said. The investigation is expected to be completed within a year, and can be extended for another six months under special circumstances, it added. EU dairy exports to China were valued at 1.7 billion euros last year, official figures show. China imports dairy products from European nations including the Netherlands and France, but New Zealand is its top supplier. The Asian nation's dairy purchases have fallen in recent years due to rising domestic production and an economic downturn. The European Commission has noted China's investigation and plans to "firmly defend the interests of the EU dairy industry," according to spokesman Olof Gill. It will intervene as appropriate to ensure the investigation complies with relevant World Trade Organization rules, Gill said. □

### ► China central bank sees more growth steps but nothing 'drastic'

China's central bank chief pledged further steps to support his nation's economic recovery while cautioning that it won't be adopting "drastic" measures. Chinese state media published a pair of interviews with People's Bank of China Governor Pan Gongsheng of late after key indicators for July suggested that the country's economic growth remains lacklustre. Retail sales gains remained subdued while investment growth weakened — underscoring a faltering in domestic demand amid a prolonged downturn in the housing market. The PBOC will strengthen efforts to effectively implement monetary and financial policies that have been introduced this year, and further steps will be made in accordance with the requirements of the State Council, Pan said in an interview with state broadcaster China Central Television recently. He didn't elaborate on potential measures. Maintaining price stability and promoting a moderate price recovery are important considerations, Pan said, in an apparent reference to the enduring deflationary risks. At the same time, it is important to maintain policy patience and

stability, as well as refrain from any "drastic tightening or drastic easing," Pan said, speaking in a separate Xinhua News Agency interview. "Drastic tightening would make no sense given the current economic conditions," said Neo Wang, managing director for China research at Evercore ISI in New York. 'No drastic easing' should be his sole message. Considering the upcoming rate cuts by the Federal Reserve, we think it indicates moderate cuts to the Loan Prime Rates. Our base-case is two or three 10-basis-point reductions before year-end, depending on China's economic performance in the third quarter." The PBOC will gradually reduce its focus on quantitative targets and put more emphasis on the role of price-related adjustment tools such as interest rates — enriching its monetary policy toolbox, Pan said. Chinese policymakers have long relied on guidance to financial institutions to accelerate or scale back their extension of credit as a key channel for affecting the economy. But the PBOC has also for some time laid out an objective of elevating the importance of interest rates, which are the main tools used by developed-world central banks. The PBOC will continue to maintain a supportive monetary policy stance, Pan added. He also said that China's financial system is relatively stable and that overall risk has eased significantly. While Pan didn't shed much light on policies geared toward the property sector, he reiterated that the PBOC is providing a relending program to help fund local-government purchases of unsold homes. The down-payment ratio of mortgage loans has dropped to record low of 15 per cent and interest rates are also very low, he said. □

### ► BoE slashes rates to 5% for first time in 4 years

The Bank of England (BoE) cut interest rates from a 16-year high recently after a tight vote by its policy-makers who were split over whether inflation pressures had eased sufficiently. Governor Andrew Bailey led the 5-4 decision to reduce rates by a quarter point to 5 per cent and he said the BoE would move cautiously going forward. It was the central bank's first cut since March

2020, at the start of the Covid-19 pandemic, giving Britain's new government a boost as it seeks to speed up the pace of economic growth. But Bailey stressed the BoE was not committing to a series of quick reductions in borrowing costs. "We need to make sure inflation stays low, and be careful not to cut interest rates too quickly or by too much," he said in a statement. Most economists polled by Reuters had expected a cut while financial markets had seen just over a 60 per cent chance. Sterling slipped to its lowest against the US dollar since early July and bond yields also fell slightly after the BoE's announcement with the yield on 10-year gilts touching its lowest since March. Bailey insisted the BoE would take its decisions on rates "from meeting to meeting" but investors were betting on another rate cut this year with the chance of a move at its next meeting in September seen as a roughly 55 per cent probability. "The Bank of England is staying tight-lipped on when it expects to cut rates again," ING economist James Smith said. "But we think better news on services inflation and wage growth can unlock one, or more likely two rate cuts by year-end." □

### ➡ **UK property buyers step up searching after BoE slashes rates**

UK house hunters stepped up their search after the Bank of England's first reduction in interest rates in over four years and Labour's election win created "buyer buzz," Rightmove Plc said. The online property portal said the number of buyers contacting estate agents to view houses for sale jumped 19 per cent from a year ago since the BoE decision on August 1, an acceleration from the 11 per cent increase across the month of July. The number of sellers coming to market also rose by five per cent compared to a year earlier. The figures add to growing optimism that cooling mortgage rates will spark an upturn in the property market this autumn. While the recovery in the housing market has been patchy in 2024, a recent decline in borrowing costs for homebuyers and the BoE's policy pivot have increased confidence. Rightmove also attributed some of the upturn to Labour's landslide election victory in July removing

uncertainty for homebuyers. "The first bank rate cut since 2020 has sparked a welcome late summer boost in buyer activity," Tim Bannister, director of property science at Rightmove, said in a report. "While mortgage rates aren't yet substantially lower since the rate cut, the fact that the long-hoped-for first cut has finally arrived and mortgage rates are heading downwards is positive for home-mover sentiment." Rightmove upgraded its 2024 forecast for asking prices after the surge in activity in the property market since the central bank reduced rates from a 16-year high. It now expects a 1 per cent gain in asking prices across 2024 as a whole, compared with its previous forecast for a drop of 1 per cent. The average two-year fixed mortgage rate has fallen to 5.66 per cent, down from around six per cent earlier in the summer, according to Monefacts. However, borrowing costs may only come down gradually as traders expect the BoE to take a cautious approach to easing policy restriction. Currently, investors are only fully pricing in one more quarter-point cut by the UK central bank by the end of the year. Other property market indicators have also pointed to an upturn. Halifax's indicator showed prices rising by the most since January-July while Nationwide Building Society's measure also showed gains in July. Bannister said pent-up demand had been unleashed by the rate cut and Labour's election win on July 4. □

### ➡ **Claims for unemployment benefits in US rise slightly**

The number of Americans filing for unemployment benefits rose modestly recently, but the level of claims remains at healthy levels. Jobless claims rose by 4,000 to 232,000 for the week of Aug. 17, the Labor Department reported recently. The four-week average of claims, which evens out some of the weekly gyrations, ticked down by 750 to 236,000. For the week ending Aug 10, 1.86 million Americans were collecting jobless benefits, 4,000 more than the week before. Weekly filings for unemployment benefits, which are a proxy for layoffs, remain low by historic standards. From January through May, claims averaged a rock-bottom 213,000 a week. ■



## INDIAN ECONOMY AND TRADE TRENDS

### ➡ Fx reserves hit an all-time high of \$657.2 bn

Foreign exchange reserves rose \$5.2 billion to hit an all-time high of \$657.2 billion for the week ended July 5, the latest data from the Reserve Bank of India (RBI) showed recently. Forex reserves fell \$1.7 billion to nearly \$652 billion for the week ended July 28. The week-on-week rise in reserves was the highest in nearly four months. Foreign currency assets rose \$4.2 billion to \$577.1 billion in the week ended July 5. The foreign currency assets include the effect of appreciation or the depreciation of non-US units like euro, pound, and yen held in the foreign exchange reserves. Gold reserves rose \$904 million to \$57.4 billion. Special drawing rights rose \$21 million to \$18 billion. The reserve position with the International Monetary Fund rose \$4 million to \$4.6 billion. Typically, the Reserve Bank of India (RBI) intervenes in the market through liquidity management, including selling of dollars, with a view to prevent the steep depreciation of the rupee. The rupee fell 10 paise to 83.49 for the week ended July 5. It gained 3 paise to 83.53 recently. "RBI intervention has been helping to keep the rupee stable. Consequently, the rupee range can be seen between 83.35-83.40 as resistance and 83.60-83.70 as support," Jateen Trivedi, VP Research Analyst - Commodity and Currency, LKP Securities said. □

### ➡ July retail inflation declines to 5-year low of 3.5% on cheaper veggies; June IIP growth slows to 4.2%

A favourable base effect in various sub-groups brought retail inflation based on the Consumer Price Index down to a 59-month low of 3.5 per cent in July. Significantly, food inflation dropped to a 13-month low of 5.1 per cent during the month. But disappointing was the decline in the growth of the Index of Industrial Production (IIP) to a three-month low of 4.2 per cent in June from the higher revised figure of 6.2 per cent in May. July core inflation (headline minus inflation of food and fuel) rose to 3.4 per cent from 3.1 per cent, signalling some improvement in demand. Experts do not see

the RBI hastening to cut key interest rates yet as inflationary expectations are still high. "During July, there is a decline in inflation for all groups. Significant decline is in the vegetables, fruits and spices sub-group," said a National Statistical Office (NSO) statement recently. Food and beverages inflation eased after holding at 7 per cent over the last eight months. Aditi Nayar, Chief Economist with ICRA, said that while eight of the 12 sub-segments saw a lower inflation in July vis-a-vis June, the chief driver of the downtrend was vegetable inflation which declined sharply to 6.8 per cent from 29.3 per cent in the same month previous year, led by a favourable base. "Month-on-month, however, vegetable prices shot up by 14.1 per cent in July, after having risen at a similar pace in June," she said. Swati Arora, economist with HDFC Bank, said, "We expect core inflation to rise above 4 per cent from September as support from a favourable base wanes and also due to an improvement in demand conditions." Another set of data released by NSO showed that the IIP had slowed to a five-month low of 4.2 per cent in June against 6.2 per cent in May mainly due to poor performance of the manufacturing sector, though the power and mining sectors continued to perform well. Per the NSO data, the mining output growth accelerated to 10.3 per cent in June against a 7.6 per cent expansion in the year-ago month. The manufacturing sector's growth decelerated to 2.6 per cent in June compared to 3.5 per cent a year ago. □

### ➡ Export dips to 8-month low in July, deficit widens 23.7%

Breaking a three-month streak of positive growth, India's goods exports contracted 1.5% in July to \$33.98 billion, the lowest in eight months, even as the import bill rose 7.5% to \$57.5 billion, widening the trade deficit by a sharp 23.7% in the month to \$23.5 billion. Sequentially, exports dropped 3.5% from June, while imports grew 2.3%, leading to an almost 12% spike in the merchandise trade deficit over the previous month's \$21 billion gap. While the decline in exports was led by petroleum products, whose outbound shipments' value slumped 22.2% from last July to \$5.2 billion, the import bill spike was aided by a 17.4% rise in oil imports that hit

\$13.8 billion, thanks partly to higher prices. Gold imports fell 10.7% to \$3.13 billion, but silver imports continued to raise eyebrows, rising over 439% to nearly \$650 million. Higher imports of 'non-oil, non-gold' items also continued to fuel the trade deficit with consumer goods like electronics growing 11.5%. Commerce Secretary Sunil Barthwal exuded confidence that India will surpass last year's record export tally of about \$778 billion in 2024-25. □

### ⇒ Only 1/5th bank-money belongs to women: NSO data

Only a fifth of the total amount of bank deposits in the country belongs to women account holders even though every third bank account is owned by a woman, according to the latest "Men and Women" report released by the National Statistical Office (NSO). This highlights the significant financial disparities that exist between men and women in the country. Data shows that as a March 2023, the share of accounts belonging to women stood at 36.4 per cent (917.7 million) of the total 2.52 billion individual accounts. These individuals accounts include accounts belonging to Hindu undivided families, resident individuals, farmers, traders, professionals and self-employed people, wage and salary earners, among others. On the other hand, the share of total money deposited in the accounts belonging to women stood at 20.8 per cent (₹39 trillion) of the total ₹187 trillion. The disparity in financial status is stark in metropolitan areas as only 16.5 per cent (₹1.9 trillion) of the total amount deposited belongs to women, while 30 per cent (₹5.91 trillion) of the money deposited in rural areas belongs to women. This could also be due to the wide proliferation of Jan Dhan accounts in rural and semi-urban India. Meanwhile, the report also notes that only one in every four employees working in the banks is a female, as the total number of women working in banks stood at 441,000 in comparison to 1.32 million male employees. Besides, the report also provides information regarding employment of women in corporate decision-making. It notes that only 34,879 women held senior management positions in 2023 as compared to 186,000 men. A total of 762,000 women were part of the board of directors as opposed to 1.9

million men. In other managerial positions in corporate firms, there were 738,000 women as compared to 1.86 million men, the data sourced from the Ministry of Corporate Affairs for the report showed. Though the number of women in senior management positions increased from 23,685 in 2017 to 34,879 in 2023, the corresponding increase from men from 150,300 to 186,900 has been more in terms of percentage. □

### ⇒ India to broaden its collaboration with IMF: FM

India is open to "exploring more ways" to increase its collaboration with the International Monetary Fund (IMF), finance minister Nirmala Sitharaman said during a meeting with IMF's first deputy managing director Gita Gopinath recently. During the meeting, Gopinath congratulated Sitharaman on policy continuity on the fiscal consolidation path, and appreciated the strength of India's relationship with IMF, which, she said, is "valuable to both India, IMF, and to the world at large". Speaking at an event at the Delhi School of Economics, Gopinath mentioned that the multilateral agency is now addressing "newer forms of crises" across the world. She said the IMF is providing long-term financial support to low-income countries to help them tackle climate change, reduce poverty, and restructure debt. And for that purpose, India, China, Saudi Arabia are among some countries that are providing financial support, which was not the case earlier. On the country's fiscal consolidation roadmap, Gopinath said the right approach for that would be to increase revenues and not necessarily reduce overall spending. However, she mentioned the need to provide targeted fertiliser subsidy, as it has a high outlay. On taxes, she mentioned that revenue as a percentage of GDP can increase by broadening the tax base, both on personal income tax and GST. "If you simplify the GST rates and broaden the base...you can raise 1% of revenue as a percentage of GDP," she said, adding that exemptions given in personal income tax should be cut down further. Also, structural reforms need to go on all the time to improve the fiscal situation without constraining growth, noted the IMF's deputy MD. ■



## Dressed represented India in Paris Olympics-2024

Originally, both men and women athletes were meant to wear the same uniform. The sari — a leitmotif in Indian ceremonial uniforms and regarded as a cultural marker — was introduced later, Tahiliani tells me, following a revised mandate from IOA. But as Ugra rightly points out, many athletes don't know how to drape the sari and first-time wearers may find it daunting on a global stage. "India has so many options for women to wear, be it the mekhela-chador or a salwar suit," she says. "The aim should be to have well-fitted and comfortable garments." Tasva offered a solution for any draping issues with pre-pleated saris, a signature design element from Tahiliani's repertoire.

Collaborations with designers are not limited to ceremonial uses, but extend to uniforms of all kinds. Hospitality and aviation sectors — where the staff is expected to look sophisticated — often engage designers. In 2010, Rajesh Pratap Singh, known for his clean, contemporary silhouettes, and make-up artist Ambika Pillai, partnered to create a new look for the cabin crew of Indigo. More recently, Singh designed uniforms for the Akasa Air crew in 2022. Air India's rebranding last year also reflected in new garments, created by Manish Malhotra.

Irrespective of the designer, uniforms are a brand entity. "It is important to begin with understanding the client's vision and the social landscape they interact with," says designer Raghavendra Rathore, who put the Jodhpuri *bandhgala* on the fashion map. "Balancing aesthetics with functionality, ensuring a proper fit for a diverse group of wearers, and maintaining high-quality standards are crucial for uniform design." His eponymous label has created garments for ITC Hotels, Imperial Hotel (Delhi), The Claridges, Umaid Bhawan Palace, and Jio World Convention Centre, as well as a ceremonial uniform for BSF (Border Security Force).

The Abraham & Thakore label is known for their engagements with *ikat* and hand block printing. They have also experimented with handloom uniforms in the past. David Abraham notes, however, that it can be a "completely impractical" choice. "The garments go through rigorous use. How can we expect flight attendants who may wake up at 3 a.m., wash and wear their garments regularly, and use it for at least for 6-12 months, to maintain the garments?" he asks. "Handlooms have beauty and value, but it is ill-advised to use in a space for performance-textiles."

What many don't realise is that while a designer tag is attached to such collaborations, what you see

is not what you get. Industry insiders who have worked on corporate uniforms agree that though designers are posited as the face and minds behind it, a lot goes on behind the scenes. "There are far more people involved in the design and selection, especially in big, public sector enterprises," says designer Nimish Shah, whose label Shift created the crew uniforms for Spice Jet in 2017. "It is just not about a designer's acumen."

In a country known for its weaving and handloom culture that go back centuries — producing handwoven silks and cottons, from Banarasi to Madras checks that have found global renown — the use of digitally printed *ikat* in this year's Olympics uniforms seems unimaginative. The buzz around National Handloom Day (August 7) is also giving momentum to people's criticism of the use of viscose textiles.

Budgets don't always support the engagement of handloom clusters, and crafts interventions require time and collaborations with crafts people for distinctive designs. "It's not a vendor type system where an order is placed and there is an assembly organised production line," says crafts practitioner and author Meera Goradia. Quick turnabouts — such as, when the IOA decided to ditch the *kurta* and go with the drape for women athletes — are impossible. While working with "easily available colours, designs that can be produced at scale, or building on fabrics in stock" such as Kutch kala cotton weaves and Banaras jacquards can facilitate faster production, Goradia adds that planning is paramount.

Tahiliani says, in the case of the Indian Olympics uniforms, he chose *ikat* as emblematic of a weaving tradition practised around the country, but opted for digital prints to meet timelines. The choice of viscose was also deliberate. "Cotton would have crushed badly. We used viscose because it is a wood pulp fibre and lets you breathe. It is cooler than silk," he says. "We had to consider breathability because the athletes would be on a barge, in the heat, for up to five hours."

Similar criticism has been levelled at airline uniforms in the past. Goradia sees value in using traditional skills, but with logistical consideration. "Using cultural techniques and vocabularies in everyday spaces would not only generate employment, but give visibility and pride to both the maker and the user," she says. "R&D needs to be done before this can be applied at scale —

## **Dressed represented India in Paris Olympics-2024**

the quality of the fabrics for durability, dyes, and prints that would be hardy enough to take multiple washes, stains, etc.”

In the age of social media, presentation becomes paramount for uniforms as much as any fashion collection. It is not surprising that national committees and brands have invested heavily in visual imagery to showcase their ceremonial uniforms.

The Team India incident has certainly emphasised the need for sport committees to pay greater attention to how designs are presented. But India is not the only team facing criticism for its uniforms. Fans have criticised USA’s opening ceremony

blazers — tweeting that they are past their heyday — while Thailand’s outfits were panned for being outdated, to the extent that the country’s prime minister issued a statement defending the uniform. They have since switched to an eye-catching dark blue design with motifs inspired by Ban Chiang pottery.

Tahiliani admits that the presentation, particularly the mannequin drapes, have been weak links but is confident that the uniform will deliver. “We stand by our designs,” he insisted, when we spoke recently. “The team will look great when they take their place in the ceremony, and I will be cheering them on.” ■

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## **Textile Stocks pick up likely market share gain**

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Shares of textile and garment-making companies surged in market fuelled by expectations that the political turmoil in Bangladesh, a major textile manufacturer and exporter, could benefit the Indian industry.

Analysts said the upsides could be short-lived as it remains uncertain if domestic companies would benefit from the unrest in the neighbouring country.

SP Apparels, KPR Mill, and Gokaldas Exports rallied between 15% and 20% of late. The BSE 500 index shed 0.4%.

“Though the textile stocks have gone up, we do not see any short-term benefits to these companies due to the political unrest in Bangladesh as we believe brands and retailers will wait and watch for the next few weeks to see if the situation calms down,” said Prerna Jhunjhunwala, vice president, Elara Capital.

Jhunjhunwala said if the tensions remain protracted, Indian companies may get incremental orders over the next six months or in the next season.

“In the shorter term, spinning and fabric supply companies that export to Bangladesh may see some disruptions in their order books,” she said.

Industry officials said it would be hasty to conclude that the textile business in Bangladesh would shift to India soon.

“Does the Indian textiles market have the production capacity, workforce, and raw material inventory to be able to match up to the production of the Bangladesh market?” said Rahul Mehta, chief

mentor, Clothing Manufacturers Association of India (CMAI). “We have very few factories which can pull off large-scale production. So, it is too early to form a concrete view of the possible gains or losses to the Indian markets.”

So far in 2024, shares of the garment and textile companies have given returns between 4% and 56% as against the 15% gains in the benchmark BSE 500. “I think only those companies which are disproportionately dependent on the Bangladesh market for inventory may change their sourcing. I think these companies are more likely to opt for Vietnam and Chinese markets as these markets are more well-organized than the Indian markets,” said Mehta.

The government has announced a slew of measures to revive the domestic textile sector including Production Linked Incentives (PLIs) and the setting up of textile parks. Analysts said this bodes well for the sector.

“The Indian government’s moves to promote textile industry combined with the situation in Bangladesh could help the sector,” said T Manish, research analyst at SAMCO Securities. Some of Samco’s top stock picks in the sector are KPR Mills, Gokaldas Exports, and the Trident Group, which could gain 10-15%. Jhunjhunwala said Arvind, Gokaldas Exports, KPR Mills, and SP Apparels might be the beneficiaries.

“While Indian companies may not have the capacity to take additional orders now, a visibility of orders can lead to capacity additions in the medium term,” she said. ■



## Denim maker's global operation should take a cue from India: Levi Strauss & Co CEO

Michelle Gass, chief executive of Levi Strauss & Co, said the denim maker's global operations should take a cue from the Indian business in terms of keeping speed, agility and execution of its retail strategy in a market, crucial to achieving its \$10-billion annual revenue target, up from about \$6 billion currently.

"Speed, decisiveness, agility, risk taking and making decisions, India does it really well. Every market has their own local product engine, but the bigger opportunity is operating like this speedy, agile retailer, and taking this culture of the Indian team and bringing that throughout the company is a great opportunity," Gass told reporters in an interview, adding that the Indian team is amongst the strongest it has globally.

"This is one of the most dynamic, exciting markets I have been to, and there's so much happening. We have had strength in the market for some time, but they are constantly challenging themselves to be better and evolve and that's what's accelerating our growth here," she said.

Gass, a former Starbucks and Kohl's executive, joined Levi's last year, and assumed charge from long-time CEO Chip Bergh earlier this year.

Overall retail sales growth rate in India across segments such as apparel, footwear and quick service restaurants (QSR) slowed to 4-7% year-on-year every month in FY24, reflecting comparatively weaker consumer sentiment.

As the world's most populous nation, India is an attractive market for apparel brands, especially with youngsters increasingly embracing western-style clothing. But the market is also getting crowded as most global rivals — from Zara and H&M to Uniqlo and Gap — have set up shop in the country.

"There's competition everywhere around the globe, and we have had competition in the past as well. As a retailer, it is all about execution and we don't need a new strategy. We have got the formula right in India in terms of our approach to the consumer, our approach to the brand, our product assortment, and everything that goes in there. We are creating more separation and differentiation in the marketplace," said Gass, 56, sporting all-Levi's merchandise — a blue denim skirt paired with a black Made-in-India blouse. "If you think about this consumer market, just the number of consumers who are here that fit our target? They are youthful, they are optimistic, they are savvy."

The company posted a 54% year-on-year increase in net sales in India at ₹1,781 crore in FY23, as per the latest available filing. However, unlike rivals that report retail sales, Levi's revenues are not comparable

because sales are accounted at wholesale prices to franchise partners.

Levi's, popular for its 501 jeans said it is investing in India to grow its leadership position in denim, and strengthen its franchise partnership. She didn't elaborate on the investment plan.

Over the past decade, it consolidated its franchisee network in India to 2 dozen from over 80.

"India is growing in double digits consistently. Consumers are young in India, they are also fashion forward and they get influenced with what's happening in the West and as the economy grows, there is no reason why India should not grow. India was at the 10th spot not very long ago and its sixth today. So, it will continue to grow over time," Harmit Singh, global chief financial and growth officer at Levi Strauss, said. ■

### FM: Garment sector witnessing uncertainty

The Indian garment and knitted fabric sector is witnessing a bit of uncertainty due to the Bangladesh crisis, finance minister Nirmala Sitharaman said recently, expressing hope that the interim government there will settle things "sooner rather than later."

Interacting with the media on the sidelines of customary post Budget address to the central board of Reserve Bank of India, she said efforts are being taken to ensure that borders with the neighbouring country are safe.

With regard to Indian investments, she said the textile industry, particularly from Tamil Nadu, has made investments there in good faith and they have done well having gone there.

"The exports from Bangladesh also increased because of the duty and quota liberal approach that we have towards low-income countries.

"They (Indian garment industry based in Bangladesh) could even export to India."

Particularly, she said, the garment and knitted fabric sector is seeing a bit of uncertainty because of the crisis in the neighbouring country.

"I hope that the investments are all safe...it's too early for me to see what kind of an impact this situation in Bangladesh will have on our economy. I hope that the interim government will settle things sooner rather than later so that both the people of Bangladesh and India can get back to normalcy," she said.

Recently, Bangladesh plunged into a political crisis when Sheikh Hasina resigned as the Prime Minister and fled the country.

Soon after Parliament was dissolved leading to the creation of an interim government. ■

## **ILO willing to help cotton-farmers wipe out child labour, forced work in cotton fields**

As cotton and hybrid cotton seeds from India continue to remain in the United States Labour Department's 'List of Goods Produced by Child Labour or Forced Labour', the Confederation of Indian Textile Industry (CITI) has joined hands with the International Labour Organization (ILO) to help farm workers and small and medium farmers engaged in cotton cultivation.

The joint project — Promoting Fundamental Principles and Rights at Work (FPRW) — aims to promote effective recognition of freedom of association and the right to collective bargaining, elimination of child labour, abolition of forced labour, elimination of all forms of discrimination, and the promotion of a safe and healthy working environment among the cotton growing community in India. The project was launched in Delhi recently and is expected to reach out to 65 lakh cotton farmers in 11 States.

Insaf Nizam, ILO's Fundamental Principles and Rights at Work Specialist, said the issues at the fields can be addressed through a productive approach by understanding what is happening at the grass roots level. "ILO's agenda is to promote freedom, equity and dignity," he said and added that economic growth should not be at the cost of decent work.

"The fundamental principles and rights at work convention (of the ILO) applies to all ILO member-States whether they have ratified it or not. It is part and parcel of the ILO's Constitution," he said and added that the ILO will work with all stakeholders to address problems of cotton cultivators.

CITI secretary general Chandrima Chatterjee said by leveraging the confederation's existing farmer connections and network in the region, and by capitalising on the knowledge products developed by the ILO, the new initiative will ensure stronger collaboration with government bodies, employers' and workers' organisations, and civil society groups. "Together, we will work to ensure that cotton-growing communities are well-informed and empowered to assert their rights under the FPRW."

Ms. Chatterjee said that by upholding the FPRW, cotton-growing communities can foster a more equitable, sustainable, and prosperous environment for all workers, leading to long-term benefits for individuals and families. "The collaboration will equip farmers with knowledge about various government schemes and initiatives aimed at their socio-economic uplift, through dissemination of information related to schemes or programmes for eligible families," she said. ■

## **Khadi Gramodyog's business exceeds ₹1.5 lakh crore, says PM**

Prime Minister Narendra Modi recently said that Khadi Gramodyog's business has crossed ₹1.5 lakh crore for the first time, which is due to 400 per cent increase in its sales.

Modi lauded Tiger Day campaigns and reflected on Charaideo Moidam, a unique 700-year old mound-burial system of the Ahom dynasty of Assam that is being included under the category of Cultural Property at the ongoing 46th World Heritage Committee meeting.

The Prime Minister, ahead of National Handloom Day on August 7, said, "The rising sales of Khadi and handloom are creating new job opportunities in large numbers."

Modi highlighted the significant role of women in the handloom industry, mentioning how more than 250 women of Rohtak district in Haryana are benefiting, earning lakhs of rupees by making products in demand.

"Earlier, they used to run small shops and do minor work to make ends meet but everyone had a desire to move forward so they decided to join the

Unnati Self Help Group and by joining this group, they got training in block printing and dyeing. Bed covers, saree and dupattas made by them have a huge demand in the market," he informed.

Modi encouraged people to buy khadi clothes and add it to their wardrobe collection. "On August 7, we will be celebrating National Handloom Day. You can also upload your local products on social media with #MyProductMYPride. Your small effort will change the lives of many people," he added.

"In India, Tigers have been an integral part of our culture. In our country, there are many villages where there is no conflict between humans and tigers. But where such a situation arises, unprecedented efforts are being made for the protection of tigers there as well."

He mentioned about an interesting people's effort — 'Kulhadi Band Panchayat' — that has been started in Ranthambor in Rajasthan. "The local communities themselves have taken an oath that they will not go to the forest with axes and will not cut trees," he said.

He requested people to 'cheer for Bharat' to motivate Indian athletes participating at the Paris Olympics. ■

## A success story of selling iconic Nalli silk sarees over the five generations

When you think of buying a silk saree, the name Nalli pops up in your mind. Overlooking Panagal Park in the busy commercial T Nagar in Chennai, the iconic Nalli shop has stood firm for nearly nine decades.

This is despite 23 other silk saree shops, including RmKV, Kumaran and Sundari, having sprung up over the years within a 2 km radius.

Like a Banyan tree, the brand has spread across the globe with the fifth generation coming on board.

Nalli's revenue is now around ₹1,200 crore, said Nalli Kuppuswami Chetti Partner at Nalli. At 84 years, Nalli Kuppuswami Chetty, a doyen of India's silk saree industry, is still in charge of the T Nagar store.

Even at this age, he is seen at the entrance of the shop in the mornings taking care of customers and vendors. "This I learnt from my father," he told.

In 1911, India's capital was shifted to Delhi from Kolkata. The Coronation of King George V was organised for the first time outside England in Delhi. To mark the event, a statue was erected in Chennai.

"It was decided to give him the Darbarpet silk shawl woven by my grandfather. Thanks to the gift, my grandfather became popular and many customers from Madras started coming to Kancheepuram to buy silk sarees from him," he said.

"Since most of the customers were from Madras, a small shop was set up in T Nagar in 1928 close to the Mambalam railway station. Sarees were brought from Kancheepuram and sold there. However, on January 26, 1935, the iconic shop was set up at Panagal Park by my grandfather," he said.

Many customers were unable to pay the full amount for a saree. This led to EMI options being offered. They bought a saree for ₹18 (9 yards) and paid the amount in instalments. In 1948, revenue was ₹2.12 lakh per annum.

"On April 1, 1961, I took charge of the shop. In five years, we clocked revenue of ₹1 crore — the only silk saree shop in India then to achieve the milestone," he said. The cost of a 6-yard silk saree then was ₹50 while for 9-yards, it was ₹90. Sarees woven in Kancheepuram were brought to Madras daily.

Nalli saree was identified by its weight and pure zari with traditional design consisting of single border, double border and solid border. With a lot of craze for cinema, the sarees were also named after films like *Paalum Pazhamum*. Today, the designs are based on carnatic ragas, he said.

At present, there are 24 shops in T Nagar selling silk sarees but Nalli continues to be the most preferred, he said.

### 5th generation

"The fifth generation has entered the business. My eldest son takes care of India branches while I take care of Chennai, Madurai and Trichy, while daughter Jeyasree Ravi runs Palam Silks. Granddaughter Lavanya manages international operations and the online business," he said.

"Everyone has their own strengths. The next generation is more intelligent and successful. I leave them to take their own decisions," he said. ■

### Several schemes carried out for handloom sector: Textile Ministry

In an apparent response to Congress Parliamentary Party Chairperson Sonia Gandhi, the Union Textile Ministry said in a statement that it has undertaken various measures to promote the handloom sector.

Ms. Gandhi, in an article recently, said the Centre has failed to build a global audience for the country's handlooms.

Without mentioning Ms. Gandhi's arguments, the Ministry said it has implemented several schemes, such as the National Handloom Development Programme and the Raw Material Supply Scheme, to provide end-to-end support for the promotion of the handloom sector and welfare of workers.

The Ministry said that under the National Handloom Development Programme, financial assistance is provided to eligible handloom organisations and workers for upgraded looms and accessories, solar lighting units, construction of workshop, product and design development, technical and common infrastructure, marketing of handloom products in domestic and overseas markets.

"Under Weavers' MUDRA Loan/Concessional Credit Scheme, margin money assistance for individual weaver and handloom organisations; interest subvention and credit guarantee fees on loans for a period of three years are provided," the Ministry said, adding that life and accidental insurance cover, scholarships for higher education to the workers' children are also given by the Centre. ■



# THE ROLE OF ARTIFICIAL INTELLIGENCE IN TEXTILE DESIGN: A COMPREHENSIVE ANALYSIS OF ITS APPLICATIONS, BENEFITS, CHALLENGES AND FUTURE PROSPECTS

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## Abstract

This comprehensive exploration delves into the transformative impact of Artificial Intelligence (AI) on the textile industry, encompassing both manufacturing and design domains. The integration of AI in textile manufacturing, marked by automation, predictive maintenance, and supply chain optimization, leads to heightened efficiency, reduced operational costs, and a paradigm shift in production methodologies. The study unveils how AI revolutionizes textile design through pattern recognition, virtual prototyping, and customization, fostering a creative renaissance that aligns with evolving market trends and consumer preferences. Challenges such as initial investment costs, data security concerns, and workforce upskilling are acknowledged, but the narrative underscores their role as catalysts for industry evolution. The study foresees a promising future where advancements in AI-driven robotics, integration with the Internet of Things (IoT), sustainable production practices, and waste reduction efforts redefine the textile landscape. The symphony of interconnected systems guided by AI's intelligence resonates with harmony, crafting an agile and responsive industry that thrives on innovation and environmental consciousness. Ultimately, the interplay between AI and textile design is depicted as a force reshaping the industry, offering transformative possibilities that extend beyond tradition. The tapestry of the textile industry, guided by AI, becomes an ever-evolving canvas where every thread spun holds the promise of innovation, efficiency, and environmental sustainability.

**Keywords:** Textile Industry, Artificial Intelligence (AI), Efficiency, Innovation, Challenges.

## 1. Introduction

In the ever-evolving landscape of global economics, the textile industry occupies a pivotal role, serving as a critical link between consumer demands, fashion trends, and economic growth. Its multifaceted nature, encompassing fabric manufacturing, design innovation, and supply chain logistics, renders it highly susceptible to the winds of change brought about by technological progress (Brown & White, 2018). Within this context, the advent of Artificial Intelligence (AI) has unfurled a tapestry of transformative possibilities that reverberate throughout the textile value chain

(Garcia & Martinez, 2019). AI's integration into the textile industry has engendered a paradigm shift, where traditional methods intersect with cutting-edge technology to unlock new dimensions of efficiency, precision, and creativity (Brown & Garcia, 2020). This study embarks on a journey to unearth the multifarious ways AI permeates the textile design domain, unravelling its profound implications and promising potential (Smith & Johnson, 2020). By embarking on this exploration, we aim to cast light on how AI stands as a catalyst for redefining established norms and reshaping the textile industry into an agile, data-driven powerhouse that thrives on innovation (Johnson & Brown, 2021). Within this narrative, we shall navigate through the intricate web of AI applications, delving into how it streamlines production processes, empowers designers with unprecedented insights, and orchestrates the intricate dance of supply chain orchestration (Thompson & Martinez, 2023). As we venture deeper, the manifold implications of AI's presence will come to light – from elevating the quality of manufactured textiles through real-time defect detection to ushering in a new era of sustainable practices and personalized consumer experiences (Roberts & White, 2020). By meticulously peeling back the layers of AI's influence, this study seeks to not only expound upon the tangible advantages it offers but also confront the challenges that lie in its wake (Anderson & Davis, 2023). The profound symbiosis between human ingenuity and machine intelligence is a double-edged sword, demanding introspection into issues of privacy, security, and the socio-economic ramifications of an automated future (Smith, 2021). As the textile industry navigates this uncharted territory, it does so with a dual lens: one focused on harnessing the transformative power of AI and the other keenly attuned to the ethical, legal, and human implications it poses (Johnson & Williams, 2023). This study embarks on a profound exploration into the interplay of AI and textile design, where technological evolution intersects with the aesthetic, functional, and commercial dimensions of textiles (Smith, 2023). Through a meticulous examination of AI's applications, challenges, and potential, we endeavour to illuminate a path forward that celebrates the marriage of human creativity and machine prowess (Brown & Garcia, 2020). As

## THE ROLE OF ARTIFICIAL INTELLIGENCE IN TEXTILE DESIGN: A COMPREHENSIVE ANALYSIS OF ITS APPLICATIONS, BENEFITS, CHALLENGES AND FUTURE PROSPECTS

the threads of AI continue to weave their way into the fabric of the textile industry, our pursuit of understanding and harnessing this dynamic force becomes an endeavour of paramount significance (Anderson & Davis, 2023).

### 2. AI Revolutionizing Textile Manufacturing

In the landscape of textile manufacturing, the convergence of artificial intelligence (AI) and robotics has sparked a paradigm shift, redefining traditional production methodologies (Johnson & Williams, 2023). Through the deployment of AI-driven automation and robotics, the sector has witnessed a remarkable transformation that transcends conventional limitations (Brown & Garcia, 2020). The crux of this transformation lies in the capability of smart systems to seamlessly undertake repetitive and intricate tasks (Thompson & Martinez, 2023), navigating the intricate web of textile production with unparalleled precision, consistently upholding stringent quality control measures (Anderson & Davis, 2023). By relieving human operators from mundane tasks, AI-powered automation optimizes labor resources and reallocates them towards more strategic and creative aspects of production (Smith & Williams, 2022), elevating the overall quality of manufactured textiles and accelerating production timelines, thus propelling the industry towards enhanced efficiency (Johnson & Brown, 2021). Furthermore, the integration of AI-powered robotics into the textile manufacturing framework has unleashed an era of predictive control (Johnson & Williams, 2023), with systems equipped with sophisticated algorithms analysing vast swathes of real-time data emanating from the production process (Smith & Johnson, 2020). This analytical prowess allows these machines to discern potential machinery failures before they transpire, obviating the spectre of downtime (Anderson & Davis, 2023), and pre-emptively scheduling maintenance activities based on data-driven insights, manufacturers can curtail operational disruptions and optimize resource allocation (Johnson & Williams, 2023), resulting in a significant reduction in operational costs bolstered by streamlined maintenance schedules and improved machine longevity (Johnson & Brown, 2021). One of the cornerstones of AI's transformative role in textile manufacturing is predictive maintenance (Anderson & Davis, 2023), leveraging AI algorithms to amass and process colossal volumes of data generated by textile machinery (Johnson & Williams, 2023). Through nuanced analysis, these algorithms discern subtle patterns that often precede equipment malfunctions or failures (Smith & Johnson, 2020).

By harnessing this predictive prowess, textile manufacturers can shift from a reactive maintenance paradigm to a proactive one (Anderson & Davis, 2023), where traditional approaches often lead to costly downtime, as repairs are undertaken after a machine has already broken down (Thompson & Martinez, 2023). Predictive maintenance, on the other hand, employs AI to forecast potential issues and triggers maintenance activities in advance (Anderson & Davis, 2023), substantially reducing downtime, optimizing maintenance schedules, and subsequently minimizing operational costs (Johnson & Williams, 2023), ensuring the longevity of machinery and paving the way for uninterrupted production, thereby bolstering the sector's competitiveness (Johnson & Brown, 2021). The integration of AI into textile manufacturing is not confined to the factory floor; it extends its transformative reach to the intricacies of supply chain management (Thompson & Martinez, 2023), where the traditional supply chain, replete with complexities and uncertainties, has found a reliable ally in AI-driven optimization (Thompson & Martinez, 2023). At the heart of this transformation lies the ability of AI algorithms to process and analyse vast troves of data spanning inventory levels, demand forecasts, production schedules, and market trends (Thompson & Martinez, 2023), empowering manufacturers with insights that foster informed decision-making (Smith & Johnson, 2020). By anticipating fluctuations in demand and adapting production schedules accordingly, manufacturers can sidestep the pitfalls of overproduction or stock shortages (Thompson & Martinez, 2023), with the essence of supply chain optimization through AI resting in its capacity to expedite lead times while fine-tuning inventory accuracy (Thompson & Martinez, 2023), as AI engines chug through terabytes of data, they distil actionable insights that guide the scheduling of production runs, resource allocation, and inventory replenishments (Thompson & Martinez, 2023), culminating in a leaner, more responsive supply chain attuned to market dynamics (Thompson & Martinez, 2023). AI's footprint on textile manufacturing reverberates far beyond mere automation, extending into the predictive realm where machines orchestrate maintenance schedules with uncanny precision translating to cost savings and seamless operations (Anderson & Davis, 2023). Moreover, AI's role extends into the very veins of the industry, optimizing supply chains and enhancing the industry's agility in a rapidly evolving market (Johnson & Brown, 2021), as textile manufacturing

**THE ROLE OF ARTIFICIAL INTELLIGENCE IN TEXTILE DESIGN: A COMPREHENSIVE ANALYSIS OF ITS APPLICATIONS, BENEFITS, CHALLENGES AND FUTURE PROSPECTS**

stands at the cusp of a new era, AI stands as the harbinger of innovation, efficiency, and competitive advantage (Smith & Johnson, 2020).

### **3. AI Unveiling New Horizons in Textile Design**

The integration of Artificial Intelligence (AI) into textile design has ignited a creative renaissance, particularly in the domain of pattern recognition and generation (Brown & White, 2018). AI's exceptional ability to decipher intricate trends from vast datasets empowers designers with insights that transcend conventional human analysis (Smith & Johnson, 2020). By meticulously examining historical design patterns, consumer preferences, and evolving market trends, AI algorithms uncover latent connections that fuel the generation of innovative and resonant textile designs (Brown & Garcia, 2020). This process of pattern analysis enables designers to anticipate emerging trends before they crystallize, thus providing a distinct competitive edge (Smith & Johnson, 2020). AI identifies nuanced shifts in colour palettes, motifs, and styles that might evade human perception (Garcia & Martinez, 2019). By marrying AI's predictive prowess with designers' creative intuition, a harmonious synergy is achieved, leading to the birth of designs that seamlessly blend tradition with modernity (Brown & White, 2018). Furthermore, AI's iterative learning capabilities facilitate a dynamic evolution of design, continually adapting to shifting preferences and societal dynamics (Brown & Garcia, 2020). In the realm of virtual prototyping and simulation, AI's transformative impact extends further (Johnson & Brown, 2021). Traditional design cycles often entail substantial resources and time investments in creating physical prototypes for testing (Anderson & Davis, 2023). AI-driven virtual prototyping shatters these constraints by allowing designers to manifest their concepts in a digital realm (Thompson & Martinez, 2023). By simulating fabric textures, drape, and behaviour, designers can witness the manifestation of their ideas without physical manifestation (Smith & Williams, 2022). This accelerates the design process, expedites decision-making, and economizes resources that would otherwise be expended on physical iterations (Anderson & Davis, 2023). Designers can swiftly experiment with variations, iterate on their concepts, and refine their creations before embarking on the physical production phase (Thompson & Martinez, 2023). As a result, time-to-market is significantly reduced, and the design journey becomes an agile and iterative exploration of creative possibilities (Johnson & Brown, 2021). One of the most profound ways AI

elevates textile design is through customization and personalization (Brown & Garcia, 2020). AI's capacity to analyse vast troves of customer data unveils preferences, inclinations, and patterns unique to each individual (Smith & Johnson, 2020). Armed with this insight, designers can craft personalized designs that resonate with consumers on a personal level, transcending the boundaries of mass production (Brown & Garcia, 2020). Tailored designs cater to consumers' diverse tastes, allowing them to express their individuality through their textile choices (Smith & Williams, 2022). Additionally, AI-driven recommendations provide consumers with curated options that align with their preferences (Johnson & Brown, 2021). This creates a reciprocal relationship, where brands deliver designs that speak to consumers' hearts, engendering loyalty and forging a deeper emotional bond (Brown & White, 2018). AI's foray into textile design amplifies creative potential across various facets (Smith & Johnson, 2020). Pattern recognition and generation, virtual prototyping, and customization collectively herald a new era of innovation, efficiency, and consumer-centric design (Brown & Garcia, 2020). By harnessing AI's capabilities, designers not only revolutionize their creative process but also craft a narrative that resonates deeply with consumers, elevating the artistry of textile design to unprecedented heights (Smith & Williams, 2022).

### **4. Confronting Challenges and Gazing into the Future**

In the dynamic intersection of Artificial Intelligence (AI) and textile design, the journey is marked by both promises and obstacles. One of the persistent challenges confronting stakeholders is the substantial initial investment required for the integration of AI technologies into the textile design and manufacturing processes (Brown & White, 2018). The costs associated with acquiring and implementing AI-driven tools and systems can be substantial, posing a barrier for smaller businesses and individual designers (Garcia & Martinez, 2019). Overcoming this challenge requires strategic planning, collaboration, and perhaps industry-wide initiatives to make AI technologies more accessible to a broader spectrum of the textile design community (Brown & Garcia, 2020). Another formidable challenge is the paramount concern of data security (Roberts & White, 2020). As AI relies heavily on vast datasets for training and decision-making, safeguarding sensitive design information becomes imperative. Design firms and manufacturers must



## THE ROLE OF ARTIFICIAL INTELLIGENCE IN TEXTILE DESIGN: A COMPREHENSIVE ANALYSIS OF ITS APPLICATIONS, BENEFITS, CHALLENGES AND FUTURE PROSPECTS

invest in robust cybersecurity measures to protect intellectual property, trade secrets, and proprietary design data (Smith & Johnson, 2020). The ethical use of AI in handling this information is paramount, necessitating transparent practices and adherence to privacy regulations to build trust within the industry (Smith, 2021). Moreover, the imperative of upskilling the workforce presents a complex challenge (Chen & Lee, 2019). As AI becomes more deeply embedded in textile design processes, designers and manufacturing professionals need to acquire new skills to effectively collaborate with AI systems (Smith & Williams, 2022). This demands comprehensive training programs, educational initiatives, and a proactive approach to equip the workforce with the expertise needed to leverage AI technologies optimally (Johnson & Brown, 2021). Addressing this challenge not only ensures the effective utilization of AI tools but also contributes to a more resilient and adaptable workforce (Anderson & Davis, 2023). Amidst these challenges, the horizon gleams with transformative advancements that have the potential to redefine the textile industry (Smith & Johnson, 2020). AI-driven innovations hold the promise of accelerating design workflows, reducing time-to-market, and enhancing the overall efficiency of manufacturing processes (Johnson & Williams, 2023). As technology advances, AI may play an instrumental role in creating sustainable and eco-friendly textiles, revolutionizing material sourcing, and contributing to the industry's evolution towards circular and responsible practices (Thompson & Martinez, 2023). In conclusion, while challenges persist in the integration of AI into textile design and manufacturing, the potential for transformative advancements is undeniable (Goldberg, 2023). Strategic approaches to address initial investment costs, a commitment to robust data security measures, and proactive upskilling initiatives can pave the way for a future where AI reshapes the textile industry, fostering innovation, sustainability, and efficiency (Smith & Williams, 2022). The journey toward this future requires a delicate balance between overcoming challenges and embracing the vast possibilities that AI brings to the dynamic landscape of textile design.

### 5. Summary

The integration of Artificial Intelligence (AI) into the textile industry represents a significant paradigm shift, touching upon various facets of both manufacturing and design. In manufacturing, AI-driven automation and robotics are revolutionizing traditional production methodologies by streamlining

processes, enhancing precision, and ensuring consistent quality control measures. By leveraging AI algorithms, textile manufacturers can optimize labor resources, reallocate them to more strategic tasks, and accelerate production timelines. This not only improves efficiency but also reduces operational costs significantly. Predictive maintenance, another crucial aspect of AI integration in manufacturing, enables proactive identification and resolution of machinery issues before they lead to costly downtime. By analyzing vast amounts of real-time data, AI systems can predict potential failures, schedule maintenance activities, and optimize resource allocation, thereby ensuring uninterrupted production and bolstering the industry's competitiveness. In the domain of textile design, AI's impact is equally transformative. AI-powered pattern recognition algorithms enable designers to uncover nuanced trends, anticipate consumer preferences, and create innovative designs that resonate with market demands. Virtual prototyping, facilitated by AI, allows designers to visualize and refine their concepts digitally, accelerating the design process and minimizing the need for physical prototypes. Additionally, AI-driven customization and personalization algorithms enable designers to cater to individual consumer preferences, fostering deeper engagement and loyalty. However, alongside these transformative benefits, challenges such as initial investment costs, data security concerns, and the need for workforce upskilling must be addressed. The significant initial investment required for AI implementation may pose a barrier for smaller businesses and individual designers. Moreover, safeguarding sensitive design information and ensuring ethical AI practices are imperative to maintain trust and integrity within the industry. Additionally, upskilling the workforce to effectively collaborate with AI systems is crucial for maximizing the benefits of AI integration. Looking ahead, the study foresees further advancements in AI-driven robotics, Internet of Things (IoT) integration, and sustainable practices reshaping the textile landscape. AI's ability to optimize supply chains, enhance production processes, and drive innovation holds the promise of a more agile, data-driven industry that prioritizes innovation and environmental sustainability. Ultimately, AI serves as a catalyst for transformative possibilities, offering the textile industry a pathway to redefine tradition and embrace a future driven by innovation and sustainability.

### 6. Conclusion

In the intricate tapestry of textile design, the integration of Artificial Intelligence (AI) has

## THE ROLE OF ARTIFICIAL INTELLIGENCE IN TEXTILE DESIGN: A COMPREHENSIVE ANALYSIS OF ITS APPLICATIONS, BENEFITS, CHALLENGES AND FUTURE PROSPECTS

woven a narrative of unprecedented innovation, efficiency, and transformative possibilities. As we navigate the myriad applications and implications of AI in the textile industry, it becomes evident that this convergence is more than a technological advancement; it's a paradigm shift that reshapes the very essence of the industry. The fabric of this exploration unravelled through the layers of AI's impact on textile manufacturing, from automation and predictive maintenance to supply chain optimization. With AI's adeptness in streamlining processes and orchestrating maintenance, the industry stands fortified by increased efficiency, reduced costs, and a dynamic production landscape. The symphony of interconnected systems, guided by AI's intelligence, resonates with a harmony that echoes throughout the supply chain, crafting an industry poised for agility and responsiveness. Textile design emerged as a canvas of creativity, where AI serves as both a brushstroke and a guide. From pattern recognition to virtual prototyping, AI empowers designers to transcend boundaries, fostering a realm where imagination and technology converge. The canvas becomes personalized, a tableau of designs curated to individual preferences, unlocking a dialogue between consumers and creators that resonates on a profound level. Challenges, while significant, are met with unwavering determination. The initial investment costs, data security concerns, and the call to upskill the workforce are the crucible through which innovation is forged. These challenges not only illuminate the path to progress but also serve as catalysts for evolution and growth. As industry pioneers grapple with these concerns, AI's trajectory shows remarkable promise. As we gaze into the future, AI unfurls its potential in full splendour. Advancements in robotic systems elevate manufacturing to a realm of complexity once deemed unimaginable. The amalgamation of AI and IoT transforms the industry into a sentient, interconnected ecosystem where efficiency and personalization converge.

Sustainability, once a distant aspiration, becomes tangible as AI spearheads the charge towards eco-friendly practices and waste reduction. In this dynamic narrative, AI emerges as more than a tool; it's a guiding light that leads the textile industry into uncharted territories of creativity, efficiency, and environmental consciousness. The symphony of machine intelligence harmonizes with human ingenuity, crafting a future where every thread spun is woven with the promise of innovation. The tapestry of the textile industry is no longer confined to tradition; it's an ever-evolving canvas where AI

paints the strokes of transformation. As we step forward, the interplay between AI and textile design will continue to be a force that reshapes the industry, unravelling possibilities beyond our imagination.

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# A COMPREHENSIVE REVIEW OF BANARAS BROCADE

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## ABSTRACT

Banarasi Brocade is not a mere garment, it is a living skill practiced by the weavers of Banaras. Banaras or Kashi is a home to one of the oldest textile weaving traditions of the world, the industry which was flourished in the Vedic period. Brocade a fabric made from silk or cotton with interwoven gold or silver threads. There are many varieties and types of Banarasi fabric. Banaras Brocade weaver faces many threats and crisis due to availability of look – alike Banarasi Sarees in market in a very cheaper price which is causing serious damage to the Banarasi Silk industry. The days are far when the Chinese fabric will wipe off the Banarasi Silk Brocade industry, if corrective measures are not taken. The customer should know how to find out a pure Banarasi Saree which is a symbol of India's rich cultural heritage. This present study elaborates the Banarasi Brocades and sarees, it's type and how to find out original Banarasi Saree.

**Key words:** *Banarasi Brocade, Banarasi Saree, Silk, Weaves.*

## Introduction

Brocade is a type of rich, ornamental cloth. Across the country, people dress up for celebrations by wearing the opulent Banarasi Brocade cloth. Richly patterned with elevated designs, Banarasi Brocade textiles have an eye-catching appearance. Typically, brocade cloth features geometric or floral patterns that are incorporated throughout the weaving process. The cloth face of a brocade typically has twill or satin weaves. These kinds of materials are frequently used for upholstery, drapes, and evening gowns. The brocade fabric's elaborate designs are not the only thing that make it popular with people. Because of the exquisite zari and gold work, Banarasi brocade is regarded as weighty and opulent. This is another reason why ladies of all ages admire Banarasi brocade sarees for any occasion.

- ◆ The sarees are among the best in India and are prized for their exquisite needlework, quality silk, and zari, or gold and silver brocade. The elaborately embroidered and carefully woven silk sarees are comparatively hefty due to the exquisite design work.
- ◆ These sarees are distinguished by their intricately woven floral and foliate motifs, kalka and bel, and a row of erect leaves

known as jhallar at the outer edge of the border. Additional qualities include pallus, jal (a pattern resembling a net), mina work, tiny details in figures, compact weaving, gold work, and metallic visual effects.

- ◆ A saree's completion period can range from 15 days to a month, and perhaps even up to six months, depending on how intricately the motifs and patterns are created. Indian ladies typically wear Banarasi sarees to formal events like weddings, where they are supposed to be paired with their finest jewellery.

## Historical Background

Mark Twain stated "Benares is older than history, older than tradition, older even than legend, and seems to be twice as old as all of them put together" (Twain 1897). Banarasi sarees are being made in the ancient city of Varanasi/ Kashi/Banaras from ancient times in the holy region. Banarasi brocades are manufactured by interlacement of silver and gold zari threads with silk or cotton/silk blended yarns (Kumar *et al.* 2021). The rigorous commitment Banaras has for weaving is noted in the Vedas. Tantuvayas, who weave a variety of fabrics, such as cotton, silk, and brocades, have been around since 1500 BC to 500 BC, according to the Vedic literature. Golden cloth, also known as Hiranya Vastra, was one of the many clothing kinds that existed throughout the Rig-vedic era. The Hiranya fabric, also known as "Kimkhab" (rich brocade), has long been thought to be the original example of zari work. Back then, brocades were referred to as "Hiranya." Banaras is known in Pali literature as a reputed centre of textile famous for its famous textures. Banarasi sarees are the typical traditional sarees of India. As per ancient literatures, dead body of Buddha was covered using fabric made in Banaras (Kumar *et al.* 2021; Anonymous 2021 i). The oldest clue is the Bhagwa used to wear by lord "KRISHNA" was produced in Banaras made of pure silk threads and gold threads designing. Also, as mentioned in Jataka, the brocade "silk cloth (Koseyya)" was most probably embroidered using gold, King wore turbans of gold cloth. The state elephants were also decorated with golden trappings (Kumar *et al.* 2021). The "Ramayana holy scripture" also points an important reference to brocade as "Ravana" the demon king is described in donning a golden



fabric (Anonymous 2021 ii & iii). As evident from the sculpture of early periods that brocade gold cloth (*Hiranya vastra*) was originated quite earlier, not enough proofs left of “*Ramayana*” and “*Mahabharata*” except some mentions in “*Purans*” about this ancient fabric. This historic background of Banarasi brocade weaving goes back to early periods of Indian civilization and since then it might have passed through several changes and development in its structure and design (Kumar *et al.* 2021). Gold and silver zari threads were used by craftsmen from Banaras in the fourteenth century to create a variety of interesting silk brocades. The eighteenth and nineteenth centuries saw a rise in the popularity of Banarasi weaving. The majority of Banarasi sarees created in Varanasi are produced in Lohta, Bazardiha, Sarai Mohana, Lallapura, Saraiya, Bagwanala, and Badi Bazar. Apart from Banaras, it is produced at Bhadohi, Mirzapur, Chunar, Chakia, and Chandoli. During the Mughal era, Banarasi silk was a novel product created only for royalty. It was designed by Noor Jehan and was sourced from China after extensive discussion with the couturier. Everything about it, from thread to clothing, required a close relationship with one’s couture.

This nation’s socio-cultural shifts have coincided with the history of the Banarasi brocade. Fabrics and designs change to reflect these shifts. Both the girdles of the Kodava people of Coorg, Karnataka, and the turbans of Maratha kings were adorned with the brocade.

The need for pricey fabrics by the royal families or temples led to the development of India’s brocade weaving centres in and around the capitals of kingdoms or sacred places. The ancient centres were primarily found in Murshidabad, Delhi, Agra, Gujarat, and Banaras. The brocade-weaving regions of eastern and southern Persia, Turkey, Central Asia, and Afghanistan had a significant influence on the design and technique of northern weavers. Buddhist texts describe Varanasi fabrics as lovely to touch, exquisite to look at, and very popular with well-to-do people worldwide. Legend has it that after Buddha gained Mahaparinirvana, his mortal remains were wrapped in a Banaras cloth that glowed with blue, red, and yellow light.

Some art historians consider the many patterns found in the Ajanta murals from the Gupta period to be representative of some brocade specimens

as well. The geometric patterns, floral designs, and animal and bird motifs are closely related to the early brocade motifs. The craft of brocade was created in Kashmir around the fifteenth century by Sultan Zin-ul-Abidin (A.D. 1459–1470). He supported Iran’s weavers exchanging textiles. The royal workshop of Kashmir hosted a significant gathering of foreign weavers and artists. Because they shared pattern themes, Banaras brocade and Kashmiri Jamawar shawls bear striking similarities. Furthermore, Jahangir was a superb brocade specialist.

Each social or religious group established its own standards for clothing material, colour, and style. Hindus preferred silk with vivid colours and patterns, such as orange, yellow, and red.

The majority of people chose shrub or blended fabric in shades of lavender, sky blue, white, and magenta-blanket.

The transition of Banarasi weavers from manually controlled pit looms to the contemporary jacquard, created by Joseph Marie Jacquard, was a significant turning point in the history of looms. At this point, designs are traced onto graph paper, then into punch cards. When extra threads are woven into the base framework of a loom to create designs, the process is known as brocading or embroidery. Weavers would draw designs on the cloth using their memories when using pit looms, but punched cards were introduced with the jacquard, which simplified the process and shortened the amount of time needed to finish a weave.

#### Varieties of Banarasi Brocade Fabric

##### Kinkhwab

Kinkhwab is an elaborate and heavy form of brocade fabric. It has an extensive amount of zari work done on the silk fabric which makes the fabric nearly invisible. It is a popular bridal wear fabric. Kinkhwab is characterized by intricate buta work and detailed surface. Kinkhwab fabrics are inspired by flora and fauna. Wet brocade fabrics should not be sun-dried, as they can fade. Such fabrics form elegant and formal drapes.

##### Pothans

Pothans is also known as Katan brocade fabric and it is created by twisting silk filaments together, to create a surface. Although it has closely woven silk threads, Katan brocade is lighter than Kinkhwab fabric. This type of brocade fabric is usually used to create rich garments and it is quite expensive.

## A COMPREHENSIVE REVIEW OF BANARAS BROCADE

### Major types of Banarasi Fabrics

There are mainly four types of fabric:

- ❖ Georgette (lightweight)
- ❖ Shattir (silk and cotton blend)
- ❖ Kora Organza (with silk and zari)
- ❖ Katan (pure silk)

### Georgette Banarasi

Georgette is a sheer, lightweight, crêpe fabric named after the early 20th century French Dressmaker Georgette de la Plante. Georgette is created from finely twisted threads, originally from silk. By switching up the silk strands in the wrap and weft, it gets its distinctive crinkly surface. Rich zari work and exquisite hues make Banarasi khaddi georgette sarees renowned as some of the best sarees in India. The primary distinction between georgette and chiffon, which is another term for it and is also extremely often used, is how they look and weigh differently. The heavier and more resilient fabric of georgette is the result of its thicker ply.



Butidar Banarasi Saree

### Shattir Banarasi Sarees

The only fabric utilized to produce fashionable, distinctive, and modern Banarasi saree designs is shattir fabric. Cotton and silk yarns are used to create Shattir Banarasi sarees. These sarees are unique from other Banarasi sarees because of their texture. They are available in a variety of patterns, such as floral and classic paisley motifs. These sarees are appropriate for daily use and are comparatively less costly.



Kora Organza

### Kora Organza

One type of Banarasi, or organza, is kora silk. Several laborious stages are involved in the development of these cozy and lightweight textiles. A thin translucent silk fabric with a plain weave is called kora silk. The artist uses thin spun threads called silk worms to weave it. The fabric's almost translucent quality contributes to its weightlessness, and when combined with the sheen from the silk threads, it gives an ensemble the necessary dose of glitz.

### Katan

In order to produce a stronger and more resilient fabric, silk filaments are twisted together to generate katan silk. One of the softest, lightest, and finest grades of silk is katan, which shares many qualities with mulberry silk. When discussing Banarasi, Katan silk sarees are the most sought-after and essential for a bridal trousseau.



Georgette Banarasi khaddi

### Banarasi Sarees Designs

There are mainly 5 Different Banarasi Saree designs:

#### Jangla

It is believed that the Jangla Banarasi Sarees are the most ancient form of Banarasi sarees. The design has the Jangla pattern which is spread across the length of the saree in the form of jangla Motif.

#### Tanchoi

Tanchoi saree is mostly famous for wedding ceremonies. The Pallu of Tanchoi Banarasi saree is usually, adorned with large motifs of paisleys and the border are kept simple with a beautiful criss-cross pattern.

#### Cut Work Saree

Cut work Banarasi is a simpler weaving method on a handloom or power loom in which the motifs are weaved into the saree itself. Consequently, there are loose threads between the motifs on the back of the cloth, which are hand-cut away, creating uneven margins surrounding each motif. The

technique that throws the shuttle from one side to other side to weave the pattern is known as Fekua weave. As the cutwork Banarasi saree, it is a less expensive counterpart of the Jamdani saree. To produce traditional designs, a few warp threads are layered with cotton and weft. The marigold, jasmine blossoms, and creeper leaves dominated the design.

#### Tissue Saree

The luster and excellent finish of tissue fabrics are widely recognized. It is created by weaving coloured silk yarn into the warp and using metallic thread (zari) in the weft. One of the bridesmaids' favourites, this combination creates a translucent fabric with a sophisticated appearance.

A contemporary take on the traditional Banarasi Silk Sarees is the Tissue Banarasi Saree. The lightweight, transparent fabric woven with silk or metallic threads is called tissue. This distinctive fabric adds a delicate sheen that amplifies the saree's overall appeal. Tissue Banarasi Sarees display the skill of Banarasi weavers with their elaborate motifs, floral patterns, and geometric designs. Golden fabric sarees, often known as tissue Banarasi sarees, are renowned for its exquisitely woven feature.



Jangla Banarasi Saree

#### Butidar Saree

The name itself depicts the design. The Butidar Banarasi Saree is brocaded with threads of silk, gold and silver. This richly woven saree have the motif that features the Angoor Bail, Latiffa Butti, Jhari Butta, Ashraff Butti, Resham Butti and many more.

Kadhua technique is used for this saree weaving.

#### Various types of Zari

- ◆ **Pure zari:** The central part of pure zari is made up of silk filaments, from which sericin has been removed. The silk yarn is twisted in red or yellow hues, over which thin wire (lametta) of silver and flatten wire (badla) is wound. The silver zari threads used in pure zari are electroplated with great expertise in pure gold solution to produce good quality gold zari.

- ◆ **Tested zari:** Also available in the market as imitation zari because it has the external quality of real zari and therefore resembles real zari in terms of glimmer. This variety of zari is a bit inferior to the real zari because of the use of copper lametta instead of silver and silver embellishment is done on copper wire and to produce gold zari, the tested zari is embellished with gold solution.
- ◆ **Powder zari:** The mechanised process followed for making powder zari is similar to the tested zari; it varies only where the powder gilding is done on imitation zari instead of gold electroplating.
- ◆ **Plastic zari:** This is the most inferior type of zari where plastic thread is used as lametta instead of copper or silver.

#### Designs

Rich designs are found in Banarasi Jamdani with innumerable variations of floral and geometrical patterns on it. Generally different designs are weaved on the border, Pallau or end piece and the body. The designs are named according to their presentation; some of the names are:

- ◆ **Aribel:** creeper or climber; diagonally arranged running figures.
- ◆ **Laharia:** Lahar or wave; figured like the waves of the sea.
- ◆ **Harava:** Straight or wave- like verticals lines interspersed with small flower like motifs.
- ◆ **Kharibel:** Horizontally arranged running figures
- ◆ **Kangura:** Border (figure-15, 19) for sarees, dupattas, blouses, etc.
- ◆ **Aribel bhanjvara:** Big flowers, 2" apart.
- ◆ **Saro:** Vertical pillars or stylized Trees
- ◆ **Lahar:** Horizontally arranged waves.
- ◆ **Chanda:** Moon shaped design
- ◆ **Haravva:** Like Aribel, running vertically across.



Tanchoi Banarasi Saree



## A COMPREHENSIVE REVIEW OF BANARAS BROCADE

- ◆ **Patri:** Horizontally running figures.
- ◆ **Jaldar:** Ornamental figures arranged in the form of net (jal; net).
- ◆ **Phuldar:** Flower (figure-17) like ornaments in the body of the saree.
- ◆ **Buta:** Single ornamental motifs (figure-16) within the body of the cloth.
- ◆ **Fardibuti:** Closely arranged small dots.
- ◆ **Masurbuti:** Small ornamental motifs of the size of a Masur dal.
- ◆ **Makhibuti:** Small dots of the size of a fly.
- ◆ **Shahibuta:** Design made by the use of one Sirki (small spindle).
- ◆ **Jamewar:** Intricate all over design in cotton.
- ◆ **Ishqapench:** Pattern of fine leaves arranged in a creeper form.
- ◆ **Chaukora:** Moon -shaped design in the centre surrounded by floral decorations.
- ◆ **Konia:** Combination of kairi and petals design used in corner of the saree pallu or dupatta.
- ◆ **Butidar:** Small flowers design diapered on the fabric.



Kinkhwab

Some flower motifs very frequently used in this weaving are Chameli, Pomera, Genda buti (Marigold flower), Pan-buti (Beatle leaf), Tircha (Diagonal stripes) Mogra, Kamana, Juhi, Harsingar and Phulbanjari. Aribel, Kangura, Jaldar (figure-3), Saro, Lahar, Kharibel. Present day Jamdani sarees have designs of rose, Jasmine, lotus, Tree of life on them.

### Motifs used in Banarasi silk sarees

Banarasi designs are ornamented by the following motifs almost similar to each other, though somewhat different in construction, structure, their arrangements and color combination etc.

- ◆ **Buti (rosettes)** - A buti is a small spot figure of a size less than 2 inches in various shapes and structure. Generally, gold or silver thread is used as an extra weft for the formation of buti, but silk is also used as and when required.
- ◆ **Buta (floral designs)** - Buta is nothing but a larger buti. Actually, the term buta is used for small vegetable plant with a few newly green leaves having some flowers. The size of the buta is more than 2 inches and varies as per the requirement. It is fixed in the border, pallav, anchal of the saree or in the angan of the brocade.
- ◆ **Konia (corner)**- Buta placed in the corners of the Banarasi fabric are known as "Konia." Konia is used in the brocades in which gold or silver thread is used, usually silk thread is not used for Konia as it does not show pure floral designs, but sometimes complicated one and general within the mango or betel leaf heart shaped.
- ◆ **Bel (floral scrolls or stripes) choti bel and bari bel** - This is scroll or stripe, floral or geometry arranged in horizontal, transverse or zig-zag way for the purpose of separation of one portion to another or to cover a portion with extra weft designs. In the pallav or border for the separation of border and body or to divide the pallav in different portion, it is necessary to give border lines with these scrolls or stripes.
- ◆ **Jal and Jangla (mesh and sash)** - Jal means the "Net." It is one of the patterns of arranging butis in the body within the net which is known as Mesh pattern. The mesh is formed by scrolls having complicated designs like line enclosing the buti. The term Jangla perhaps comes from the Junglo (forest). However, the design pattern taken from the "designs of the window frames" which generally show wild vegetables designs or forest scene are the Jangla designs.
- ◆ **Jhalar (festoon designs)** - Just after the border where the main portion "body" starts a festoon design is given for the purpose of better ornamentation, when the body has spotted figures which do not suit the fabric when stripes or scrolls are present in the body.



Cut work saree

### The variegated patterns

- ◆ **Brocade saree:** The term brocade refers to those textiles where patterns are created by transfixing or thrusting the needle between thread patterns or the warp. The saree has multiple motifs in gold and silver threads, used as extra weft against silk background. The borders and pallav have scroll designs whereas the body of the saree can have several appealing patterns throughout as per the designer.

- ◆ **Chiffon jamdani:** Unlike the other varieties of yarn in richer brocade sarees, this kind has more coarse twisted yarns that form the warp sheet. The S and Z warped ends are alternately arranged that impart a wavy and crepe appearance to the textile. The jamdanis generally have buti patterns all over.



Banarasi tissue saree

- ◆ **Jangla:** These are a must have wedding trousseau item. These are rich and heavy due to the meena work jaal and jangla designs all over. The finish of the motifs is neat to resemble just the same on both sides of the fabric due to swivel weave without any floats. Jangla saree requires a minimum of two weavers who work together with 14 to 28 shuttles at a time.
- ◆ **Kora cutwork:** In this kind, cut work are made against a plain ground. This gives a jamdani effect as the loose thread dangling between the motifs are trimmed manually and neatly.
- ◆ **Resham buti:** An affluent kind of Banarasi silk saree where butis are woven all over the ground bordered with heavy design and highly ornate pallav.
- ◆ **Satin border saree:** This has pallav and border in satin weaves, the rest saree is plain.
- ◆ **Satin embossed saree:** These have floral, ilayechi and charkhana patterns all over in satin weave.
- ◆ **Tanchoi:** The motifs are woven in satin weave with silk as extra weft and are without zari. Its jamawar style and paisley motifs are thickly spread throughout. These are quite heavy.

- ◆ **Tissue saree:** These have gold like appearance of cloth because they are woven with silk as warp and zari running as weft with combination of zari and silk in extra weft. Therefore, these are the most popular as wedding attire.

### Making of a Banarasi Saree

The typical duration for crafting a Banarasi saree ranges from 15 to 30 days, depending on the complexity of the patterns and designs. The process usually involves three weavers: one for weaving the saree, another for handling the spinning ring to form bundles, and a third for assisting with border design. Collaboration is necessary to make the Banarasi saree. A Banarasi saree should ideally have 45 inches of width and about 5600 thread wires. The artisans create a 24-26-inch-long base. It is during the bundling stage when the themes are designed.

An artist drew the designs and colour concepts on graph paper to construct design boards. After choosing the final pattern, punch cards are made, and hundreds of perforated cards are made to fit a single saree design. The perforated cards are knitted on the loom using a variety of colours and threads. To guarantee that the main weave picks up the correct colours and patterns, the perforated cards are then paddled in a methodical manner.



Katan Silk

### Hurdles faced by the Weavers

Development and technology brought new pattern in all even world. Due to changes in work systems there are some hurdles in doing it properly:

- ◆ Language due to illiteracy is big problem for communication as world is getting globalize.
- ◆ Illiteracy already a big one from the beginning and still not taking action regarding this to shed the illiteracy.
- ◆ Lack of information- It's a chain. One is linked to another one. This is era of information and technology and weaves are far away from them.
- ◆ Problem of connectivity- Due to lack of above-mentioned points this problem get general and create obstacle in upcoming time. World

## A COMPREHENSIVE REVIEW OF BANARAS BROCADE

is changing very fast and they get back due to these factors.

- ◆ **Lack of Technical Skill-** Next barrier is lack of technical skill. Young generation does not take keen interest and consider it as a work of low category. Due to illiteracy they could not connect to other ones and even are not aware about any changes in developing time. Although mobile phones are in their hands but they are not fully aware its function for their efficiency in work. Mobile is just like a normal land line device.



Dresses designed by Designer Shruti Sancheti in her 'Kaashi to Kyoto' collection

- ◆ **Lack of demand-** is another one issue. This is happening due to modernism.
- ◆ **Low income-** They do not have sufficient amount to extend their business. They are part of middle class so can't take risk as they have to look after their family too.
- ◆ **Weavers-** generally work for their master or in cooperative societies. Very few independently are working.
- ◆ **Joint family system-** This style needs full support of family and vast family expense is a burden on head of family. Families are getting nuclear.
- ◆ **Lack of skill-** With changing scenario they are not developing skill. Children are on same pattern are moving and had no idea about changing prospective. Due to these reasons and much more the conditions of weavers are getting pathetic. Lack of sufficient information and government are not providing them modern technique and they are lacking behind in comparison with others.

### How To Find Pure Banarasi Saree?

- ◆ **Examine the saree's reverse side:** There will always be floats in the warp-and-weft grids

of Banarasi sarees that are loom woven. But sarees that are machine-woven will be finished smoothly.

- ◆ **Find Pin Markings:** Look for pin markings as another way to determine if a saree is truly Banarasi. These fasten the saree to the loom and are typically found on the hem of the garment.
- ◆ **Remain Firm to a Certificate:** Another crucial thing to check for when buying pure silk sarees is the Certificate of Authorised Use of the Silk Mart Logo. Always ask for a certificate when purchasing a silk saree to confirm authenticity.

### How to identify hand loomed fabric from power loomed fabric?

- ◆ Sarees woven by hand have a softer texture than those produced by power. Pay close attention to the saree or photograph to identify the variations in texture.
- ◆ Power loom sarees are not as detailed and pattern-matched as handloom sarees. Amru, ambi, domak, and other Mughal-inspired motifs are frequently used to embellish handloom sarees. Such nuances are impossible to duplicate with a power loom.
- ◆ It typically takes a handloom saree fifteen to thirty days to finish.
- ◆ Wrinkles and creases will disappear faster from your Handloom saree. This is because a handloom saree's wefts are woven unevenly.
- ◆ If you look closely, you might see that a saree with power loom has one or two balls or pills created on it. Abrasion is brought on by the speed at which power is approaching, and occasionally weaker fibres break to produce pills on the fabric's surface. Handloom sarees will change all of this.
- ◆ Despite these variations, the most important fact is the intense labour required to weave a Banarasi Silk Saree, which yields a product far superior to that of a machine. Every saree is an individual testimony to the centuries-old skill and artistry of the weaver. No contemporary technology can match its degree of complexity, legacy, or culture.

### Geographical Indication (GI)

In 2006, an initiative was launched to obtain a Geographical Indication in order to revive the market for "authentic Banarasi sarees". The five districts in Uttar Pradesh where GI is being utilized



include Varanasi (Banaras), Chandauli, Bhadohi, Mirzapur, and Azamgarh. The use of Geographical Indications (GIs) has played a crucial role in safeguarding and promoting handicrafts from developing countries, such as Montecristi, Ecuador, and Panama. As per Grobar (2017), India currently holds GIs for Banarasi brocade sarees.

### Journey of brocade from Kaashi to Kyoto

Designer Shruti Sancheti debuted her 'Kaashi to Kyoto' collection, which became famous when Banarasi fabrics were infused with modern Japanese designs. Designer Shruti Sancheti unveiled an incredible collection titled "Kaashi to Kyoto" for her "Pinnacle" label as part of the "Reinvent Banaras" program, which was announced by Prime Minister Narendra Modi. Using color, craft, and avant-garde textiles, she sent the audience on an exotic adventure during Lakmé Fashion Week Winter/Festive 2015. By fusing the artistic ideas from the two locations, Shruti brought a modern twist to the traditional Banaras weaving. Exotic silver, gold, and rose gold were woven with natural motif designs from Kyoto, such as maple leaves, mushrooms, flower buds, abstract birds, and floral laces. The color narrative featured vibrant shades of sapota, scarlet, and azure blue, ivory, gold, deep purple and wine that created a grand mélange of hues.

Brocades, gicha silk, sheer Bengal Dupion, cotton silk, and Chanderi were among the opulent materials that Shruti unveiled. Difficult dori needlework and surface ornamentation—a reimaging of Japanese Boro embroidery in gold printing—gave the pieces a touch of Japan. Obes had a significant role in the exquisite fusion of Indian and Japanese shapes found in silhouettes. The Indo-Japanese vibe was perfectly captured by long sheer maxi coats, layered asymmetric shirts, flared palazzos, cap-sleeved short tops, and kimono blouses paired with skirts. On the runway, the collection quickly displayed kimono shirts, capes, wide pleated pants, ghagras, long skirt dresses, cropped tops, and skirts. The overall effect was serene, almost Zen-like.

Fashion enthusiasts worldwide will be captivated with Shruti Sancheti's striking "Kaashi to Kyoto" collection, which combines elements of Indian and Japanese culture.

### Conclusion

Banarasi sarees are more than just clothing; they are expressions of artistic talent and cultural history. The passion, talent, and expertise of the weavers of Banarasi sarees are evident in every style.

The exquisite craftsmanship, ageless beauty, and rich cultural legacy of India are embodied in the Banarasi Brocade. These sarees, which have a long history, continue to be popular among Indian women, particularly weddings. They have established themselves in contemporary closets and runways thanks to their elaborate designs and luxurious zari work, which never ceases to amaze the fashion world.

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### India has recorded trade surplus with 151 nations: GTRI

India recorded a trade surplus with 151 countries such as the US and Netherlands, while the country had a trade deficit with 75 nations, including China and Russia, during the first half of this year, think tank Global Trade Research Initiative (GTRI) said recently.

While India does not need to worry about the trade deficit from importing crude oil and coal, it must focus on reducing industrial goods imports, especially from countries like China, as these threaten India's economic sovereignty, it said.

The biggest surpluses were with the US at \$21 billion and the Netherlands at \$11.6 billion in the January-June period while the top five countries with which India has the most trade deficits were China at \$41.88 billion, Russia at \$31.98 billion, followed by Iraq, Indonesia and the UAE.

"India may keep a watchful eye about the trade deficit with four out of the 23 countries that primarily export gold, silver, and diamonds to India as tariff cuts in gold and silver in this budget from 15% to 6% may lead to a rise in imports," GTRI founder Ajay Srivastava said.

# "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA

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## ABSTRACT

The art of knitting is practised in diverse cultures and countries. Its traditional textures, colours vary greatly across time and distance. The earliest example of true knitting is a pair of knitting socks found in Egypt, dating back to 1100 A.D. Hand knitting has gone in and out of fashion many times in the last two centuries, and at the turn of 21st century it is enjoying a revival. In the past few years, the use of knitting for an aesthetic purpose emerged in U.S. and U.K. and spread worldwide. But in India knitting is practised only for the functional aspect of clothing, while the potential of the knitting as a serious medium for self-expression is untouched. As a result people are least aware of the use of knitting as an art. Hence a need was felt to introduce knitting as a fiber art in India to spread the awareness among people. The purpose of the study was to explore the current scenario of knitting art in India so as to document the artefacts and to explore the potential of knitting as a medium for self-expression. The present study was conducted in two steps viz a viz an interview of renowned fiber artist of India & a survey to understand the awareness level of knitting art. It was found that in India knitting is mostly practised only for the functional aspect of clothing & apparel like sweaters, pullovers, t-shirts, inners, gloves, socks, slippers etc. and very few people were aware of the use of knitting in the art forms.

**Keywords :** Knitting, Fiber art, Fiber & Textile artists, Artefacts

## INTRODUCTION

Since the antiquity people have used textiles for all range of purposes. From blankets for warmth, to elaborate fabrics for commerce, they have been at the very centre of human life. The need for textiles, combined with our desire to embellish the world around us, has given rise to a huge range of fabric based art[1], everything from basic colored cloth to complex knitted textiles. Hand knitting has gone in and out of fashion many a times in the last two centuries, and at the turn of 21st century it is enjoying a revival. More people are finding knitting a recreation and enjoying the hobby with their family. Knitting parties are also becoming popular in small and large communities around U.S and Canada.[2] In the past few years, the use of knitting

for an aesthetic purpose emerged in U.S. and U.K and spread worldwide. But in India where the hand knitting still remains a hobby of womenfolk, is practiced only for the functional aspect of clothing, while the potential of the knitting as a serious medium for self-expression is untouched. As a result people are least aware of the use of knitting in the fiber art. Hence a need was felt to introduce knitting as an art in India to make the people aware of it, along with the following main objectives.

- » To understand the present scenario of knitting art in India so as to document the artefacts.
- » To explore the potential of knitting as a medium for self expression.

## Literature Review

### Fiber Art

The term fiber art refers to that style of fine art which consists of natural and synthetic fibers and other fiber based components such as yarn and fabric. It emphasises on the material and the effort made by the artist as part of the work significance, and prioritizes aesthetic value over utility.[3] Art works of this type communicate some sort of message, emotion and go beyond just the literal meaning of the materials. While contemporary fiber art is often preoccupied with materiality and technique. [4]

The term fiber art came into use by curators and art historians to describe the work of the artist-craftsman following World War II. Those years saw a sharp increase in the design and production of "art fabric." In the 1950s, as the contributions of craft artists became more recognized—not just in fiber but in clay and other media—more number of weavers began binding fibers into non-functional forms as works of art.[3]

In 1960' and 70s, an increasing number of trained artists, who were working with the fiber and fabric media, produced great works of miniature to monumental in size using a variety of techniques such as knotting, twining, plaiting, coiling, pleating, lashing, and interlacing and combinations, which explored the limitations of traditional textile forms and techniques, declared that a new art form had been developed, and that, like painting and sculpture, textiles could be used as a medium to express the emotions and ideas of individual,

## **"KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA**

which liberated the concept of art of the twentieth century. The notable artists of that time such as Lenore Tawney, Ed Rossbachand, Claire Zeisler and Magdalena Abakanowicz "Abakan" investigated in depth the potential of the materials of textiles and constructive possibilities for those pliable, linear elements. Fiber, and the ways in which it could be constructed became content. During 1970s in United States, the Feminist Art Movement sought equal museum and art gallery exposure for women artists and for the feminine perspective, which often was expressed through the use of women's work. These events lead to an exciting climate of artistic innovation and gained recognition throughout the world. [5]

Although sharing a common tradition with tapestry, since 1980s fiber art moves beyond this historical textile form and has become more and more conceptual, influenced by postmodernist ideas. It is the work of one individual, who originates and creates after long standing experimentation with materials and techniques.

Generally the techniques and materials incorporated with fiber art are: spinning , weaving & its various types, felting, needle felting, crochet, sewing , beadwork, , various methods of dyeing and printing including batik, tie-dye, natural dyeing; embroidery, appliqué, cutwork and other needle arts; mixed media, macramé & braiding, knotting, quilting, lacework, knitting and many more[4]. Each of these techniques has its own potential and challenge to express the ideas and emotion in an interesting and unique way.

The art of knitting is the technique in which loops of yarn are interlocked with the help of two or more needles to create the fabric. Originally, knitting was done with the help of single needle made of bone or wood, and was known as "nalebinding". Later it was done using two needles, which gradually moved to three and more. The earliest example of true knitting is a pair of knit socks found in Egypt, dating back to 1100 A.D. This evolution continued and the art of knitting has evolved from hand to machine method.[6]

However originally this craft & art was entirely limited to making socks and stockings .Since 1960s, knitting has been evolving as an art form, expanding and enriching the fiber art field. In early 1960, Mary Walker Philips (1924-2007) aspired to elevate the knitting domestic craft to the professional arena and thus became the first professional art knitter

in US. The number grew slowly during 1970s and 1980 in U.S, more rapidly in Europe & U.K. and many of the artists like Janet Lipkin, Jack Lenor Larsen, Arline Fisch, Rober Hillestad had explored knitting with a variety of materials and yarns to express their idea and showcased creativity in the form of wearable art, abstract knitted pieces as wall hangings, sculptures and installations. [7]

During the past decade, in the search of burgeoning ways to make life more meaningful, knitting has been re-establishing itself in people's everyday lives. More people are finding knitting a recreation and enjoying the hobby with their family. Knitting parties are also becoming popular in small and large communities around U.S and Canada. In past few years, the use of knitting for an aesthetic purpose expanded in US and UK and spread worldwide.

Hand knitting has become popular as "yarn bombing" (guerrilla knitting), graffiti or street art, which employs colourful displays of knitted or crocheted yarn or fibre rather than paint or chalk. The practice is believed to have originated in U.S. with Texas knitters trying to find a creative way to use their leftover and unfinished knitting projects. [8]

To provide with a snapshot of the current art knitting scene, I would like to mention the name of few artists, who have explored knitting's artistic potential since 1980's. Although regretfully I cannot include everyone who is doing exciting work in knitting, here [5] [7][9-12]

Some renowned US fiber artists using hand knitting to develop the contemporary art pieces are:

**Kathryn Alexander:** Kathryn Alexander is an internationally acclaimed US textile & fiber artist—a spinner, weaver, dyer, and knitter whose work is characterized by an abundance of color, richly textured surfaces, and whimsical designs.

**Kathryn Cobey, Sculptural Knitter:** Fiber artist Kathrine Cobey is an England based fiber artist. She uses spinning and knitting techniques and creates unique knitted sculptures pieces.

**Barb Hunt** is from Winnipeg and currently lives in Newfoundland. Her recent art practice has focussed on the rituals of mourning, and her current work is about the devastation of war: knitting antipersonnel land mines in pink wool.

**Donna Lish** is a textile artist who is widely known for her innovative, energetic, knit and



## "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA

beaded sculptures. A sought after teacher and lecturer, Lish lives and works in Clinton, New Jersey.

Karen Searle is a fiber artist specializing in knit and crochets sculptural works. Her artworks have been exhibited in the United States and abroad since the late 1970s. She lives in St. Paul, Minnesota.

Some famous UK fiber artists using hand knitting to develop the contemporary art pieces are:

- » Fiber artist Kerry Mosley with hand knitted wire, creates both abstract and figurative wall hangings and framed pieces. His enduring interest is in the human form particularly portraiture.
- » Fiber artist Max Alexander is using hand knitting to create the sculpture form.
- » Ruth Lee is an associate lecturer at Cumbria Institute of the Arts (Carlisle, UK). She is a fibre artist, international tutor and writer and knitted textile designer. Ruth has participated in an exhibition for Bendigo Art Gallery, Victoria, Australia spring 2007, and authored a book "contemporary Knitting for Textile Artists". Ruth is passionate about moving knit forward as a challenging relevant working method within contemporary fibre arts practice. Ruth's current body of work explores knit, stitch, print and off-loom techniques in a wide range of manmade and natural materials including paper yarn, wire, wool and basketry materials. Applications include small-scale wearables, knitting patterns for publications, exhibitions and site-specific fibre-arts work for exterior spaces.
- » Textile artist Patricia Bown is using knitting to create tactile contemporary art pieces for exhibition, installation and interior design. Her latest work centers on the versatility of recyclable and discarded materials.
- » Shane Waltener is a textile artist who is using the hand knitting for two and three dimensional art installation for public exhibition.
- » Sally Spinks works mainly with textiles including hand and machine knitting. Using predominately domestic materials she produces either installation works or sculptural pieces. Since graduating Sally has exhibited in UK and US and continues to develop her artistic practice in both knitting and other textile medium
- » Fine art background artist Françoise Dupré's using looping, and other techniques to makes

sculptures and installations. Françoise Dupré's textiles-based installations are conceived as portals for imagination through which artist, participants and public can articulate and engage with their multiple cultural and spatial experiences and celebrate becoming cosmopolitan subjects.

- » Steve Plummer: Steve Plummer was a maths teacher earlier for many years. Artist does mathematical knitting which is also known as illusion knitting & shadow knitting. (In illusion knitting a piece of work will look like alternate stripes of two different colors when viewed directly in front but when viewed at an angle a picture or pattern appears)
- » Inga Hamilton is driven by a life-long obsession with knit crafts. She spends her life travelling the globe, gathering textile and ceramic skills and applying them to unusual materials in order to create large installations and sculptures for galleries around the world. She has created blends for the people like late Alexander McQueen at Gucci. Joy and humour are always present in her work.
- » Houston artist Bill Davenport had created and exhibited crochet-covered objects in Houston in the 1990s. As per the Houston Press release, "Bill Davenport could be called the grand old man of Houston crocheted sculpture."

Dave is a contemporary sculpture artist who practised knitting as graffiti for a large-scale public art installation in Melbourne Australia for the Big West Arts Festival in 2009.



[Figure: 1] Katharine Cobey's knitted Boat with Four Figures  
(source: <http://fiberartnow.net/kathryn-cobey-sculptural-knitter>)

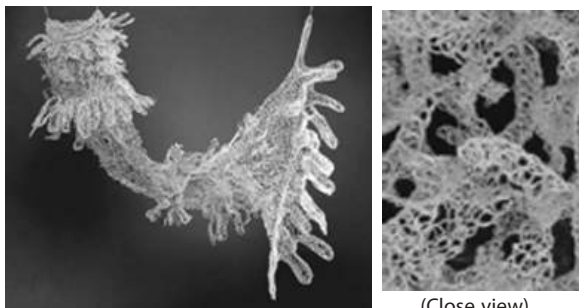


[Figure: 2] Antipersonnel – 1998 – ongoing – knitted yarn – variable dimensions (life-size replicas) by artist Barb Hunt  
(source: <http://blog.sculpture.org/2015/01/28/barb-hunt-antipersonnel/>)

## "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA



[Figure: 3] How My Mother Dressed Me; Copper wire, hand knitting; 40" long x 18" wide x 20" high by artist Karen Searle (Source:<http://www.karensearle.com>)



[Figure: 4] Knitted Spirit Dress by Ruth Lee (Source:<http://www.ukhandknitting.com>)



[Figure: 5] Le Pachamama Cape (back view) 2014 by artist Inga Hamilton (Source:<http://www.ukhandknitting.com>)



[Figure: 6] Knitted portraiture by Kerry Mosley (Source:<http://www.ukhandknitting.com>)



[Figure: 7] Sally Spinks Random Acts Of Kindness (Source:<http://www.ukhandknitting.com>)



[Figure: 8] Installation Knitting Webs by Shane Waltener (Source:<http://www.ukhandknitting.com>)



[Figure: 9] Knitted Installation by Patricia Bown (Source:<http://www.ukhandknitting.com>)



(10a) Street Art Utopia Ellen



(10b) Street Art Utopia by B-Arbeiten

[Figure: 10] Examples of Guerrilla Knitting (source: <http://restoremyfaithinhumanity.net>) [18]

According to an article "Threading Art" by Sandhya Bordewekar (2009) in Art & Deal

## "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA

magazine [13] and my research work, in India a major part of textile art actually deals with embroidery, weaving, painting dyeing and printing rather than actual fibers. The first person to have started using fibres (sutli, hemp /jute) to create contemporary art pieces ranging from painting to three dimensional sculptures and murals was late artist Mrinalini Mukherjee (1949–2015).[14][15] She had used natural fibers as medium with knotting and braiding techniques.

The next one was Ms. Nita Thakore who began using textiles – patchwork, stitching, embroidery, and quilting – as part of her 'paintings' in 1981 and has continued till date. Presently in addition to the above Dr. Nita is using various mix medium, quilting, tufting and relief technique stitching. In her current artwork she has incorporated flat weaving technique. When Nita made a work titled "Friends", the process led her to create one more visual dimension, making the 'painting' more of a sculpture. It reinforced her view that in textile art, one can go beyond coloured threads being colour lines and textured or printed cloth being the canvas. After having a dozen solo shows of Textile Art and participating in numerous group shows internationally, she has been more involved in the teaching of textile art, designing curriculum, being on jury panels, conducting workshops related to textiles and textile art at NID, Ahmedabad, NIFT campuses all over India, Pearl Academy of Fashion, Jaipur, Indian Institute of Craft & Design, Jaipur and so on. In 2001 she had started the Vadodara Centre for Contemporary Fibre and Textile Arts.

Artist and retired NID faculty, Errol Pires has used technique of braiding yarn which is known as ply-split braiding, since mid eighties and created many beautiful textiles.[16]

Fiber artist Parul Thacker started working with silk threads with a plain embroidery needle and created webs and interlaced patterns. Later she progressed to exploring other fibers and material like nylon monofilaments, acrylic tubes, paper yarn and created sculptures and three dimensional art pieces. Her trademark stitch is the angle stitch with which she creates a trail of triangles, sometimes knotting crystals and minerals into the fibres to create the contours of a rugged landscape.

The popular textile and fiber artist Gopika Nath is inspired to embroider, rather than paint

on canvas. She believes that Textile Art is a key element in defining the future of India's hand-crafting legacy. Working with needle and thread, exhibiting her work as an artist/ crafts person in the environs of the Art Gallery, she hopes to be able to lend dignity to the notion of hand-crafting as 'Art', elevating it beyond mere skilled labour, as it is largely considered today.[17]

In addition to these artists, there are a number of others such as Shatrughan Thakur, Lavanya Mani, Delhi based Ranjith Raman, Manish Nai from Mumbai, Kruti Thacker Gupta from Saurashtra; Gujrat, Pravena Mahicha Soni, Ahmedabad-based senior weaver-artist R.P Rajen, artist & faculty of NIFT prof. Kripal Mathur, Smiriti Dixit, Boshudhara Mukherjee, Nilima Sheikh, Hemali Bhuta from Baroda and others who are also experimenting with textiles in an interesting way. But I did not come across anyone, who is using knitting as a technique for fiber art in India.

### METHODOLOGY

The present study was carried out with the key objectives – to explore the current scenario of knitting art in India so as to document the artefacts and to explore the potential of knitting as a medium for self expression. The following methods were adopted to achieve the above objectives.

1. Existing literature from various books, magazines and websites has been reviewed and analysed.
2. India's renowned Baroda based textile artist Dr. Nita Thakore was interviewed over the telephone.
3. A survey was conducted in NIFT Hyderabad among the students of 2nd year Knitwear Design dept. A questionnaire was structured with close and open ended questions and a judgemental sampling method was used, keeping in mind that it might be more appropriate to judge the awareness level of knitwear students as they are studying the knitting and related subject and their awareness level might be little better than others. Also it was felt that, since they have already been taught the basics of knitting and exposed to development of various structures, they might be the right people to comment on the potential of knitting technique as a medium for fiber art. However the students from 3rd year onwards are exposed to the related topics, therefore they were not included in the sample.



## "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA

A total of 30 respondents were selected and collected data was analysed using percentage method.

### Findings

As per the information shared by Dr. Nita Thakore during her telephonic interview, where she has thrown some light on the present scenario of Indian contemporary art.

In India the textile and fiber art has now slowly started making its presence. The artist who is having affair with the art and wants to use fibres and textiles to create the various art forms has the endless heritage backlog to experiment, innovate and create with its strongly rooted varied traditional and cultural textiles in woven, knitted, dyed, printed, patch work, embroidered with the use of different type of thread, mirror work etc.

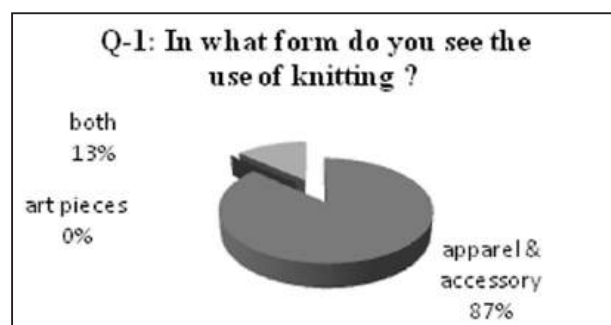
However in India, very few artists are following textiles and fiber art practices as a medium for self expression as compared to western artists, where its use is countless in the contemporary art scene. Here only the artists who are passionate about doing differently are following it. Since most of the artists are working independently, the recognition is very less and as such there are few formal galleries to showcase and support the work of fiber artists.

Fiber art as a style of art is not being included in the curriculum of most of the art and design colleges, therefore its movement at the institutional level is lacking as a result the art & design students are least aware of its use to express the idea & art.

According to Nita Thakore, the present scenario of textile and fiber art is not as serious and up to the mark, as it could have been in a country like India, which is very rich in terms of its diverse heritage of textiles. Although, presently artists have started exploring and working with a wide range of materials from paper to metal by incorporating various techniques of fiber art but the use of different handmade textiles of woven art, incorporating various surface ornamentation techniques such as embroidery, patchwork, dyeing and printing etc. is very less. Only very few artists, who have affair with fiber, fabric and its components, are following fiber as a medium to express art, and there is no one who is using knitting as a technique for fine art in India. Although she has stated that knitting as a technique has a vast potential to create art forms and further could be explored like western

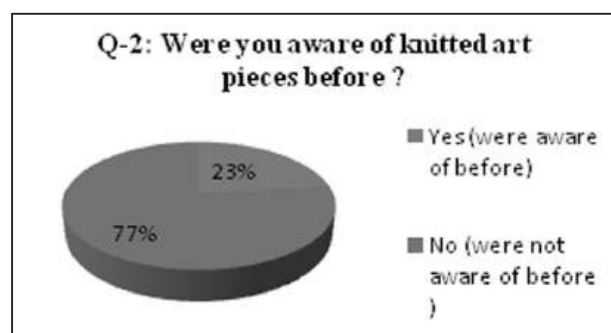
countries. She has also mentioned that this is the time when each one of us, all art lovers should take a necessary step forward to spread awareness of textile & fiber art and India should lead the fiber art movement of 21st century.

A survey was undertaken to understand the awareness level of people and also to explore the potential of knitting as a technique for fiber art. Where a questionnaire was prepared with close & open ended questions and the total of 30 students of knitwear stream were interviewed. Since the students were aware of knitting, therefore directly they were asked the following questions.



[Figure: 11]

On being asked that in what form you see the use of knitting, around 87% people said that they generally see its use in the form of functional clothing such as apparel and accessories. And very few people around 13% responded that they had seen its use in both clothing and art form and not even a single person mentioned that they had seen its use only in art form. Although it is a fact that knitting has always been seen as a technique to create the functional cloths and not the art pieces. But on the other hand this is a clear indication that its use as an art form has never been explored to the limit it could have been to bring to the notice of people as an art technique in India.



[Figure: 12]

## "KNITTING AS AN ART" AND IT'S PREVALENCE IN INDIA

Majority of the people approx 77% were not aware of use of knitting in fine art pieces before. However 23% were aware of the knitted art pieces and out of which 13% have already answered in previous question that they had seen the use of knitting in art pieces. Hence the remaining 10% might have been aware of the use of knitting as a technique for art but they have not seen its use here.

On the question: what is your comment on the potential of knitting as a technique for fiber art: almost all the respondents have supported and described very positively about the potential of knitting as a technique for fiber art. However only few have been mentioned here as describing all of them is not possible.

To quote a few...

"Knitting makes the art look more aesthetically appealing and hence it shall be practised in our beautiful Indian culture".

"It is an innovative approach and I have never perceived knits in the form of an art piece, it would be great to see creativity in the use of knits".

"Knitting as a technique itself is an art and its expression as art piece has great potential to surprise the world".

Also I personally feel that compared to other fabric construction techniques, knitting is very versatile and many innovative structures, surfaces and forms can be created through it.

### Conclusion

Based on this study and analysis it can be concluded that in India knitting, a practical and creative craft still remains a hobby of womenfolk and it is practised only for the functional aspect of clothing and apparel like sweaters, gloves, caps and socks. However the foreign artists, who use knitting to create contemporary art offers us a platform to think, create, grow and develop this technique in to an expression of art. Although textile and fiber art has also now started making its presence in India, but during my study I did not come across to any artist who is using knitting as an art technique for self-expression and aesthetic purpose. This shows people are least aware of the use of knitting in the art forms. Hence being a knit & art lover, with due hope my idea to choose such topic with the aim to introduce knitting as an art technique in India may widen its awareness among people.

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# International Conference on Automation and Robotics in Textile & Apparel Industry

Friday, 15th November 2024, Hotel the Lalit, Mumbai  
Sahar Airport Road, Andheri (E), Mumbai-400059, India

*Organised by*  
**The Textile Association (India), Mumbai Unit**

The Textile Association (India), Mumbai Unit is organizing an international conference "Automation and Robotics in Textile & Apparel Industry" on Friday, 15th November 2024 at Hotel The Lalit, Mumbai.

Automation and robotics have become buzz words in the textile industry during last 5-6 years. The textile and garment industries are not only labour intensive, but also have heavy consumption of precious energy and water. The textile researchers are working hard to reduce all these factors, so that the final product becomes competitive by increasing the production efficiency and reducing manpower costs. Added to that there is substantial rejection of products due to man/machine errors. Automation and robotics are the answer to overcome these issues.

This conference will explore the key applications, benefits and future outlook of automation and robotics in the textile & apparel industry. We have made all-out efforts to cover most of the topics. This conference will be addressed by policy makers, reputed textile professionals and renowned experts from different parts of the world and India who are experts in the technologies. This high profile conference will be attended by 400 quality participants who will get the rare opportunity to listen to such high quality experts. We are sure that the participating delegates will be benefitted immensely from this conference.

The Textile Association (India), Mumbai Unit is the largest Unit of the Association having around 4000 members. The Unit has reputation of organizing events of topical interest both at national and global level.

## Topics to be covered

- ✧ Role of Automation and Robotics in Textile Manufacturing
- ✧ Innovation in Apparel Production: Insights into Robotics
- ✧ End to End Automation opportunities in Textile Value Chain
- ✧ Textile Machinery Industry's role in automating the textile processes

- ✧ Automation applications in Textile Chemical Processing
- ✧ Concept of 'Smart Factory'
- ✧ New emerging trend: Storage Automation
- ✧ Role of Industry 4.0 in the textile machinery development
- ✧ Application of Artificial Intelligence and BlockChain Technology in the Textile Value Chain
- ✧ 3D Printing and its textile applications
- ✧ Role of ERP in Textile and Apparel Production
- ✧ Upgradation of old machines through automation

We appreciate your support to The Textile Association (India), Mumbai Unit in its activities and it is our pleasure to invite you to be part of this event. Let us join hands to make this conference a great success.

Rajiv Ranjan

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V. C. Gupte

Chairman & Convenor

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#### Automation and Robotics in Textile & Apparel Industry

Automation and robotics have become buzz words in the textile industry during last 5-6 years. The textile and garment industries are not only labour intensive, but also have heavy consumption of precious energy and water. The textile researchers are working hard to reduce all these factors, so that the final product becomes competitive by increasing the production efficiency and reducing manpower costs. Added to that there is substantial rejection of products due to man/machine errors. Automation and robotics are the answer to overcome these issues.

Application of automation and robotics are not so new, these had begun almost two centuries ago, when John Kay invented 'flying shuttle'. It enabled in increase in the production and brought down the number of people required to operate by 50%.

The geographical distribution in the textile industry has seen a dramatic shift in the past 30-40 years. It has moved to Asian and far-east countries. While the textile industry in other countries have adopted and accepted automation & robotics, the Indian textile industries are slow in initiating automation & robotics. Though, there are partial automation and robotics in a few large textile industries, it is time that the automation should cover all sectors of the textile industry. The partial shifting does not give the desired benefits of automation. One will have to plan the complete automation with robotics for all sectors.

The major benefits of automation & robotics can be listed as:

- ✧ Improved production at lower cost and short turnaround time.

- ✧ Consistent and better quality.
- ✧ Faster customized products even for small orders
- ✧ Safety for humans and machines
- ✧ Low energy costs
- ✧ Predictable production and delivery schedules
- ✧ Less pollution
- ✧ Predictable machine maintenance, hence better machine uptimes and
- ✧ Improved customer satisfaction, so more orders

Despite these benefits one must also look at some of the main impacts. These can be listed as:

- ✧ Reduction in man-power, so unemployment
- ✧ Demand for skilled labour
- ✧ High investment costs

### About TAI, Mumbai Unit

The Textile Association (India), Mumbai Unit is the largest Unit of the Association having around 4000 members. The Unit has reputation of organizing events of topical interest both at national and global level. In this pursuit, Mumbai Unit is organising one day International Conference on "Automation and Robotics in Textile & Apparel Industry".

### Speakers & Panelists

All the conferences organized by The Textile Association (India), Mumbai Unit have always selected contemporary & innovative topics presented by high profile speakers. This Conference is also no exception to this.

This conference will be addressed by policy makers, reputed textile professionals and renowned experts from different parts of the world and India who are experts in the technologies. This high profile conference will be attended by 400 quality participants who will get the rare opportunity to listen to such high quality experts.

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## EXPORT PROSPECTS AND MARKETS

### Bangladesh turmoil leads the foreign buyers to move India

With the crisis in Bangladesh intensifying, the textile sector, which contributes a lion's share of its export, is likely to be a victim of the turmoil, with international buyers shifting their focus to alternative markets like India.

India's gain will be an additional business of \$300-400 million per month if 10-11 per cent of the neighbouring country's export is diverted to Indian hubs like Tiruppur, say industry experts.

"We expect orders may start coming to Tiruppur, and this financial year, they are expected to be at least 10 per cent more than last year's," said K M Subramanian, president of the Tiruppur Exporters' Association.

Bangladesh's monthly apparel export is \$3.5-3.8 billion and has a high double-digit share in the European Union and the United Kingdom and a 10 per cent market share in the United States.

India is exporting in the range \$1.3-1.5 billion per month. "This is unfortunate and if the current disruption lasts long, it will affect buyer sentiment. Initially, buyers will likely shift some order to India and other countries. We have the capacity to handle an additional \$300-400 million in orders immediately," said Prabhu Damodaran, secretary to the Indian Textpreneurs Federation, an industry body.

The crisis has come at a time when Bangladesh was expected to cross \$50 billion in annual export in 2024, compared to around \$47 billion in 2023.

In addition to this, manufacturing units owned by Indians in Bangladesh are also likely to shift their base to India. According to trade-policy analyst S Chandrasekaran, around 25 per cent of the units in Bangladesh are owned by Indians. They include companies like Shahi Exports, House of Pearl Fashions, Jay Jay Mills, TCNS, Gokaldas Images, and Ambattur Clothing.

"The movement of consignments is stuck, and there is a breakdown in the supply chain for the upcoming Christmas season. India has an advantage here because orders will be diverted," Chandrasekaran added. "The sudden drop in global volumes may be compensated by a rise in Indian exports." □

### Cotton exports rise 68% till June-end

India's cotton exports in the first nine months of marketing year 2023-24 were up 68 per cent at 26 lakh bales (of 170 kg each) compared with 15.5 lakh bales during the same period a year ago.

Higher surplus and demand from Bangladesh and Vietnam boosted Indian fibre crop exports.

According to the Cotton Association of India (CAI)'s balance sheet as of end-June, the closing stocks at the end of the crop year 2023-24 are estimated to be 20 lakh bales against 28.9 lakh bales in the previous year.

CAI has estimated the demand at 317 lakh bales (311 lakh bales). Supplies during the year are pegged at 363 lakh bales (355.4 lakh bales), which include the opening stock of 28.9 lakh bales and import of 16.4 lakh bales. Imports during the previous year stood at 12.5 lakh bales.

CAI said cotton stocks at the end of June 2024 are estimated at 77.29 lakh bales, including 40 lakh bales with textile mills that is about 46 days consumption.

The remaining 37.29 lakh bales are with CCI, Maharashtra Federation and others (MNCs, MCX, traders, ginner, etc.) □

### India's textile sector witnessing some uncertainty from the Bangladesh situation

Finance Minister Nirmala Sitharaman recently said India's garment sector is facing some uncertainties due to the Bangladesh crisis.

She, however, hoped that investments by Indian textile players in Bangladesh are safe. She also expected the situation in the neighbouring country to settle down soon.

Asked about how India would be impacted by the situation in Bangladesh, she said that she had got calls from companies that have invested in the textile sector in Bangladesh. Many of them from Tamil Nadu.

The investments were made in good faith and these investors had done well there. The exports from Bangladesh also increased.

Further, she said that it's too early to assess what kind of an impact the situation in Bangladesh will have on India's economy.

Bangladesh's textile industry is a crucial component of its economy, contributing to 80 per cent of its exports and constituting 15 per cent of its GDP.

## EXPORT PROSPECTS AND MARKETS

The nation predominately exports textiles to the EU, the US, Canada, Australia, and Japan.

India plays a vital role as an export partner, supplying 20-25 per cent of the yarn that Bangladesh imports for producing garments. □

### Exports decline 1.5% in July; trade gap at 9-mth high

India's outbound shipments contracted after a gap of three months in July by 1.48 per cent to \$33.98 billion owing to muted global demand and geopolitical challenges.

Inbound shipments rose 7.46 per cent to \$57.48 billion during the month, leading to a trade deficit of nine-month high at \$23.5 billion, data released by the commerce department showed. The deficit was \$19 billion in July last year.

Commerce secretary Sunil Barthwal said that while merchandise exports grew 4 per cent on a cumulative basis (April-July), July's contraction can be attributed to low exports of petroleum products amid tepid demand and high imports of crude oil.

"There are various factors that have contributed to the decline in petroleum exports. One factor is the fall in prices. Secondly, the demand for some of the products is low. Finally, domestic consumption of petroleum products has increased, which is playing a major role in leaving less for exportable surplus," Barthwal told reporters in a briefing.

Petroleum products, which have more than 15 per cent share, contracted 22 per cent in July at \$5.23 billion. Import of petroleum and crude products saw 17.4 per cent growth at \$13.87 billion during the same month.

Aditi Nayar, chief economist at ICRA, said that a widening in oil as well as non-oil deficit expanded the merchandise trade deficit in July 2024 relative to July 2023. "The higher oil import bill reflects higher volumes and global prices, as well as a possible decline in discounts," Nayar said.

Non-petroleum and non-gems and jewellery exports, an indication of a clearer parameter of exports' health, grew 5.7 per cent at \$26.92 billion. The main drivers of the growth were engineering goods (3.66 per cent), electronic goods (37.31 per

cent), drugs and pharmaceuticals (8.36 per cent), and textiles (11.84 per cent).

Apart from petroleum and crude products, other items that saw high imports include electronic goods (11.54 per cent), non-ferrous metals (17.4 per cent), iron and steel (5.22 per cent), plastic materials (4.67 per cent), and organic & inorganic chemicals (8.1 per cent).

While gold imports dipped by 10.65 per cent to \$3.13 billion in July. Nayar said that lower custom duties after the Union Budget may raise the value of gold imports in the next few months. The value of gold imports has been steady at around \$3-3.4 billion each month in April-July.

Federation of Indian Export Organisations (FIEO) President Ashwani Kumar said that the dip in exports was because of international trade disruptions and sharp drop in crude, commodities and metal prices.

"Some of the exporters have diverted to the domestic market as profitability in exports has taken a hit with a sharp rise in international freight (both ship and air). Had it not been these trade disruptions led by logistical challenges such as lack of container availability and shipping space, irregular shipping schedule and ships skipping Indian ports, merchandise exports would have recorded yet another positive growth, that to double-digits, during the month," Kumar said. □

### India's Garment Export Orders may surge 10-20%

India's garment industry could reap a 10-20% boost in export orders over the next 18 months following the political turmoil in Bangladesh, said executives and industry bodies.

In value terms, India's apparel exports could surge by \$2-3 billion annually. Exports stood at \$14.5 billion last fiscal.

The domestic textile industry is in a wait-and-watch mode, but exporters say New Delhi needs to be ready for a potential trade diversion triggered by the political unrest in the eastern neighbour, one of the world's top garment exporters.

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**EXPORT PROSPECTS AND MARKETS**

“India can benefit from garment exports. We expect a 10-15% gain in the short to medium term on garment exports,” said Sanjay Jain, chairman, Indian Chamber of Commerce, National Export Committee on Textiles.

Many global brands are already mulling shifting their sourcing once Bangladesh graduates from its least developed country status by 2027 as it would garment exports from Bangladesh costlier.

India’s biggest garment export cluster at Tiruppur in Tamil Nadu is expecting about a 10% rise in orders compared to last year.

Cotton yarn and fabric exports could benefit more than synthetic and man-made fibres, experts said. “We expect 10-20% orders to come to India in the next two years, especially as Bangladesh loses its LDC status in 2027. We need to set up factories and expand production,” said a representative of the cotton textile industry, adding that it is an opportune time to operationalise the PM Mega Integrated Textile Region and Apparel (PM MITRA) scheme aimed at setting up seven mega textile parks in the country.

Mithilishwar Thakur, secretary general of the Apparel Export Promotion Council (AEPC) said, “India has no intention or inclination to exploit this unfortunate situation in our friendly neighbouring country.” “The Indian garment industry is making serious efforts to grow RMG exports on its own, based on its merit,” he said.

He, however, added that it is quite likely that in the short-term, garment orders may shift to India and the Indian apparel industry may be asked to meet the gap caused by this severe disruption.

“Some diversion will happen and if factories in Bangladesh don’t open in the next 5-6 days, then Diwali and Christmas supplies will have to be met from here,” said the cotton textile industry representative cited above. The official added that India has to be ready for this Bangladesh plus one strategy as it will be factored in by buyers around the world.

Sharad Kumar Saraf, founder chairman of Technocraft Industries India, a textile exporter, said garment exports from Bangladesh enjoy duty free access in the European Union, leaving India to compete solely on price. ■

**1-month interest subsidy relief offered to exporters**

The government has extended the interest equalisation scheme (IES) for pre- and post-shipment export credit for a month pending final decision on whether the scheme should stay for a much longer period.

This is the second extension of the scheme after it ended on June 30. In July, it was extended for two months till the end of August but only for micro, small and medium enterprises that export their own manufactured products and ₹750 crore were allocated for it.

The latest extension for September is also limited to MSME manufacturing exporters, according to a trade notice by the Directorate General of Foreign Trade.

Till June, the interest equalisation scheme provided upfront reduction in interest rates on pre-shipment and post shipment export credit by banks.

The exporters from micro, small and medium enterprises exporters got a rebate of 3% on loans under the scheme.

The merchant exporters, who source goods for exports from other manufacturers, get 2% benefit for exports of 410 identified products. The discount given by banks is reimbursed by the government.

The commerce ministry is seeking a five-year extension of the scheme on the same terms which existed before June 30. Exporters are asking for the subsidy amount to be raised to 5% for MSMEs and 3% for merchant exporters as interest rates have gone up since the rates were set.

An official had recently said that a decision on the extension of the scheme will take time as it is yet to be examined by the Expenditure Finance Committee.

The EFC is an appraisal body in the ministry of finance that considers proposals. The EFC is one of several appraisal bodies that recommend proposals to the Cabinet or Cabinet Committees.

The scheme was initially launched on April 1, 2015 for a five-year period till March 2020. Due to COVID, it got a one-year extension in 2020.

Later, more extensions were accorded and the latest one is to end on June 30. ■



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## CMTI organised an Industry meet on Textile Machinery: Technology Challenges & Innovation Ecosystem

CMTI, along with the Bureau of Indian Standards (Textiles Division), has organised the Industry Meet on Textile Machinery, which involves industry experts, stakeholders, and representatives from various sectors of the textile machinery industry. This event aimed to provide a platform for the attendees to explore the technology challenges, innovations, and opportunities that define the dynamic landscape of the Indian textile machinery sector. The event also looked forward to identifying potential growth opportunities and synergetic technology developments, as well as fostering collaborations and brainstorming for sectoral growth.



The dignitaries, Chief Guest Shri Rajeev Saxena, Joint Secretary, Ministry of Textiles, (Online), Dr. Nagahanumaiah, Director CMTI, Shri Ketan Sanghvi, MD, Laxmi Shuttleless Looms, Shri Sachin Kumar, Executive Director, TMMA, Shri N D Mhatre, Director General (Tech), ITAMMA and Shri Swapnil, Asst Director (Textiles), BIS were welcomed on the dais, followed by the traditional lighting of the lamp, accompanied by an invocation song. Shri Ashok Malhotra, Mission Director, NTTM and Shri Ajay Pandit, Joint Mission Director – RD&I, NTTM, participated in the event online. This marked the event's official start, setting a positive and auspicious tone for the day.

The event had a multifaceted audience with representatives from the Office of the Textile Commissioner and Regional offices, NTC, TMMA, ITAMMA, Apparel Training and Design.



Centre, Clothing Manufacturers Association of India (CMAI), Karnataka Small Scale Industries Association (KASSIA), Science Engineering & Technological Upliftment (SETU) Foundation, National Jute Board, NIT, Jalandhar, The Bombay Textile Research Association (BTRA) and Industries such as Truetzschler India, Raymonds, Trident Corporation, Rieter India, Palod Himson, LMW, InspirOn Engineering, Aquarelle India, etc. The event had an in-person participation of 38 delegates excluding CMTI participants and 25 delegates participated through VC.



Dr. Nagahanumaiah, Director of CMTI, delivered the welcome address. He highlighted the significance of the event and emphasised the importance of collaboration



## CMTI organised an Industry meet on Textile Machinery: Technology Challenges & Innovation Ecosystem

between industry and research institutions to address the challenges faced by the textile machinery sector.

M/s Laxmi Looms, the technology licensee and industry partner for the commercialisation of the High-Speed Shuttleless Rapier Loom Technology, was honoured in appreciation of the successful commercialisation of LR-450 technology transferred under MHI Scheme for Enhancement of Competitiveness in the Indian Capital Goods Sector Phase I. This recognition underscored the successful collaboration between technology developers and industry partners in developing and commercialising textile machinery technology. Further, Shri Mohanraj B R, Joint Director, CMTI, presented the overview of Indigenous technology development of LR-450, other development activities related to textile machinery being carried out by CMTI and the future potential collaborative projects.



The keynote address was delivered by the Chief Guest, Shri Rajeev Saxena, Joint Secretary, Ministry of Textiles. Shri Rajeev Saxena provided a comprehensive overview of the current state of the textile machinery industry in India, emphasising the government's initiatives and policies, such as

TUFS, ATUFS, NTTM, etc, aimed at fostering technology upgradation, innovation and overcoming the technological challenges within the sector.

The event featured a series of insightful presentations by industry experts:

Mr Ketan Sanghvi (M/s Laxmi Looms) presented on "Indian Textile Machinery Industry – Challenges and Opportunities," providing an in-depth analysis of the current market landscape, array of challenges covering Technology, R&D, Competition, Environment, People, opportunities and action plan for the challenges.

Mr. Sachin Kumar (TMMA) discussed "Opportunities, Challenges, and Recommendations for Import Substitution, Meeting Domestic Demand, and Achieving Export Excellence in the Indian Textile Engineering Industry." His presentation offered strategic insights into strengthening domestic manufacturing capabilities and enhancing export competitiveness. He highlighted sectors with varying technology levels, such as i. at Par with International Standard, ii. Marginal Technological Gap Exists, and iii. Huge Technological Gap Exists. He also shared some success stories of domestic manufacturers' product and process technologies.

Mr. N D Mhatre (ITAMMA) spoke on "Potential Indigenization Opportunities in the Textile Machinery Components and Accessories Market," highlighting areas where domestic production can replace imports to boost the industry. He also briefed on numerous examples of innovation adoption in various textile sectors and supply chain inclusivity of spares/accessories to achieve success as OEM.

Mr. Swapnil (BIS) concluded the session with a presentation on "Standardization of Textile Machineries and Accessories,"

## CMTI organised an Industry meet on Textile Machinery: Technology Challenges & Innovation Ecosystem

emphasising the importance of standardization in improving product quality and marketability. He elaborated on the steps taken by BIS towards stakeholder involvement in standardisation, the scheme for R&D projects, and the need for strong representation in International Standard committees to express the Indian textile machinery market needs.

The event also featured three-panel discussions focused on identifying technology gaps in different segments of the textile machinery industry:

### Panel Discussion 1: Technology Gaps in Weaving and Spinning Machinery, Auxiliary Machinery & Accessories.



L to R: Mr. Parabrahman, Past CEO & MD, Kirloskar Toyota Textile Machinery, Mr. Ketan Sanghvi, MD, M/s Laxmi Looms and Chairman, ITME Society (Moderator), Mr. Pravin V Kandge, GM-Project planning M/s Truetzschler India.

Mr Ketan Sanghvi, citing the challenges from his presentation, asked the panellists how to address the technology gaps existing in weaving and spinning machinery segments. Mr. Parabrahman replied that the spinning segment has high job creation potential in terms of technology, market, and capability. He stressed that the biggest problem with Indian manufacturers, owners, and promoters is not investing in the proper HR training, tooling, and facility. Mr. Parabrahman also discussed Brand India, which comes from passion and a focus on customer requirements. The communication

gap between the front-line person and the requirements is one of the reasons for the delay in the quality of the contractual conclusion or the supply of products. Mr. Pravin expressed his thoughts on spinning machinery segments' gaps, challenges, and opportunities. He mentioned that abundant knowledge is available in the Indian market to fill the gaps and challenges, and the machines developed have some novel innovations & capabilities to capture the market. Mr Ketan Sanghvi, on answering the query related to the extent of automation required, has said that the textile machinery manufacturers are sceptical regarding automation, and automation is currently being just enough as per customer needs.

### Panel Discussion 2: Technology Gaps in Technical Textiles Machinery



L to R: Dr. N. Shanmugam, Principal Scientist, ICAR-CIRCOT, Mr. N D Mhatre Director General (Tech), ITAMMA (Moderator), Mr. Devvert Ruhela, Consultant, NTTM

The panel addressed the technical textiles sector's challenges in products and technical textile machinery, particularly in developing and adopting advanced machinery. Mr. N.D. Mhatre briefed us about the size of the technical textile market globally and in India. He also mentioned that the main aspects to be focused on are raw materials, testing certificates, machine maintenance, and Cost efficiency. Mr N D Mhatre brought forward that the low-cost conversion of existing and mature technologies to suit

## CMTI organised an Industry meet on Textile Machinery: Technology Challenges & Innovation Ecosystem

technical textiles must be the focus in addressing technical textile machinery challenges. Dr N Shanmugam urged that collaboration between the organisations must be established to develop and implement cutting-edge technologies. He stressed the need to attract

talented human resources to the sector through appropriate schemes and incentives. Mr. Devvert Ruhela spoke on the National Technical Textile Mission and the components of NTTM. NTTM supports machinery development with a funding of 80:20 and the relevant guidelines. He also briefed on the Grant for Research and Entrepreneurship across the Aspiring Innovators in Technical Textiles (GREAT) Scheme.

### Panel Discussion 3: Technology Gaps in Knitting, Embroidery, Garment Making Machinery, Non-wovens & Related Accessories



L to R: Mr. Kaushlendra Narayan, Director, Garmenting Operations & Outsourcing, Raymonds, Mr. Sachin Kumar, Executive Director, TMMA (Moderator), Mr. Narottam Kumar, Assistant Director, Office of The Textile Commissioner

Mr Sachin Kumar strongly advocated that instead of reinventing the whole wheel, we can customize and improvise existing technologies and machines based on Indian requirements to speed up technological developments where huge technology gaps exist. Mr. Narottam Kumar expressed that R&D Institutes like CMTI and RTAs shall develop technologies/machines by design

and development and transfer technology to industry players. Mr Kaushlendra Narayan felt significant industry demand to develop textile machines/ accessories in India with capital in hand. Still, they could not find the right solution provider catering to shorter development cycle times. In garmenting, the turnaround times to customers are shorter, and hence, the technology adoption/ development had to be faster and with less downtime. The panel also suggested that the government must play a significant role by reviving existing schemes and collaborating with R&D organizations. However, it will take a lot of time; one day, we will be self-reliant in this sector, and the same push must be given like the defence sector in India.



The event concluded with a vote of thanks by Shri Arunkumar J G, Joint Director, CMTI. The Industry Meet successfully brought together stakeholders from across the textile machinery sector, facilitating a constructive exchange of ideas and paving the way for future collaboration and innovation.

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## CORPORATE NEWS

### With Holding the hand of Gimatex Trützschler's IDF in India: Flexibility for the upcycling of textile waste

Trützschler and the Indian company Gimatex have a long relationship that began in 2006. Since then, they have successfully collaborated on many projects. Gimatex has used Trützschler's IDF successfully in direct spinning. Now, they are using it to turn textile waste into valuable ring yarn.

Gimatex Industries Pvt. Ltd. has high standards for quality and sustainability. The company operates fully integrated facilities with ginning, spinning, recycling, weaving and processing units in Hinganghat, within India's major cotton-growing region of Vidarbha. It also runs a state-of-the-art fabric processing unit in Dholka, near Ahmedabad. As a family-owned company with over 125 years of history, it has a lot in common with Trützschler. Together, the two partners are working in close collaboration with the shared aim of extending that long history far into the future.

"Our clients demand consistent quality and competitive prices," says Mr. Vineet Mohota, Director at Gimatex. "We meet those demands by always leveraging the latest technologies to boost quality, save energy and make progress for sustainability. Trützschler is a strong partner for that work."



From left to right: Shailesh Thakur (Deputy General Manager Sales ATE), Shiladitya Joshi (Deputy General Manager Marketing Trützschler), Vineet Mohota (Director Gimatex) and Gautam Kumar Dhang (CEO Fabric Business Gimatex).

#### Lower costs and higher productivity

Trützschler's Integrated Draw Frame (IDF) technology is at the heart of this collaboration. Gimatex is using these innovative solutions to produce high-quality yarn. In particular, IDF

enables Gimatex to produce top-quality yarns from a uniquely wide variety of raw materials – from 100 percent cotton through to polyester, recycled fibers and blends of various different inputs.



From left to right: Gautam Kumar Dhang (CEO Fabric Business Gimatex), Vineet Mohota (Director Gimatex) and Manish Deolankar (General Manager Gimatex) in front of Trützschler's Bale Opener.

Gimatex mainly uses Trützschler IDF to manufacture rotor yarns in a direct spinning process. Direct spinning means shortening the spinning process by eliminating draw frame passages. Fiber slivers are fed directly from the card into the integrated drafting passage. This direct spinning concept uses less electricity and less space than conventional draw frame passages, which helps Gimatex to cut costs while increasing output volumes – with no compromise in quality. Most often, IDF technology is used for rotor and vortex spinning. However, the team at Gimatex is now also one of the first spinning mills in India to develop a special IDF process for producing traditional and recycled ring yarn. This allows the company to leverage the same setup it uses for open-end yarn. The ring yarn produced in this unusual way is mostly coarser varieties and recycling blends for cotton / spandex (lycra) products, with Ne 10s and Ne 16s. The yarn goes through a blow room into a TC 15 card with IDF, before entering a Trützschler TD 10 draw frame, a speed frame and a ring frame.

#### Longstanding partnership

"The performance of Trützschler's IDF machines is great," says Mr. Mohota. "We also get support from Trützschler's expert teams. They're always available to give guidance and



## CORPORATE NEWS

answer questions, and they're able to access data from around the globe to share best practices for every application." Gimatex and Trützschler have established a close relationship over a long period. IDF machines are a flexible, highly efficient and sustainable technology that is helping to extend that valuable partnership. As market conditions in India continue to evolve, we will keep working hand in hand to adapt to change successfully – while meeting high expectations from customers.

#### About the Trützschler Group:

The Trützschler Group SE is a German textile machinery manufacturer headquartered in Mönchengladbach, Germany. The company is divided into three business units: Spinning, Nonwovens and Card Clothing. Trützschler machines, installations and accessories are produced and developed in nine locations worldwide. This includes four factories in Germany (Dülmen, Egelsbach, Mönchengladbach, Neubulach), as well as sites in China (Jiaxing and Shanghai), India (Ahmedabad), the USA (Charlotte) and Brazil (Curitiba). Local service companies in Türkiye, Mexico, Uzbekistan and Vietnam and local service teams in Pakistan, Bangladesh and Indonesia provide customer proximity in key regions for the textile processing industry. For more information visit: [www.truetzschler.com](http://www.truetzschler.com)

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### Aditya Birla Group - Birla Cellulose elevates Awareness about Viscose Fibres, Suggests Birla Cellulose Fibres to the Handloom Textile Value Chain

The Indian handloom textile industry has a rich heritage dating back many centuries. Today, this industry plays an important role in many communities, providing employment and preserving cultural heritage. However, with the

introduction of mechanized textile manufacturing during the British era, this once-revered industry has faced significant challenges. Some prominent challenges include competition from synthetic fibers, limitations of traditional fibers, lack of investment, large unorganized markets with dependence on middlemen, limited access to domestic and international markets, and labor issues.

This largely unorganized industry is experiencing a decline in the weaver community, as the younger generation of weavers is migrating to other occupations due to lower income and unstable work. The handloom industry also heavily relies on materials that are subject to significant price fluctuations. While the Indian government has actively issued schemes and incentives to support the industry, additional efforts are needed. To help preserve this precious art, the Aditya Birla Group – Birla Cellulose, in association with regional partners, has launched a drive to create awareness about natural, sustainable, and durable alternatives by introducing the weaver community to fibers like Viscose, Modal, and Excel, which are relatively price stable.



Given that the cost of silk yarn is often exorbitant and out of reach for the public market, it's remarkable that Birla Cellulose blended silk fabric manages to preserve the luxurious feel of pure silk while remaining competitively priced. Modal and Excel blended products offer a lustrous shine, brilliant color, and luxuriously soft feel reminiscent of silk. Birla Cellulose's brand, Liva, nurtures the Indian textile value chain by contributing to the production of more sustainable fibers that also address the breakage issues weavers face with traditional threads.

Furthermore, with their robust supply chain supported by regional partners, Birla Cellulose ensures the timely and consistent delivery of quality yarn that meets all of their customers' needs, helping to boost the weavers' production capacity. As part of this initiative, the Liva team also prepares the handloom weaving community for the future by holding seminars and hub meetings that guide these weavers. This initiative will not only help revive the industry but also assist in its expansion, contributing to the realization of the Make in India vision for the handloom sector.

With its versatile R&D center continuously engaged in developing new yarns and fabrics alongside regional partners, Birla Cellulose has helped commercial bulk fabric manufacturers create new bases for printing with the latest in-demand yarns and innovative weaving patterns. To promote the "Vocal for Local" initiative, the Liva team has assisted printers in connecting with grey base manufacturers to obtain quality fabric at the right price. An ongoing project in Odisha involves supporting weavers in developing Ikat using Excel yarn, which will be dyed with natural organic dyes. Beyond pre-production, they also provide support during post-production, including tagging, online and offline market connections, roadshows, and door-to-door promotions, helping businesses increase inquiry leads. To date, Birla Cellulose has trained 5,000 weavers across seven states (Uttar Pradesh, Gujarat, Tamil Nadu, Assam, Meghalaya, Mizoram, and Odisha) and supplies around 15 lakh kilograms of yarn annually.

Birla Cellulose, through its initiative to create awareness of natural, sustainable, and biodegradable yarns, aims to advance its mission of environmental sustainability while supporting the revival of India's handloom textile industry by encouraging the handloom textile value chain to adopt Birla Cellulose for the greater good!

#### About Birla Cellulose

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

The sustainable fibres offered by Birla Cellulose's extensive product line allow the company to serve various markets. Their fibres, like Viscose, Modal, and Lyocell, are known for being soft, comfortable, and easy to work with. It prioritizes environmental protection and strives to leave as little carbon imprint as possible. Birla Cellulose is steadfast in its commitment to environmental governance, which extends from the ethical procurement of raw materials to using environmentally beneficial manufacturing methods.

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## RadiciGroup and Atalanta: Renewal of Partnership for the 2024/25 season

RadiciGroup confirms its commitment as the "Sponsor del Cuore" (Heart Sponsor) of the Atalanta team

RadiciGroup and Atalanta Bergamasca Calcio are pleased to announce the renewal of their partnership for the 2024/25 season. RadiciGroup will be the "Sponsor del Cuore" (Heart Sponsor) for the Italian Serie A league and the Supercoppa Italia, which will take place in January 2025 in Riyadh, while it will be the "Sleeve Partner" in the UEFA Champions League and Coppa Italia matches.



## CORPORATE NEWS

RadiciGroup therefore remains the "Sponsor del Cuore" of the Atalanta team, renewing the partnership started in 2017. Over these years, during which the Nerazzurri have achieved increasing success, RadiciGroup has always supported the management, coach, players, and staff of Atalanta. This relationship is based on shared values such as attention to the territory, passion for the black and blue colours, and the ability to showcase an incredible game that highlights each player's talent within a winning team. Atalanta concluded the 2023/24 season triumphantly, winning the Europa League and giving Bergamo fans a prestigious trophy. RadiciGroup accompanied the team throughout this incredible journey, which saw this team grow and conquer the international football scene.

We are extremely pleased to continue our collaboration with Atalanta» said Maurizio Radici, Vice President of RadiciGroup. «This partnership is not just a sponsorship but a sharing of values and goals. RadiciGroup and Atalanta are both symbols of our territory, working with the same determination to pursue excellence. The Europa League victory is an extraordinary achievement, and we are proud to have supported the team in this success. We will continue to support this team with the same enthusiasm and commitment, confident that together we will be able to achieve new and ambitious goals together.

It is truly a great pleasure to renew our partnership with RadiciGroup which we consider more than a simple collaborative relationship - said Luca Percassi, CEO of Atalanta BC. With RadiciGroup, important synergies have been created over the years that have consolidated both our brands. The path started back in 2017 continues, preserving the values that have always united us.

[www.atalanta.it](http://www.atalanta.it)

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## Birla Cellulose Reinforces Commitment to Sustainability at Karur Hub-Meet, rolls out New Trial Initiatives

Birla Cellulose, a pioneer in sustainable fiber solutions, reinforced its commitment to sustainability efforts and conducted the second

edition of hub-meet at The Residency, Karur, on 30th August 2024. The intention was to underscore the transformational potential of sustainable MMCF (Man-Made Cellulosic Fibers) in the Home Textiles sector. Attended by 110 prominent exporters and company owners from the Karur cluster, the event focused on charting a path toward sustainable innovation.

The key topic of discussion revolved around the application of sustainable MMCF solutions in the Home Textiles domain, offering a gateway to eco-friendly, high-quality products that align with modern consumer preferences for sustainability.

Distinguished guests such as Mr. Gopal Krishnan, President of Karur Textile Manufacturer Exporters Association and, Mr. Velusamy, Asst. Director of the Textile Committee in the Karur cluster, along with industry stalwarts like Mr. Perumal, Managing Director of South Indian Textiles, and Mr. Kaliappan, Managing Director of Anboli Fabrics, graced the event.



The hub-meet saw active participation from esteemed value chain partners, including AGT Mills, PKPN, Kumaran, and Sutlej Textiles, and Kumaraguru Mills displaying a collective commitment to drive sustainable practices across the textile ecosystem.

The highlight of the session was the profound interest exhibited by exporters in Birla Cellulose's innovative products, prompting a desire to embark on trial initiatives for adoption. Our flagship product Spunshades garnered special attention due to its innovative Colour Lock Technology, which prevents fabrics from fading even after multiple washes as dye pigments are embedded into the fibre versus conventional fabric piece-dyeing.



"Karur's home textile industry, valued at around Rs 9000 Cr, welcomes Birla Cellulose's initiative to guide us through the adoption of the MMCF range. We are confident about incorporating Birla Cellulose's fibers into our regular product offerings. The process for incubation has begun and we look forward to more sustainable and economical substitutes for existing raw materials." shared Mr. Gopal Krishanan - President - Karur Textile Manufacturer Exporters Association.



Mr. Kaliappan, the Managing Director of Anboli Fabrics added "The elaborate presentation on Birla Cellulose's product offerings, provided a deep insight into the possible applications of the fibres in home textiles."



"We are delighted and encouraged by the positive response from industry leaders and exporters from last meeting at the Karur hub-meet. Our in-depth discussions and enthusiasm for exploring our products with integrated reciprocal capabilities enhance our confidence in the transformative power of responsible innovation.

Our innovative product Spunshades and Lyocell blends with cotton solutions are poised to redefine the Home Textiles landscape, and the overwhelming interest shown here is truly encouraging," shared Mr. T. Murugan President Global Head, Business Development, Birla Cellulose.

#### About Birla Cellulose

Birla Cellulose, the pulp and fibre business of the Aditya Birla Group, is a leading sustainability focused Man-Made Cellulosic Fibres (MMCF) producer.

Birla Cellulose operates multiple pulp and fibre manufacturing sites that apply environmentally efficient technologies. Birla Cellulose tops the Hot Button Ranking and has been accorded a 'dark green shirt' by the Canopy Planet Society. Its global advanced research centers are equipped with state-of-the-art facilities and pilot plants. Birla Cellulose's fibers are made from renewable wood and are produced using a closed-loop process with significantly lower carbon emissions and lower resource consumption.

Birla Cellulose's fibers such as Livaeco viscose, Livaeco Modal, Excel™ (lyocell), and Spunshades™ Eco- Enhanced are manufactured with accredited sustainability benchmarks and deliver superior performance. Liva Reviva is a circular viscose fibre made using cotton waste and provides a solution to recycle fashion industry waste into fresh fibers. Birla Cellulose collaborates actively with its upstream and downstream partners with an aim to create a bigger and broader positive impact on sustainability of its value chain.

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## CORPORATE NEWS

## bluesign proudly unveils its Numbers for 2023: Setting the Standard for Sustainability in the Textile Industry

bluesign® (bluesign.com/en), a global leader in sustainable textile production, proudly unveils its numbers for 2023, highlighting its commitment to environmental stewardship and supply chain transparency. This recent comprehensive report underscores why bluesign® SYSTEM stands as the premier sustainability framework, holding the best environmental impact metrics in the industry, including the reduction of 3 billion kilotons of carbon emissions in 2023.

bluesign's vision has always been ambitious: to create a textile industry that balances efficiency with environmental responsibility. In a time when legislative bodies demand transparency and traceability, bluesign's cutting-edge data tracking systems have become indispensable. These systems don't just meet regulatory requirements; they set new industry benchmarks for sustainability and transparency.

bluesign's impact is amplified by its global network of 864 System Partners, spanning more than 50 countries. These partners, including 296 Tier 2 Textile Manufacturers, are integral to the mission. With 226 partners providing plausible primary data for the 2023 Impact Numbers the collective effort showcases the power of collaboration in driving meaningful environmental progress. bluesign offers brands and retailers a secure platform to access validated environmental Key Performance Indicators (e-KPIs) of their supply chain. By focusing on water usage, energy consumption, and carbon emissions, bluesign has achieved substantial reductions across the board.

### Significant Environmental Achievements, cumulative 2019-2023 across 226 partners:

- ✦ **Total Water Savings:** 6,293,287,000 liters of water through efficient practices and innovative recycling processes
- ✦ **Total Energy Savings:** 773,567,120 kWh
- ✦ **Total Carbon Emissions Reduced:** 3,268,276,695 kg in carbon emissions, highlighting the effectiveness of bluesign's holistic approach

bluesign's mission is closely aligned with six key United Nations Sustainable Development Goals (SDGs), emphasizing sustainable development, resource efficiency, and compliance with international standards. These goals provide a robust framework

for global collaboration, ensuring a fair, healthy, and prosperous future for all.

### About bluesign:

The bluesign® SYSTEM is the solution for sustainable textile production. It eliminates harmful substances right from the start of the manufacturing process and sets and controls standards for environmentally friendly and safe production. This ensures that the final textile product meets stringent consumer safety requirements worldwide, giving consumers confidence in purchasing sustainable products.

Founded in 2000, bluesign technologies ag has over 850 system partners, including leading textile and accessory manufacturers, chemical suppliers, and renowned brands in the outdoor, sportswear, and fashion industries. These partners trust bluesign's extensive knowledge and services to collectively reduce the textile industry's impact on people and the planet.

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## In realm of government—industry partnership, NTTM approved Colorjet Group

### ColorJet Group: Mounting the Next Gen of Technical Textiles in India

Textile is one of the oldest industries in India, which flourished since early civilization. With the advent of advanced technology in textiles, India geared up to take its textile legacy to the world. Understanding the role of young talent in this arena, the Government of India, under the umbrella of the National Technical Textiles Mission (NTTM), aimed to bridge the gap between academia and industry, empowering students with hands-on experience and industry exposure. It invited industry leaders to come forward and take up the challenge to make India the textile leader once again.

It is the result of this government-industry partnership that the NTTM under Ministry of Textiles, Government of India, has approved ColorJet Group, the country's foremost manufacturer of wide-format inkjet printer. This partnership marks a significant step towards enhancing innovation and skill development within the industry. It aligns closely with

the mission's objective to position India as a global leader in technical textiles by providing internships to BE/B Tech students from the top 200 NIRF-ranked colleges.

Under the ambit of the Technical Textiles Internship Initiative "Grant for Internship Support in Technical Textile (GSIT) - 2.0, ColorJet Group's skilled R&D team will play a pivotal role in nurturing the next generation of engineers and professionals in the field of technical textiles. This initiative, part of Phase II of the Internship Initiation Program, seeks to narrow the divide between academia and industry by offering practical experience and exposure to B.Tech. students from diverse specializations.

Mr. M.S Dadu, Chairman of ColorJet Group, expressed his appreciation for being empanelled by the Government of India for this initiative, highlighting the company's commitment to fostering innovation and skill development. He emphasized ColorJet's belief in the potential of India's young talent to drive the industry forward and contribute at Global level.

The Technical Textiles Internship Initiative focuses on several key objectives, including strengthening academia-industry linkages, providing structured industry placements, and exposing students to real-world technical challenges and managerial skills. By participating in this initiative, ColorJet Group aims to familiarize students with technological developments, applications, and quality control aspects specific to technical textile printing.

ColorJet Group's involvement underscores its role in driving research, innovation, and development within the technical textiles domain. Through this initiative, the company seeks to contribute significantly to the growth and global competitiveness of India's technical textiles industry. By nurturing a skilled workforce and fostering a culture of innovation, ColorJet Group is helping to shape the future trajectory of India's technical textiles sector.

As India progresses towards becoming a global leader in technical textiles, partnerships like the one between ColorJet Group and the Government of India are pivotal in paving the way for innovation, sustainability, and excellence in this crucial industry. With a firm commitment to advancing education, skill development, and industry-academia collaboration, ColorJet Group stands at the forefront of driving transformative change in the technical textiles landscape,

preparing the next generation of leaders to propel India forward on the global stage.

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## Italian Textile Machinery Industry is all set to accept new challenges launched by the Green Transition

Maintaining a focus on innovation despite the uncertainties that characterize the current international scenario was emphasized during the General Assembly of ACIMIT, the Italian Textile Machinery Manufacturers Association, held in Milan on July 9. ACIMIT president, Marco Salvade, showcased the data of the Italian textile machinery industry. In 2023, production decreased by 16%, settling at a value of 2.3 billion euros, as did exports, which also fell by 16% (2 billion euros).

China, Turkey, India, and the United States remain the main destinations for Italian textile machinery manufacturers. In 2023, demand for machinery in these markets was weak, but some positive signals emerged in the first quarter of the current year, especially from the Chinese market and again from Egypt, Pakistan, Brazil, and Japan. "2024 will still be a year characterized by many uncertainties," commented Salvade, "mainly due to the uncertainty of the geopolitical situation and fluctuations in final demand".

In an especially difficult international scenario and with a still sluggish market, the Italian textile machinery sector remains a leader alongside a few other Countries, such as China, Germany, and Japan. "Our sector is renowned worldwide for its reliability, know-how, and the uniquely Italian ability to combine tradition and innovation," noted the ACIMIT president. Accelerating innovation remains crucial, particularly to meet the challenges that await Italian manufacturers in supporting textile companies on their sustainable transition journey.

To highlight the opportunities that the European green transition opens up for technology suppliers, the public section of the ACIMIT General Assembly addressed a very current issue: textile recycling. The EU's legislative guidelines aim to accelerate the green and circular transition of the textile sector with




## CORPORATE NEWS

various actions: from ecodesign to EPR, from waste export regulation to green claims. Meanwhile, there is a growing demand for recycled textile fibers driven by the sustainable policies of brands that should not be underestimated.

Thus, technologies play an important role in providing solutions to companies engaged in the new circularity supply chain: from sorting and selection of garments to preparation phases and recycling processes. During the event several speakers agreed that the experience and capabilities of the Italian textile and textile machinery sector should be fully leveraged at this crucial stage for the entire supply chain. As President Salvade noted, "Textile machinery companies intend to increase R&D activities in this area, collaborating with their textile customers in the belief that the circular transformation of business models also represents an opportunity for technology suppliers to increase their competitiveness."

ACIMIT - Association of Italian Textile Machinery Manufacturers, represents an industrial sector that comprises roughly 300 manufacturers, which produce machinery for an overall worth of around 2.3 billion euro, of which 86% are exported. Creativity, sustainable technology, reliability and quality are the hallmarks that have made Italian textile machinery worldwide leaders.

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## Faherty Brand unveils Collection Made with CIRCULOSE®

Circulose, the Swedish innovator behind the circular material CIRCULOSE made out of 100% textile waste, is proud to announce its collaboration with Faherty Brand, a leading American lifestyle brand, on the launch of a new collection made using CIRCULOSE. This partnership marks a significant step forward in the fashion industry's commitment to sustainability, offering consumers high-quality circular garments.

CIRCULOSE is a groundbreaking material made from 100% recycled textiles, such as worn-out cotton clothes and production scraps, transformed into highly performing products. The collaboration with Faherty Brand showcases CIRCULOSE in a collection that blends timeless design with a dedication to reducing environmental impact.

"Over the past months, Faherty Brand has been diligently working with suppliers to develop our Fall 2024 launch of viscose made with CIRCULOSE. This adoption contributes to a positive environmental impact, aligning with our broader impact goals. It also supports our commitment to Canopy by encouraging the use of Next Generation fibers. By integrating CIRCULOSE into our products, we're taking significant steps towards a more circular and responsible fashion industry," said Lisa Diegel, Director of Global Sustainability at Faherty Brand.

"It is exciting to be working with Faherty Brand and to boost our shared vision for circular fashion by using CIRCULOSE into the collection. This partnership is a testament to exemplary collaboration aimed at implementing a scalable model for circularity. CIRCULOSE is the only Next Gen material made from 100% recycled textiles that is available at scale. Thank you for believing in our vision and helping us take steps toward a more sustainable future in fashion," said Anna Sammarco, Senior Director Business Development and Strategy at Circulose.

Faherty Brand's new collection features garments made with CIRCULOSE, marking the beginning of the use of CIRCULOSE, with more coming in spring 2025. This collaboration not only highlights the versatility of CIRCULOSE as a fabric but also demonstrates Faherty Brand's ongoing efforts to incorporate sustainable practices throughout their production processes.

The collection's alignment with Canopy Planet's goals further emphasizes Faherty Brand's commitment to supporting Next Generation fibers and contributing to a better planet.

The new collection is now available at Faherty Brand stores and online. Customers can enjoy garments that combine the brand's signature relaxed style with the innovative, circular benefits of CIRCULOSE.

To learn more about Circulose visit [www.ciculose.com](http://www.ciculose.com).

### About Circulose

Ciculose is a Swedish sustain-tech company that developed a patented process that enables the recycling of cellulosic textile waste, such as worn-out cotton clothes and production scraps, transforming it into a new material called CIRCULOSE. Fast Company named Circulose (formerly Renewcell) one of the World's Most Innovative Companies in 2021 and was a winner of the 2023 World Changing

Ideas Awards. CIRCULOSE was also included on TIME Magazine's list of the 100 Best Inventions 2020. Founded by innovators from Stockholm's KTH Royal Institute of Technology in 2012, the award-winning company's vision is to make fashion circular.

#### About Faherty Brand

Faherty is a family-led brand founded by Alex, Mike and Kerry in 2013 - built on the highest quality products, making things better and always spreading good vibes. The company lives by five core values: be the best, stay authentic, better together, spread good vibes, deliver on promises and lead consciously, bravely and inclusively. Inspired by the sun and waves, and anchored in their Guarantee of Quality, Faherty takes a multifaceted approach in living their values and how they show up for their communities, customers, partners, and the planet.

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### Custom Ink Delivers Fast, Accurate and Premium Quality Custom Apparel with On-Demand Technology from Kornit Digital

**Custom Ink has chosen Kornit technology to strengthen its production capabilities**

- » Shifts significant volume from traditional screen to high-quality, sustainable on-demand digital production – unleashing creativity and delivering designs without compromise
- » Kornit MAX technology powers premium-quality apparel with exceptional agility, allowing Custom Ink to offer a world-class custom apparel and swag experience

Kornit Digital LTD. (NASDAQ: KRNT) ("Kornit" or the "Company"), a worldwide market leader in sustainable, on-demand digital fashion and textile production technologies, announced today that Custom Ink, the online leader for custom wearables and other swag for organizations, groups, and communities, has chosen Kornit technology to bolster its production capabilities. By transitioning a significant share of its printing from screen to digital direct-to-garment production, Custom Ink is supporting

the growth of its business while accelerating its digital transition through a sustainable printing technology and providing customers with the highest-quality custom apparel, gear, and swag.

Custom Ink has become a household name by bringing communities together and creating a sense of belonging through inspired custom apparel, accessories, and promotional products. Custom Ink owns Swag.com, the most recognizable provider of corporate swag; Printfection, a leading swag platform for enterprise buyers; and Swag Space, an end-to-end white-label platform for promotional product distributors. It also offers Custom Ink Fundraising, a platform to raise money and awareness for charities and personal causes through the sale of custom t-shirts and other apparel.

Custom Ink has historically relied on both screen and digital printing technologies, but the increasing demand for rapid fulfillment, coupled with the need for sustainable and efficient production methods, has accelerated its shift toward digital technologies. By partnering with Kornit fulfillers worldwide, Custom Ink is enhancing production capabilities, reducing its environmental footprint, and maintaining the highest standards of quality.

"At Custom Ink, our mission has always been to bring people together and build communities through custom apparel, gear, and swag. As we continue to innovate and adopt faster, more agile solutions, we've accelerated our adoption of Kornit's digital on-demand technology in our production workflows to deliver fast, accurate, and premium quality designs," said Eric Stockl, Chief Operating Officer at Custom Ink.

"The apparel industry is evolving, and companies must evolve with it. Today's businesses and consumers value the ability to have unlimited design capabilities, with fast delivery time and produced sustainably. While screen printing has been the standard for years, Kornit's advanced digital solutions are revolutionizing the market – allowing customers to effectively express their feelings, likes and emotions through the things they wear," said Ronen Samuel, Chief Executive Officer at Kornit Digital.

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## TEXTILE EVENTS

### ITMA ASIA+CITME

Singapore 2025

28-31 October 2025

#### Leveraging Advanced Textile Recycling Technology to Promote Sustainability & Circularity

Textile and its production are huge contributors to environmental waste, which is why there is an urgent need to transform the textile industry into a sustainable and circular value manufacturing chain. This growing need created exciting opportunities for the textile recycling sector.

The Asia Pacific, and the Middle East and Africa markets are expected to grow to US\$3.1 billion and US\$608.7 million respectively by 2027 (Business Market Insights).

#### Reshaping the Industry with Sustainable Business Opportunities

Industry growth is being propelled by cutting-edge technologies, including the adoption of recycled and advanced fibre recycling technologies. Technology providers are also collaborating with each other and with industry partners to create innovative products or to offer complementary solutions.

Exhibit at ITMA ASIA + CITME, Singapore 2025 to meet quality buyers, find new business partners and collaborate with exhibitors for cross-promotion of technologies!

#### A Proven Business Platform to Propel Regional Growth

A dedicated showcase of technologies and solutions for the entire textile and garment making value chain, ITMA ASIA + CITME, Singapore 2025 is the platform to showcase your technologies to a growing market.

With the growing need for sustainable waste management, textile manufacturers are sourcing quality recycling solutions to address impending legislation on textile collection and eco-friendly designs. ITMA ASIA + CITME 2025 will be an excellent regional platform for us to showcase our latest automated sorting machines."

Singapore – where passion is made possible.

**Mr Dieter Wittouck, CEO, Valvan nv**

This expansion of the exhibition from Shanghai to Singapore recognises the growing needs of the Asian textile industry, especially India. The industry today is looking for technologies to meet its need for optimising production, minimising supply chain risks, better control of quality and

finishes, and enhancing sustainability in all aspects of production."

**Ms Chandrima Chatterjee, Secretary General, Confederation of Indian Textile Industry (CITI)**

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### Post show events of Intex Sri Lanka 2024; a success story

#### Intex Sri Lanka 2024 – Record-breaking attendance of domestic & international buyers representing 20+ countries/regions

Intex Sri Lanka 2024 commenced on a high note, attracting a stellar gathering of industry leaders, global dignitaries, and trade representatives. The grand opening ceremony was a testament to the show's stature in Sri Lanka as a premier international sourcing platform for the textile and apparel industry.

The grand opening ceremony of Intex & InMac Showcase was graced by the presence of Ambassadors, High Commissioners, Economic Counsellors as well as senior officials and representatives from trade offices and government agencies from 14 countries. The show was inaugurated by Dr. Satyanjal Pandey, Deputy High Commissioner of India in Colombo (Chief Guest); Dr. Kingsley Bernard, Chairman & Chief Executive, Sri Lanka Export Development Board (Guest of Honour) and Mr. Yohan Lawrence, Secretary General, Joint Apparel Association Forum of Sri Lanka (Special Guest) in presence of representatives from KOTRA, JETRO, TEXPROCIL and senior officials and members from industry associations and business chambers.

Over 175 exhibitors from 12 countries including Korea, Taiwan, Japan, Sri Lanka, India, Pakistan, China, Thailand, Netherlands, Germany, Luxembourg and USA showcased the latest natural and MMF fibres & yarns, textiles & fabrics, trims & accessories, dyes & chemicals and software solutions. This year also witnessed the successful launch of the InMac - International Garment Machinery and Technology showcase alongside Intex Sri Lanka where over 30 brands from 15+ countries showcased solutions ranging from Fashion 3D software, bonding machines and pad-printing technology to new technology knitting, textile machinery to AI-based sewing and embroidery machines as well as machine spare parts and accessories. More than 85% of



the exhibitors generated good leads and business enquiries and some also received onsite orders from the buyers that visited them during the show.

Speaking at the opening ceremony, Mr. Yohan Lawrence, Secretary General, Joint Apparel Association Forum (JAAF) said, "Intex has always been a really good show for the industry which brings together international suppliers of yarns and fabrics and this year, they have introduced InMac to showcase new technology and machinery as well. The show is extremely popular amongst the larger as well as smaller companies as the show enables all to meet and find new suppliers closer to the markets. We are very happy to be present here and support the show".

Over 6000 trade visitors from 20 countries visited the show over 3 days. More than 200 overseas buyers including two hosted buyers' delegations from Russian Fashion Industry Association (RAFI) and South India Garment Manufacturers Association (SIGMA) attended the show to fulfil their sourcing requirements. Other international buyers from Mexico, India, Japan, Pakistan, Qatar, Singapore, Indonesia, Maldives, Seychelles, Thailand, UAE, UK and USA connected with participating exhibitors through one-on-one meetings organised at Intex Sri Lanka.

Ms. Natalia Bnatova, Development Director, Russian Association of Fashion Industry (RAFI), was delighted to be present at Intex. She said that, we came to Intex with a delegation of Russian buyers to explore the markets and opportunities in the region. It's our first time in Sri Lanka at Intex and our buyers are really finding interesting suppliers and value partners for their wholesale and brand businesses in Russia and CIS countries. We are very enthusiastic about our future and we look forward to working with Sri Lanka, Pakistan and Indian companies in the future.

The renowned Interactive Business Forum (IBF) Seminar Series hosted two panel discussions on 'Prospects & Challenges for Sri Lanka in the Global Readymade Garment Arena' and 'the Growing Trend in Synthetic Knit Fabric Business in Sri Lanka' as well as two industry presentations were made by representatives of The Global Organic Textile Standards (GOTS) and The Cotton Textiles Export Promotion Council (TEXPROCIL). This knowledge platform saw global business leaders, entrepreneurs and academics connect and collaborate with each other.

Speaking at the Forum, Mr. Asanka Wimalratna, CEO, Knit Apparel, Brandix Apparel Solution, Sri

Lanka, said that it's a fantastic event and forum bringing the industry and community together, because it was a great opportunity for engagement and dialogue as well as to showcase all the capabilities that are available in the industry as well as across India, Bangladesh and Sri Lanka which is a great eye opener for the Sri Lankan industry. I congratulate the organising committee for holding this insightful forum in Sri Lanka and I hope we will see more of these events in future.

This year, one of the major highlight at Intex Sri Lanka was the India – Sri Lanka Textile Forum that was jointly organised by The Cotton Textiles Export Promotion Council (TEXPROCIL) along with the Joint Apparel Association Forum of Sri Lanka (JAAF) on 8th August 2024 at BMICH followed by a networking dinner. The forum brought together industry leaders and stakeholders from both nations to foster collaboration, explore new opportunities, and strengthen the textile and apparel trade between India and Sri Lanka. More importantly, the forum endeavoured to identify Sri Lankan and Indian industry requirements through focused discussions to bridge the gaps, streamline procurement processes and build stronger partnerships which would lead to the creation of a robust ecosystem benefitting both Indian and Sri Lankan stakeholders. The Indian delegation was led by Mr. Rajesh Satam, Joint Director of The Cotton Textiles Export Promotion Council (TEXPROCIL) while the Sri Lankan delegation was led by Mr. Yohan Lawrence, Secretary General for the Joint Apparel Association Forum of Sri Lanka (JAAF).

Overall, Intex has proved to be the most relevant international textile sourcing platform in Sri Lanka as well as the premier annual industry event for the textiles and apparel industry of Sri Lanka.

With a great pleasure Dates of Intex South Asia for 2025 announced as follows:

16th Intex Bangladesh  
25th to 27th June, 2025, Halls 1 to 5, ICCB, Dhaka  
17th Intex Sri Lanka  
6-7-8 August, 2025, Halls 1 to 5, BMICH, Colombo

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## TEXTILE EVENTS

**PAMEX 2026****27-30, January 2026****PAMEX Crosses the milestone, 10,000 Sqm Mark, Portending The Largest-Ever Edition In 2026**

PAMEX 2026 recently crossed the milestone of booking over 10,000 square meters of exhibition space. This early achievement signifies momentous interest and participation from exhibitors across the printing and packaging industry and portends a significantly larger edition in 2026.

Here's an elaboration on what this milestone indicates:

**Industry Interest and Growth:** Crossing the 10,000 square meter mark this early indicates strong interest and confidence within the printing and packaging sectors. Exhibitors are keen to launch or showcase their latest technologies, products, and services to a diverse audience of industry professionals.

**Expanded Showcase Opportunities:** PAMEX has a larger exhibition area in this edition, which can accommodate a broader range of exhibitors and showcase a more extensive array of technologies and innovations. Attendees will benefit from a richer and more diverse experience, gaining insights into cutting-edge developments in the sector.

**Networking and Business Opportunities:** A valuable exhibition like PAMEX provides a platform for networking, business development, and partnerships within the industry. The record-breaking sales figures from each previous edition of PAMEX undoubtedly contribute to the expectations held by both new and returning exhibitors for the show.

**ROI from International Exhibitions:** The 2024 edition of drupa fell significantly short of its goals, with only 170,000 attendees, a drop of nearly 35% compared to 2016. Industry consolidation and tightened budgets compounded the issue, exacerbated further by a wave of visa refusals. Chinese exhibitors constituted the majority, occupying roughly 37% of the booths. The fact that these Chinese exhibitors can also be found at any Asian Expo that visitors find more accessible is likely to keep visitors away from the future editions. This is also likely to contribute to the importance of the exhibitions held in India.

Overall, the Indian printing industry shows promising growth, propelled by technological advancements, diversification of markets, and a commitment to sustainability. As it evolves further,

the industry is poised to significantly contribute to India's economic development and enhance its global competitiveness.

"PAMEX, the most valuable printing exhibition, has always believed in quality of visitors over the quantity of visitors, keeping the tyre-kickers at bay. Crossing the 10,000 square meter mark for exhibition space this early, guarantees the largest edition, yet. It also underscores the significance of the Show as a leading industry event while highlighting the robustness and dynamism of the printing and packaging sectors, it serves," says Anil Arora, President, Print-Packaging.com Private Limited.

Over 200 companies have already reserved their booths at PAMEX 2026, with one major hall now designated as 'sold out'. "We have surpassed the 10,000 sqm mark, with the show still 1.5 years away. In today's landscape, the bigging up strategies don't resonate, so sharing this news aims to underscore the industry's commitment to business and growth," shared Tushar Dhote, Chairman-PAMEX, All India Federation of Master Printers.

PAMEX, organised by All India Federation of Master Printers (AIFMP), in association with Print-Packaging.Com Private Limited (PPCPL), is scheduled to be held from 27-30 January 2026 at Bombay Exhibition Centre, Mumbai.

**For further information, please contact :**  
**Print-Packaging.com/ReEnvision Events**  
**F101, First Floor, International Infotech Park,**  
**Tower 7, Sector 30A, Abv Vashi Railway Stn.,**  
**Vashi, Navi Mumbai-400705, Maharashtra**  
**Tel: 91-22-27812093, 91-22-27812619**  
**Email: info@print-packaging.com**  
**Website: www.bharatprintexpo.com/**  
**www.pamex.in** □

**HanoiTex 2024****Vietnam Hanoi Textile & Garment Industry Expo 2024**  
**23 - 25 October, 2024, ICE, Hanoi, Vietnam**

Vietnam's textile and garment export has reported a 4.6% increase (compare to 2023), reaching US\$16.5 billion in the first half of 2024.

**More FDI invest in Vietnam**

Vietnam's textile and garment sector had attracted over USD37 billion in foreign direct investment (as of the end of May 2024), in the weaving, dyeing and fabric infrastructure.

**Hanoi (North Vietnam) - New production base of Vietnam**

- ⇒ Lower cost (labour, production and land) compare to Hochiminh City
- ⇒ Vietnam is promoting and investing the infrastructure of northern Vietnam
- ⇒ Cheaper land transport for supplies from China based on its vicinity
- ⇒ Many local & international textile and garment factories have already moved to the northern Vietnam

**Exhibition space will soon be sold out - Register now!**

All the exhibition space in main hall A1 already sold, over 90% of exhibition space in hall A2 also been sold/reserved.

**Other events in Vietnam:**

SaigonTex 2025 (35th year)

Vietnam Saigon Textile & Garment Industry Expo  
9 - 12 April, 2025, SECC, Hochiminh City, Vietnam

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Wechat: [cpexhibition](https://www.vhanoitex.com))

visit [www.vhanoitex.com](http://www.vhanoitex.com) □

**Online Visitor Registration for ITMA ASIA + CITME 2024**

Visitors to ITMA ASIA + CITME 2024, Asia's leading business platform for textile machinery, can register their visit online to take advantage of early bird rates. The combined exhibition will be held from 14 to 18 October 2024 at the National Exhibition and Convention Centre, Shanghai, China.

Visitors who pre-register on the combined show websites ([itmaasia.com](http://itmaasia.com) and [citme.com](http://citme.com)) by 13 October will enjoy early bird rates which are at a 40% discount. The early-bird rates are US\$9 (RMB 60) for a five-day badge and US\$5 (RMB 30) for a one-day badge. Standard onsite rates are RMB 100 for a five-day badge and RMB 50 for a one-day badge.

The combined show owners - CEMATEX and the Sub-Council of Textile Industry, CCPIT (CCPIT-TEX), China Textile Machinery Association (CTMA) and China Exhibition Centre Group Corporation (CIEC) are pleased with the positive response received for space application. Compared to the previous edition, the size of the exhibition is expected to be bigger.

To-date, about 1,700 leading textile machinery manufacturers have applied for space. Among them are CHTC, Cixing, Fadis, Groz-Beckert, Itema, Karl Mayer, Memminger-Iro, Murata, Picanol, Rifa, Saurer, Savio, Shima Seiki, SPGPrints, Staubli, Tsudakoma, Truetzschler, Toyota, Vandewiele and Yoanton.

Mr Ernesto Maurer, President of CEMATEX said: "The textile industry is undergoing rapid transformation due to factors such as digitalisation and sustainability. Automated systems are driving efficiency across fibre processing, yarn production, weaving, dyeing and finishing. Textile machinery manufacturers are excited to promote these technologies at the upcoming ITMA ASIA + CITME exhibition."

Mr Gu Ping, President of China Textile Machinery Association concurred: "The textile industry is witnessing rapid changes driven by the progress of the Internet and AI technological advancements, and textile processing technologies are also developing rapidly. ITMA ASIA + CITME 2024 will showcase the latest development trends of the global textile machinery sector. We warmly invite buyers to visit the exhibition to source the highest quality and efficient technologies."

Featuring 18 product chapters of the textile-making manufacturing chain, ITMA ASIA + CITME 2024 will showcase a comprehensive range of machinery, from spinning, weaving, knitting, nonwoven, printing and inks, dyeing and finishing, to garment making, recycling, testing and packaging.

The previous edition - ITMA ASIA + CITME 2022 - was successfully staged, grossing over 160,000 square metres of the exhibition venue. It featured more than 1,500 exhibitors from 23 countries and attracted visitorship of 100,000 from 105 countries and regions.

ITMA ASIA + CITME is organised by Beijing Textile Machinery International Exhibition Co., Ltd and co-organised by ITMA Services. Japan Textile Machinery Association is a special partner of the combined show.

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**14 - 18 October 2024**

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# THE XL COMBER



## Productivity booster: **The TCO 21XL**

The new Trützschler heavy-duty comber maximizes productivity by 50% and saves 25% space – without compromising quality. It delivers consistent, superior sliver quality on 12 heads thanks to Trützschler's torsion-resistant design with DUAL DRIVE and 2TWIN DRIVE. Operating 12 instead of 8 heads reduces energy consumption by

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SPINNING



# SCIENCE IN INDUSTRY

## Trützschler Group SE

### Trützschler's Next Generation Carding Machine, TC 30i: Convincing customers with strong results

Trützschler's next-generation carding machine entered the market in January 2024 – and it's now convincing yarn manufacturers across the textile industry worldwide. The machines have achieved excellent results during tests with customers in Türkiye and in other countries. It achieved up to 40 % higher productivity while reducing energy consumption by up to -18%.



Impressed by TC 30i. From left to right: Burak Ateş (Owner Mayfil Tekstil), Osman Kutlutürk (Regional Service Manager Trützschler Temasa) and Önder Bilir (Factory Manager Mayfil Tekstil).

### Higher productivity, less energy consumption

Mayfil Tekstil is a leading company in the Turkish textile industry for the production of textured yarn. It is headquartered in Nilüfer/ Bursa. Founded in 2005, it has grown rapidly by prioritizing customer satisfaction. In 2022, Mayfil invested in a modern vortex airjet spinning facility that can produce up to 35 tons per day. And the company was keen to take a close look at the TC 30i for man-made fibers to explore its potential to drive progress toward Mayfil's ambitious growth plans. In February 2024, Mayfil Tekstil conducted tests with the TC 30i. The next-generation carding machine produced 140 kg/h viscose, which is more than 40 % higher than the 95 kg/h Mayfil produces with the current benchmark. The new carding machine also decreased electricity consumption by 18 %. Based on these results, Mayfil is purchasing further TC 30i cards.

### Results confirmed

Göl Iplik Şeremet Tekstil Sanayi ve Ticaret A.Ş., located in Inegöl Bursa, operates three factories that deliver a variety of high-quality products, with a specialization in blended yarns. Investment in modern equipment and pioneering new products that expand its portfolio are at the heart of Göl Iplik's success across almost four decades. Göl Iplik also tested the TC 30i for man-made fibers in early 2024. This Trützschler customer took a close look at the TC 30i during rigorous viscose trials. The TC 30i achieved a 40 % higher productivity rate with the same level of quality, while consuming 15 % less power. Göl Iplik now intends to include the TC 30i in its future investment strategy.



The blended yarn specialists at Göl Iplik Şeremet Tekstil Sanayi ve Ticaret A.Ş.: From left to right: Erdinç Şeremet (Deputy Chairman of the Board of Directors) and Mümin Tarlak (Deputy General Manager).

### Promising feedback

The TC 30i is still a newcomer in the textile industry – but its reputation is growing rapidly as spinning companies around the globe experience its range of smart features and functions. Its contributions to productivity, quality and resource efficiency are convincing. More and more companies around the world are now ordering our TC 30i. We are happy to convince more customers worldwide.

### Benefits of the TC 30i:

- 1) **Best quality from any raw material:** High levels of productivity and yarn quality thanks to 35 % more active flats, the longest carding length in market and the T-GO automatic carding gap optimizer.
- 2) **Operator-independent performance:** Consistent results without relying on manual operators thanks to automatic, real-time optimization of the carding gap with T-GO.

## SCIENCE IN INDUSTRY

- 3) **Value-adding waste handling:** Innovative waste suction system collects and separates different types of waste. More than 50 % of card waste can be reused or sold to third parties for an attractive price.

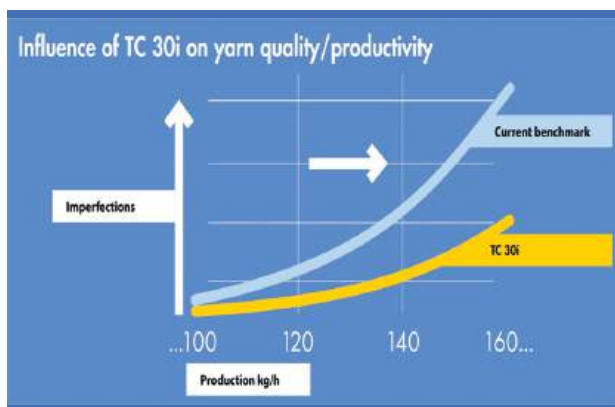


Diagram: For producing man-made fibers, the TC 30i achieves significantly less yarn imperfections when the production volume increases.

#### About Trützschler

The Trützschler Group SE is a German textile machinery manufacturer headquartered in Mönchengladbach, Germany. The company is divided into three business units: Spinning, Nonwovens and Card Clothing. Trützschler machines, installations and accessories are produced and developed in nine locations worldwide. This includes four factories in Germany (Dülmen, Egelsbach, Mönchengladbach, Neubulach), as well as sites in China (Jiaxing and Shanghai), India (Ahmedabad), the USA (Charlotte) and Brazil (Curitiba). Service companies in Türkiye, Mexico, Uzbekistan and Vietnam and service centers in Pakistan, Bangladesh and Indonesia provide customer proximity in key regions for the textile processing industry. For more information visit: [www.truetzschler.com](http://www.truetzschler.com).

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**[www.truetzschler.in](http://www.truetzschler.in)**



## Oerlikon

**Pumps with magnetic coupling - when safety counts**

**Precision gear pumps increases the productivity of complex manufacturing process**

Polyurethane has become an integral part of our daily lives, whether in the construction industry, in leisure activities, in the manufacture of furniture or in numerous other applications. The precision gear pumps from Oerlikon Barmag, which will be presented at this year's UTECH Asia / PU China 2024 in Shanghai (booth 230), impress with customised solutions for demanding tasks in the chemical industry. They increase the productivity of the often complex manufacturing processes for this wide range of applications.

#### Components for all cases

Oerlikon Barmag pumps reliably handle demanding processes in PUR applications, in the chemical, plastics or paint and lacquers industries. One of the greatest challenges lies in the highly accurate and reliable metering of toxic or low-viscosity media. With the GM and GA series and the associated components, Oerlikon Barmag presents the optimum equipment for these applications.

"The magnetic couplings used specifically in the GM series fulfil the expectations of the manufacturing industry with their low maintenance requirements. In addition, they meet the high safety standards of the chemical industry, e.g. for compliance with clean air ("TA-Luft") regulations," explains Andreas Heitzer, Sales Director of the Pumps business unit at Oerlikon Barmag. "If personal maintenance of a standard sealing is not possible or only possible to a limited extent due to a critical medium, magnetic couplings are the method of choice," he continues. If the product chamber of the pump must be sealed airtight to prevent undesirable reactions, magnetic couplings are used. Magnetic couplings are also used in vacuum processes. They also improve the suction behaviour of the pump.

### GM pump - a series for different operating conditions

Pumps in the GM series achieve precise dosing by feeding the flow with low pulsation. The multi-stage GM pump conveys low-viscosity media even under high pressure and the most difficult operating conditions (e.g. 250 bar, 100 mPas). The standard pump for many dosing tasks is the GM series in a square design. With the development of the multi-stage pump, the range of applications for the GM series has been significantly expanded. The round 2-stage GM pump has been specially developed for use in high-pressure technology. It fulfils the special challenge of pumping small flow rates with low viscosities. The pump serves flow rates from 0.05 to 20 ccm/rev and is therefore particularly suitable for the production of PUR moulded parts, block foam, refrigeration unit insulation or sandwich panels.



The magnetically coupled GM pump is also available with a single drive.

### GA series for higher viscosity media

Making products and processes more efficient is a constant challenge for manufacturing companies. This is why Oerlikon Barmag has added the GA series to the GM series especially for the demanding conveying of high-viscosity media. The GA series is available in delivery volumes of 1.25 - 30 cm<sup>3</sup>/rev (0.6-144 l/h). It is designed for pressures up to 200 bar, for viscosities up to 1,500 Pas and for temperatures up to a maximum of 225°C. With this pump series, Oerlikon Barmag offers customised solutions for process engineering processes where highly accurate and uniform metering is required.

### For highly viscous media - the drum pump

The drum pump from Oerlikon Barmag is specially designed for conveying and dosing

highly viscous materials such as adhesives, silicones and other highly viscous materials from drums and other large containers and for pressures of up to 250 bar. One of its special features is not only that it discharges highly viscous materials from the drum, but also that the medium can be dosed directly without an intermediate stop.

The gear pump and drum follower plate are synchronised so that the plate effortlessly reaches the bottom of the container, leaving behind only a very small residual quantity of < 1%. This reduces material costs and has a positive effect on the production process.

### About Oerlikon Polymer Processing Solutions Division

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

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

The division is part of the publicly listed Oerlikon Group, headquartered in Switzerland, which has more than 12 600 employees and generated sales of CHF 2.7 billion in 2023.



## SCIENCE IN INDUSTRY

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## Benninger AG

**The sustainable way of discontinuous dyeing**  
**Benninger's FabricMaster breaks through in textile**  
**dyeing in India**

The Swiss company Benninger, renowned for its innovative textile machinery, has introduced its latest marvel, the FabricMaster, to the Indian market. This soft flow machine is already making waves globally, with installations in Europe, the USA, Peru, Central America and Bangladesh. Now, it is set to transform the Indian textile industry, with production taking place at Benninger's High Tech Fabrication facility in Pune.



FabricMaster – fast, versatile, and economic jet dyeing machine

The first FabricMaster in India has been operational for a year at Amarnath Dyeing And Bleaching Works Private Limited. The machine's outstanding performance has led Amarnath to order a second unit, underscoring their complete satisfaction with its capabilities. This second machine is now ready to leave the Benninger

Works in Pune, marking another milestone in the FabricMaster's journey.

"This innovative technology transforms our production capabilities, setting new benchmarks in the industry. Our new machines will help us reach our goal of becoming the leader in quality fabric processing while caring about ecology. The machines will help us do so by enhancing our efficiency, reducing waste, and minimizing our environmental impact. This investment not only underscores our commitment to excellence but also to sustainable practices that benefit both our customers and the planet", says Sudarshan Chandak, Director at Amarnath Dyeing And Bleaching Works Private Limited.

### Excellent dyeing performance

The FabricMaster is designed to handle the most challenging dyeing tasks with ease. It excels in dyeing difficult Lycra blends of Cotton, Rayon, Nylon, and Modal fabrics in open width form, without any rope marks or edge curling.

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[www.beaelectronics.com](http://www.beaelectronics.com)

The FabricMaster ensures optimal dye penetration and color consistency achieving uniform fabric handling during the dyeing process. This is ensured thanks to the FabricMaster's nozzle which can be precisely adjusted based on the weight of the fabric being dyed. Lightweight fabrics benefit from low liquor volume, while heavier fabrics are treated with increased flow. Furthermore, the internal fabric plaiter operates at varying speeds, accommodating different fabric types. Moreover, its automated add tank ensures accurate chemical addition simplifying chemical dosing and mixing.

Key factors are minimal consumption of water, steam, chemicals and dyestuff, to ensure right-first-time results with lowest waste. The FabricMaster boasts an optimized chamber design, resulting in the lowest liquor ratio among water-driven piece dyeing machines. The carbon footprint of the FabricMaster is designed to be the future industry benchmark for sustainability.



Benninger FabricMaster – ready to be delivered to Amarnath Dyeing And Bleaching Works

#### Why FabricMaster also stands out

The FabricMaster's self-cleaning lint filter keeps the system running smoothly to enhance productivity. It monitors lint accumulation and automatically cleans itself, minimizing downtime and maintenance hassles. Furthermore, the FabricMaster's high-capacity heat exchanger accelerates heating gradients, reducing cycle times.

After dyeing, unloading the fabric swiftly is crucial. The FabricMaster features a frequency-controlled unloading winch, ensuring efficient

fabric removal without compromising quality. The fabric lift from the chamber to the reel is less than half that of competitors' machines, improving fabric transport.

The FabricMaster is a testament to Benninger's commitment to innovation and quality. As it continues to gain traction in the Indian market, it promises to revolutionize fabric dyeing processes, setting new standards for efficiency, quality and precision to textile dyeing processes.

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## Marzoli

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### Market Information:

#### Global Textile Industry Recovers, But Demand Remains Subdued.

The report suggests that as cotton prices stabilize, value growth is expected to align with volume growth shortly. Indian cotton prices, which were briefly lower than global rates,



have now risen to approximately 13 percent above international levels. This temporary price advantage boosted demand and helped cotton spinners increase their volumes. Despite the

challenges posed by price fluctuations, garment manufacturers reported a 4 percent revenue growth.

#### Camozzi Group — Achievements:

#### Curious about the R&D areas of Camozzi Research Centre?

The Camozzi Research Centre focuses on 4 key research and development areas, all aimed at creating an autonomous factory that fully embraces Industry 5.0 models. Let's explore together!

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## Heberlein

#### ATY one-stop solution provider ready for China

#### Heberlein showcases new HemaJet-LB06 at ITMA Asia + CITME 2024

Heberlein, the leading supplier of air interlacing and air texturing jets, aims to impress visitors at ITMA Asia + CITME 2024 with an amazing technical achievement in DTY and the latest components, including the brand new HemaJet-LB06. The jet housing shows great compatibility and makes the Swiss company a one-stop supplier for air-texturing processing.

In China, the ATY industry is an interesting niche of synthetic yarn production. The sector is exposed to strongly fluctuating cycles and recently at a peak level. Various industries, including fashion, home textiles, and industrial applications demand air-textured yarns for the local market and export. Heberlein reports satisfying ATY business in China. Heberlein optimistically look forward to upcoming ITMA Asia + CITME 2024 in Shanghai (China) where they expect an interested audience for ATY and their jet housing novelty.

Heberlein is also proud to present the latest DTY jetinsert X44.29 with the smallest dimensions ever produced. This jet is designed for applications up to 30dtex – that's super tiny.



Visitors at ITMA Asia + CITME 2024 are welcome in hall 7 at the Heberlein booth D25!

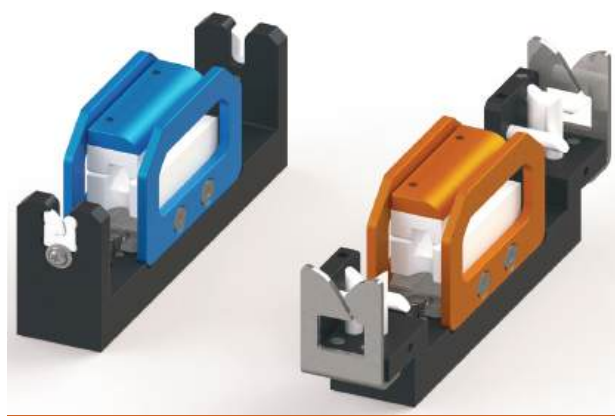
#### HemaJet-LB06 – economic solution for ATY

Heberlein, known for the production of high-quality jets for air texturing, offers the complete solution from a single source. The brand new robust HemaJet-LB06 jet housing is compatible with all jet core series (T, A, and S).



Heberlein HemaJet-LB06

This compatibility makes it an ideal solution for various air texturing process requirements. The distance between the impact body and the jet core can be easily adjusted using various gauges, allowing for precise control and optimization of the texturing process.



Heberlein PolyJet-TG-3

Heberlein jet cores are the reliable solution for ATY since decades. Suiting a wide range of requirements like compact and uniform yarns from 30dtex up to 3,000dtex or softer, textile yarns achieved through a higher overfeed potential, finally Heberlein provides a solution for every application. Customer can choose from the great

jet core portfolio and whatever jet core fits the needs, it fits – guaranteed – the housing too.

#### Savings by the hour in China

Even in China where energy costs are relatively low, the saving potential was recognized. Heberlein's new APe series with the capability to reduce compressed air consumption by 15% with the same number of knots had DTY yarn producers reaching for their calculators. While energy costs are lower in China compared to most markets, a texturizer there still saves about one dollar per hour. For this calculation, Heberlein cites GlobalPetrolPrices.com and uses a price of \$0.087 per kilowatt-hour (December 2023 meridian). It is also based on the industry standard for costing of 0.12 kWh for one Nm<sup>3</sup>. The effective cost savings in China for a machine equipped with APe series jets (288 positions) amount to \$24.3 per day on the basis of 3bar and 24 hours.



Heberlein APe-142

The APe series covers an application range from 67 dtex up to 800 dtex. The new type of jet insert APe141 helps to achieve a high interlacing density of 80 to 160 FP/m and a light to medium stability.

#### The new generation of spinning jet

Worldwide recognition finds the PolyJet-SP3 for spinning textile yarn. For producers of demanding technical yarns the PolyJet-TG-3-HP405A/WO70 (TopAir) produces yarn with unmatched even and uniform interlacing density as well as with strong, reliable knots for high tenacity yarn (HT and HMLS). Heberlein's PolyJet-TG-3 achieves more than 12 knots per meter with 1100f98dtex and 1670f98dtex. Yarn

## SCIENCE IN INDUSTRY

parameters of tensile strength, elongation, and elasticity show smaller variations, for ultimate quality benefits, as well as improved unwinding behaviour of the bobbins.

A typical Heberlein benefit comes with the PolyJet series SP-3 and TG-3. The high-performance air interlacing jets for textile and technical yarns offer a unique quick-release system, so jet packs can be exchanged within seconds, with just a single 180° turn. They also feature a compact, space-saving design and a roll bar to protect the ceramic surfaces.

#### About Heberlein

Heberlein Technology AG is the world's leading provider of air interlacing and air texturing jets for synthetic continuous filament yarns. Heberlein's core competence is the development and production of highly specialised key components for process-optimised treatment and finishing of synthetic yarns – especially filaments. Heberlein develops products for

significant process improvements and energy savings, based on latest flow simulations and extensive trials at its headquarters in Switzerland.

Heberlein operates an in-house textile centre equipped with a range of cutting-edge filament processing machinery, and a laboratory for analysis and testing of filament yarns. A dedicated customer service centre is the focal point for the top-level support worldwide clients require for their individual solutions.

Since 1835, Heberlein products have been renowned for their innovative technology, durability and optimal cost-benefit performance.

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## Crealet AG

**Interview with Mario Kuster, a development engineer of Crealet AG**

**Mario Kuster on sustainability, challenges and trends**  
**Mario Kuster, Development Engineer, and Member of the Executive Board at CREALET AG**

Mario Kuster plays an important role at CREALET AG as a development engineer and member of the executive board. In his role, he is responsible for the development and implementation of new technologies and products. He also makes strategic decisions that contribute significantly to the successful development and success of the company.

CREALET has prioritized the development of energy-efficient systems that reduce energy consumption without compromising performance. This philosophy is firmly anchored in our corporate culture and is at the forefront of all our developments.

If the systems can be used more efficiently thanks to improved warp feed systems and better quality is achieved at the same time, a step towards sustainability has definitely been taken.



Mario Kuster, Development Engineer

**Correct and constant warp thread tension in the selvage area is crucial.**

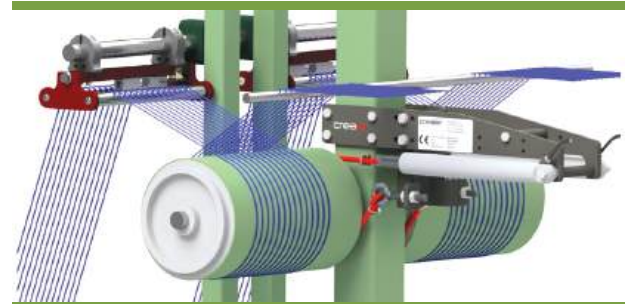
A decisive factor is the correct and constant warp thread tension in the selvage area. Finishers, both internal and external, do not like fabrics with wavy edges, for example. Poor quality, especially in the selvages, leads to unnecessary waste material,

new production, loss of time and other problems. This is not sustainable.

This can be avoided or at least greatly improved. Correct and constant warp thread tension in the selvage area is also crucial. CREALET products are used for this purpose.

**CREALET is best known for its electronic warp feeders. Can you give us a brief overview of the individual feeding solutions?**

It is no secret that CREALET specializes in electronic warp feeders for the textile industry. We have been setting standards in the industry since 2003 and offer customized solutions for broad and narrow weaving machines as well as warp knitting machines. Our goal is always to improve the efficiency and precision of weaving processes.



**We are particularly proud of our state-of-the-art solutions for narrow weaving.**

We are particularly proud of our state-of-the-art solutions for narrow weaving, which ensure uniform warp tension from full to empty warp beams. Our expertise covers the entire spectrum of warp feeding, from creels and warp beams inside, above and outside the weaving machine to selvage bobbins for catch selvages.

Our solid market position in the textile industry is strengthened by our partnerships with COMSAT from Spain and AEI from the USA.

COMSAT's product range includes direct and sectional warping machines, creels, fabric foaming machines, batch winders, edge winding machines and customer-specific projects. Appalachian Electronic Instruments develops and manufactures products for quality assurance in the fields of tafting, warp knitting and warp preparation.

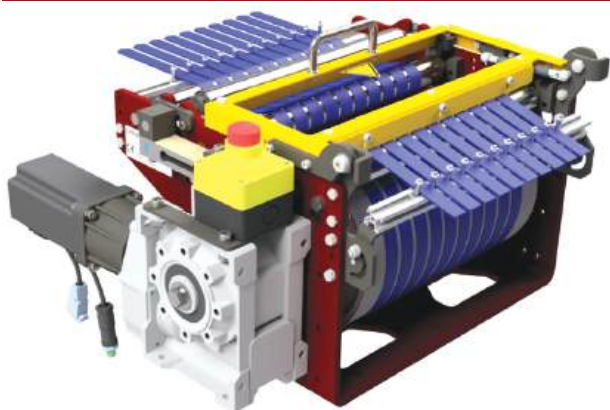
**Can you imagine entering new markets with CREALET AG?**

It is quite possible that other markets are of interest to CREALET. However, this requires



## SCIENCE IN INDUSTRY

in-depth knowledge of the respective industries in order to understand the specific requirements and challenges. One obvious option would be to extend our expertise in the textile industry to other areas of application.



There is a market for the customized manufacture of textile components with eyelets, hooks and buckles, etc. If these processes can be carried out directly by the textile manufacturers, additional added value can be generated. However, these assemblies require optimized processes and special machines. Thanks to our network, our experience and our technical know-how, we are able to offer such services.

**What distinguishes CREALET from other manufacturers on the market? What are the unique features of your warp feeders and what feedback do you receive from your customers?**

CREALET's systems differ significantly from the standard products developed by weaving machine manufacturers specifically for their machines, as well as from those of competitors in this field. Our specialty lies in finding the optimum solution for special applications.

**We specialize in finding the optimum solution for every application.**

An outstanding feature of our systems is their modular design. This modularity enables easy adaptation to different weaving machine types and production requirements. We offer solutions for very low warp thread tensions, as required when processing fine yarns, through to extremely high warp thread tensions, which are necessary in the production of woven synthetic fabrics.

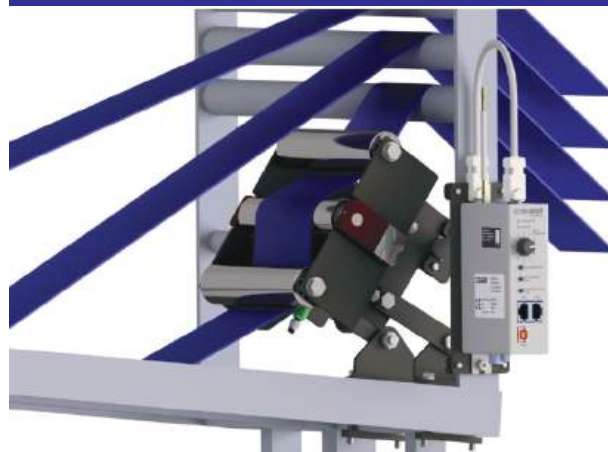
The feedback from our customers is extremely varied and reflects the various challenges that

we solve for them. One particularly meaningful piece of feedback is the number of repeat orders, which clearly show that our products meet the needs and expectations of our customers.

In addition, our long-standing presence of over 20 years on the market is clear proof of our customers' appreciation of our products.

**Electrical engineering, microelectronics and mechatronics are becoming increasingly important.**

The technology landscape is constantly evolving and specializations in areas such as electrical engineering, microelectronics and mechatronics are becoming increasingly important. We are specifically looking for partners who are prepared to find creative and unconventional new solutions.



The diversity and variety of the daily challenges in my work are what inspire me every day. This work gives me the opportunity to contribute directly to the further development of our company and to create innovative products that enrich the market. The combination of technical know-how, creativity and collaboration with committed partners makes my job an extremely fulfilling and exciting task.

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# INDEX TO ADVERTISERS

SEPTEMBER 2024

Name	Page	Name	Page
Agma Products	21	New Make Industries	*
Associated Autotex Ancillaries Pvt. Ltd.	3	OM Corporation	64
Aspire Grand Excel Automation	11	Paras Healds & Reeds Pvt. Ltd.	*
Auxichem	*	Peass Industrial Engineers Pvt. Ltd.	C-III
Basant Fibertex Pvt. Ltd.	14	Precision Rubber Industries Pvt. Ltd.	79
Bea Electronics	85	Pinter Fa Ni Asia Private Limited	13
Bharat Beams Pvt. Ltd.	*	Rimtex Industries	93
Bluemoon Machines Mfg Co.	*	RMP Bearing Limited	6
Dhara Engineering Works	*	Sakthi Textile Engineers	20
DH Textile Engineering	*	S. B. Dye Springs (India) Pvt. Ltd.	C-II
Elgi Electrics Industries Ltd.	59	Sheeba Enterprise	9
Gayatri Textile Machines	18	Shree Ram Textile	17
Jaytex Engineers	*	ShreeTex Corporation	16
Indian Dye Springs Co.	*	Simta Group of Companies	7
Inspiron Engineering Pvt. Ltd.	*	Spin Air Systems Coimbatore Pvt. Ltd.	*
Infinity Spare Tech	*	Sri Kumaran Textile Systems	*
ITMA ASIA 2024	80	Sunrise Industries	22
ITMA ASIA+CITME 2025	10	Sumanlal J. Shah & Co.	*
Kubershwara Machine Products	*	Sumanlal J. Shah Sons (P) Ltd	*
Krsna Engineering Works	*	Tech Mech Engineers	8
Lakhmi Machine Works Ltd	*	Technocraft Texmach Pvt. Ltd.	*
Laxmi Precision Technologies Limited	65	Techno Electronics & Instruments	*
Lakshmi Ring Travellers (CBE) Ltd.	C-I	Texlab Industries	*
Laxmi Textile Products	*	Texfair 2024	*
Mag Solvics Private Limited	15	Tirupati Technik	89
M.K. Spindle Manufacturers Pvt. Ltd	*	Tex-Tech Industries Pvt. Ltd.	94
Mangal Singh Brothers Pvt. Ltd.	5	Texo Cams (India)	*
Manoj Engineers	C-IV	Trutzschler India Pvt. Ltd.	81
Mohler Machine Works Pvt.Ltd.	*	Vetri Engineers	12
Mylon Metallics Pvt. Ltd.	4	Vishwaa Engineering	*
Mayur Reeds and Healds Pvt. Ltd.	*	Varjilal Hirjibhai Trivedi & Sons	*

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