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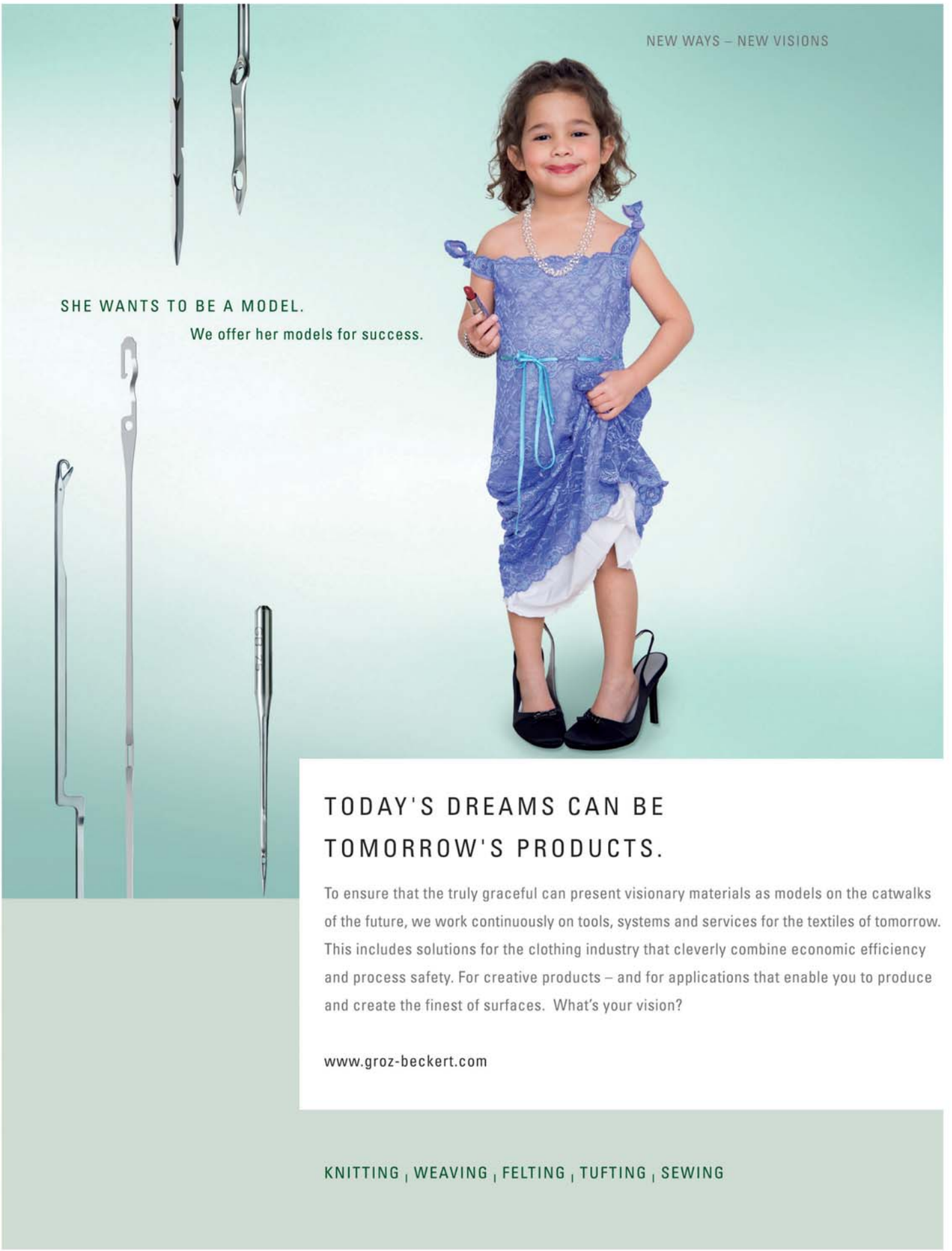

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From the Editor's Desk

Investing in upgrading knowledge and skill levels of people in the apparel industry has become a major agenda for both exporters and buyers. The growth of this industry is linked to how much progress can be made in better utilization of resources, both human and infrastructure for better productivity and efficiency, as the global apparel industry becomes highly competitive and price-driven.

In this scenario, skill development and knowledge management have become critical for sustainable growth. While skill development is more related to operator and supervisory level employees, knowledge management is a powerful tool to sharpen skills of middle and senior management. Information sharing of experiences and solutions to various problems that one faces in day-to-day operations is becoming a norm, with companies using different ways of communicating the same from IT-enabled modules to classroom training.

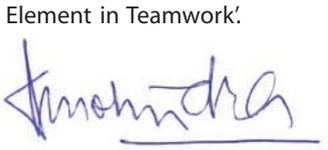
Even the *StitchWorld* magazine is a knowledge management tool, but with a much wider spread. It may not be company specific, as it caters to a wider segment of the industry, but it is certainly directional with a lot many case studies in different areas which one can mine for specific use. Many critical directions exemplified with case studies have been discussed in fine details. It is for the readers to apply the knowledge for optimal benefit.

We have taken our role as knowledge providers very seriously and in every issue the effort is to provide an insight into information that can be used. It gives us great satisfaction when industry tells us how useful the various articles have been and I have often heard that companies are tearing out relevant pages and handing over to production/management teams for implementation.

In this issue too, *StitchWorld* has some interesting topics, one being how knowledge management has been taken up by Triburg.

In the second article of the series, Y. P. Garg discusses how to ease sewing complexities by using the right gauge parts. He explains the nuances of gauge parts of a single needle lockstitch machine and how to achieve higher productivity while reducing operator skills. In another article, 'Make Supervisor Wiser – Play Games', the advantages of a game-based supervisor training module focusing on the role and responsibilities of the supervisor is highlighted. The training module has been designed in collaboration with Contact Communications, the publishers of *StitchWorld*.

In the article – 'Don't Blame Your Employees, Solve Your Problems', Paul F. Bowes shares his experiences on how the management can resolve problems through deep analysis and brainstorming sessions instead of just blaming the employees for all ills. Another thought-provoking article discusses the 'Human Element in Teamwork'.



Deepak Mohindra
Editor-in-Chief
Read and comment on my blog at
http://stitchworldmagazine.blogspot.com

China: AMANN Opens a Sewing Thread Twisting Unit in Yancheng

Global player AMANN has opened a sewing thread twisting unit – AMANN Twisting – in Yancheng, Jiangsu province of China. The foundation stone laying ceremony of the new production site was welcomed with pleasant showers and inaugurated by DingYu, Member of Standing CPC Municipal Committee of Yancheng City. Present on the occasion were several inland and international guests, government representatives of Jiangsu province and Yancheng's YEDZ (Yancheng Economic Development Zone) along with senior AMANN Group officials.

Welcoming the guests, AMANN Group CEO Bodo Th. Boelzle said, "After having achieved the first goal of the China project, the focus concentrates now on starting this production in January 2011, as planned, the AMANN Group will be able to serve the Asian market individually and just-in-time from station China."

The unit will cover an area of more than 16,000 sq. metres and accommodate about 350 employees. The production which is likely to begin in January 2011 will have an annual production capacity of 3,000 tonnes.

The company is also planning new production facilities in India. It is currently serving the Indian market by opening new offices and warehouse facilities in Chennai, Bangalore and Delhi. These new additions have brought the number of affiliated companies and subsidiaries across the AMANN Group to 20 with activities covering over 100 countries around the world.

AMANN Group CEO Bodo Th. Boelzle in conversation with Wang LianChun, Director of Administrative Committee of YEDZ

India: OGTC initiates Lean Manufacturing Competitiveness Scheme Project

The Ministry of MSME has recently introduced a "Lean Manufacturing Competitiveness Scheme" for training in Lean Manufacturing. Under the initiative, OGTC has been selected and approved for implementing the scheme for which it has registered a trust – OGTC LMC (Lean Manufacturing Cluster).

Eight member units of OGTC have joined the Lean Manufacturing Project. They are: Pee Empro Exports, Orient Fashion, Akriti Apparels, Neetee Clothing, Orient Clothing, Saivana Exports, Radnik Exports and Team Krian. In the meanwhile, the National Productivity Council has been appointed as nodal agency by Ministry of MSME for implementing the scheme and the Government has sanctioned to provide financial assistance to 100 clusters for implementing the scheme. OGTC is the first cluster to be selected from Garment and Textile Industry.

An international consultant firm (Dagher Consulting Group) has been retained as consultant to implement the scheme in OGTC units.

(L–R) Subrata Pal, NMIU, Mr. M.K. Mehra, OGTC and W. Nuwan Udara Fernando, Dagher Consulting Group Pvt. Ltd.

Apparel imports by the US in the first quarter of 2010 were up 2.41% in value and 11.43% in volumes with an average UVR of $ 2.89.

Indian exports to the US in the period Jan.-March 2010 were down (-) 2.16% in value, though the volumes were steady with 1.78% growth. The UVR stood at $ 3.16.

Exports of ladies blouses and ladies dresses to the US did well from India in the first quarter, both registered positive growth of 14.35% and 18.27%, respectively.

India registered growth of 10.65% in overall exports in volume terms to the EU in Jan. 2010 while seeing a decline of (-) 7.07% in value. The overall UVR for Indian apparel exports was Euro 14.24 (per kg of fabric equivalent).

India: Brandix India Apparel City Park Inaugurated; Company Promises 60,000 Jobs, mostly to Women

Chief Minister Konijeti Rosaiah, Union Minister of State for Textiles Panabaaka Lakshmi, Brandix Group CEO, Ashroff Omar among others at the inauguration of BIAC park

Brandix India Apparel City (BIAC), located within the Andhra Pradesh Special Economic Zone (APSEZ) in Visakhapatnam, has been inaugurated by Chief Minister Konijeti Rosaiah at a grand ceremony. Spread in an area of 1000 acres, the park is an infrastructure-rich, fully serviced and environmentally compliant manufacturing park.

"Brandix India Apparel City is one of the largest textile industry-specific special economic zones in the world, and the only one of its scale and concept in South Asia," said Rosaiah congratulating the BIAC Management for developing this park. He hoped that the BIAC would now fulfil its promise to provide jobs to the villagers, especially to women workers.

Union Minister of State for Textiles, Panabaaka Lakshmi, presiding over the inaugural function, complimented the State Government and said, "The Ministry has been making serious efforts to attract Foreign Direct Investment (FDI) into Indian textile industry and the Brandix India Apparel City is a shining example which would motivate similar and large scale FDI players into Indian textile industry."

Welcoming the dignitaries Ashroff Omar, CEO, Brandix Group said, "BIAC's vision is to be the preferred global sourcing hub for apparel," hence BIAC seeks to attract the best in the world in apparel specific sector.

Already, the factories operating within BIAC have provided jobs to over 5,075 rural people, mostly women, and when the park is occupied fully about 60,000 jobs should be available, hopes the BIAC.

Imports to the EU fell sharply in Jan. 2010 by (-) 17.29%, the volumes too saw decline of (-) 11%. The UVR was Euro 14.07 (per kg of fabric equivalent).

Germany: Groz-Beckert Awarded Kyocera Environment Prize for Optimizing Needle Geometries

Groz-Beckert, the German manufacturer of knitting machine needles, sewing and shoe machine needles, felting and structuring needles, tufting needles and modules, weaving machine parts, ceramic punching components, among others has been awarded the third place prize at the Kyocera Environment Prize for its Litespeed system which helps save energy and resources in high speed circular knitting by optimizing needle geometries.

In his speech of thanks at the award ceremony, Dr. Thomas Kühl, board member of Groz-Beckert KG and also responsible for the Sewing and Non-wovens divisions, emphasized the great importance and continuous development of Groz-Beckert. The company with 150 years of experience in this area with over 60,000 product types assumes responsibility for the ecologically sound production and functionality of its products. The company controls enormous amounts of CO_2 emissions after undergoing numerous productions, technological and logistical processes.

Explaining the properties of the needle, the company says

Groz-Beckert's litespeed needle for high-speed circular knitting machines

the shank thickness has been partially reduced in relation to standard needles, has impressively low weight and reduced friction in the needle trick. This means that less energy is required for needle movement. This has also been proved when results showed up to 20% lower temperature, less energy consumption, reduced oil requirement and less oil fogging.

There were also less wear and tear at the needle crank and cam parts, and the needle oil was better distributed. Last but not least, higher RPM have resulted in sharp performance increases and far less emissions in relation to standard needles.

Groz-Beckert claims that if all high-speed circular knitting machines worldwide were fitted with litespeed needles, the result would be an annual reduction in CO_2 emissions of over 457 million tonnes.

IndustryWire from Apparel Online

Network Clothing Company, Tirupur is offering both innovative garments and meeting the increased demand by strengthening its in-house facilities. Since the business is picking up, the company has added 200 machines to increase its capacities and also invested in upgrading its printing technology to deliver multi-colour prints to the buyers.

"Buyers are asking for Indian techniques with Western interpretations and we are adding capacities in rotary printing, discharge prints and digital prints," says Akhilesh Anand, CEO from NCC. He adds that digital printing is fast picking up and now buyers are asking for quantities as high as 20,000-30,000 pieces in a particular design.

Savi Exports the Jaipur-based exporter, with a turnover of Rs. 25 crore is looking to increase its revenue by another 30% by adding nearly 10 new buyers for ladies garments from Japan, a new market for the exporter. "Using superior R&D, we have added new design softwares as our Japanese buyers, apart from being price-conscious, have a craze for new and innovative designs, so we need to offer them quality designs and products that fit into their budget," says Girish Pareek, Owner of Savi Exports.

The 13-year-old company is enhancing its turnover by Rs. 5 to 6 crores by adding 200 more machines at its manufacturing unit in Mansarovar, RIICO Industrial Area of Jaipur, taking the machines total to 400.

Yashodhan Garment – manufacturer, supplier and exporter of menswear and known for its skill development and training facilities, is coming up with a new manufacturing unit in Sangli District of Maharashtra. Dilip Walse-Patil, Speaker of Maharashtra Assembly, has laid the foundation stone and the construction will be completed in next three months.

"The new unit will have 400 machines by SunStar out of which 100 machines have been delivered and rest will follow soon. The unit will have a daily production capacity of 5000 shirts. The company which offers products to top Indian brands, also plans to launch its own brand in the domestic market soon," says D.T. Jadhav, MD, Yashodhan Garment.

Ashapura Garments, known in the local market for its premium high-end jean brands WINSTONE and FOSTER, had created a stir last year by investing Euro 1 million in top line technology project for trouser manufacturing from Duerkopp Adler with a major expansion project in Mundra SEZ. The project is now in its final leg and will be commissioned in August this year, six months after the scheduled deadline of February 2010.

"We are looking up to enter the export market with the new denim facility," confirmed Bharat Vedant, Chairman and CEO of Ashapura Garments. "The expansion will take the production capacity of the company to 30 lakh pieces per annum of 10,000 jeans, 5,000 casuals and 5,000 formal trousers," added Vedant.

India: Intertek Partners with CII to Provide Quality and Compliance Awareness for the Home Textiles Industry

The seminar on quality and compliance awareness for the home textile industry in progress

It has become increasingly important that while satisfying customer demand in design, manufacturers and retailers must also be aware of and meet the continuously changing national and international standards in quality and safety. To help wade through these standards, Intertek and the Confederation of Indian Industries (CII) recently held a seminar in Karur on quality and compliance awareness for the home textile industry, which was attended by nearly 70 CII member companies.

As a leading global provider of quality and safety services for more than 100 years, Intertek not only understands the challenges faced by various industries, but can also identify the precise strategy and the path they need to follow for total quality assurance throughout the entire supply chain. "Training seminars are a valuable platform for Intertek to create awareness on various quality and compliance developments in the home furnishings," said Dilip Gianchandani, Regional Director, Consumer Goods, at Intertek.

"With the ever-increasing consumer demand for high quality furnishings, rigorous tested and inspection during all stages of the production process has become essential to minimize risk and protect the interest of both manufacturers and consumers. At Intertek, we provide quality assurance, quality testing, shipment inspections, social compliance audits and consultancy services for the home furnishings industry to help manufacturers improve their performance and mitigate risks," adds Gianchandani.

India: Model Tailors Training Centre at Pee Empro in Association with IL&FS

A Model Tailors Training Centre has been setup at Pee Empro Exports, Faridabad under the Skill Development scheme in association with the Infrastructure Leasing & Financial Services Limited (IL&FS). Recently, OGTC signed MOU with IL&FS for setting up a chain of training centre in OGTC member's unit. The Ministry of Rural Development has appointed IL&FS as the nodal agency for implementing the scheme. Twenty-five fresh candidates have been selected from the Rural Areas and belonging to the Below Poverty Line for training at the centre.

Giving a backdrop of the initiative, Abhishek Singh, Master Trainer Skill Development IL&FS said, "IL&FS has prepared training manual and audio visual aids for training of youth from BPL so that they can come to the main stream of the Garment Industry." Under the scheme, the Ministry of Rural Development has targeted to train 5 million youth from BPL.

The OGTC started the training initiative in 2007 when a group of trainers were trained and the training centre was setup. "Till date about 350 tailors have been trained of which 240 are still working in the unit," informed P. M. S. Uppal, President, OGTC and Managing Director Pee Empro Exports. He added that those trained at the centre proved to be better operators and more disciplined. He hoped that the new scheme would help in getting much needed trained labour.

Training Centre under IL&FS Scheme at Pee Empro Exports, Faridabad

The centre, which was inaugurated by Praveen Nayyar, Sr. Vice-Chairman, AEPC and Managing Director Dimple Creations, was attended by OGTC members also looking to set up tailors training centre in their units. Among the attending members were Animesh Saxena, Amarjit Singh, Gunish Jain and Vikramjit Singh.

India: Garment Technology from Duerkopp Adler to be Marketed by Mehala Machines from July 2010

Mehala Machines India has joined hands with Duerkopp Adler of Germany to promote their high technology products in India. Effective 1st July 2010, Mehala would be the sole agent for Garment Machinery in India for Duerkopp Adler. Mehala is upbeat about its new partnership which will now allow wider market reach for both companies. "This association will prove to be win-win situation for both parties," says S. Carthic, Director, Mehala Machines.

Vikram Sona, Area Sales & Marketing Manager South Asia, Duerkopp Adler, India is confident too that Mehala is the right partner for increasing market share in the highly competitive garment machine segment. "Duerkopp has repositioned its thrust in India with a separate agent for its different segments and while the heavy-duty industrial machines will remain with E. H. Turel, the garment machinery line will be exclusively with Mehala. With their strong countrywide network we will be able to leverage advantage of deeper market penetration," he says. Duerkopp Adler is known for its high-end specialized machines for structured garments like trousers, suits and jackets.

Vikram Sona, Area Sales & Marketing Manager South Asia, Duerkopp Adler, India; M. Bacman, Sales & Marketing Manager, Asia, Duerkopp Adler; and C. Subramaniam, Chairman, Mehala Machines at the signing of the agreement

Mehala, with sales of around 60,000 sewing machines per year, is the only PAN India Industrial sewing machinery distributor with ISO 9001:2000 certification.

Some of the leading brands that they represent in the market are Siruba (Taiwan), Topcut-Bullmer (Germany), INA Systems (Singapore/Canada), Macpi (Italy), Damei (China), KM (Japan), Orbito (Singapore), Human Solutions (Germany), Assyst (Germany), AMP Pisani (Italy), Nhega (USA), Besta (Korea), Schips (Switzerland), LKM knitting machine (Taiwan), Rimac (Italy) to name a few.

With 19 branches in India, the company has operations in Sri Lanka, Bangladesh and Singapore for the last 8 years. The group has also got its allied businesses like spinning, wind energy generation, foundry, and modern machine-shop for textile components, motor manufacturing, computerized embroidery machine assembly, etc. with a group sales turnover of around USD 100 million per annum.

IndustryWire from Apparel Online

Cheer Sagar, the vertically-integrated manufacturer and garment exporter of Jaipur, exporting apparels as well as home textiles, is positioned to grow by nearly 20% by the next financial year. The company is in search for new site in Sitapur Industrial area in Jaipur to add capacity to meet the increased demand. "The new unit will have 300 new JUKI machines and will also be a training centre with better facilities," says Ravi Poddar, MD, Cheer Sagar.

The company, with a turnover of $ 8.75 mn, has also entered the markets of South America with a Uruguay-based importer, Brendisole.

The recent increase in minimum wages in Delhi, the highest wage payer to the industry, has compelled many garment exporters to shift their factories from Delhi to Noida and Gurgaon for viable operations. Says Praveen Nayyar, MD, Dimple Creations, running its unit of 500 machines at Okhla Industrial Area, Delhi till recently, has shifted its unit to Hosiery Complex Noida, "It is costing us almost Rs. 2,000 per person (including overtime and other facilities). So, running a factory of 500 machines will cost more than Rs. 1 cr per year."

Similarly, H.K.L. Magu, MD, Jyoti Apparels agreed that they are moving to Gurgaon by June after completing some orders in hand at Okhla. Virender Rawat, Partner, Monica Garments, Delhi has also recently shifted his stitching unit to Noida. The industry sources have confirmed that many more companies are planning to shift outside Delhi soon.

Maya Exports Corporation, a Delhi-based manufacturer and exporter of fashion garments for ladies and children, has joined the bandwagon of Indian companies seeking OE and GOTS certification. As of today there are over 397 GOTS-certified and about 300 OE-certified companies in India, which includes both textile and garment companies.

Gaurav Lakhina, Vice-President of Maya Exports, says "Maya is mainly dealing with the North American and European markets. The company is using cotton, viscose and polyester fabrics to manufacture its garments. Now organic products will be an additional line on offer to the buyers."

Celebrity Fashions Limited (CFL), a Rs. 280-cr company from Chennai, engaged in the business of designing, manufacturing and exporting/retailing of readymade garments, is restructuring its businesses and is looking for strategic partner for its bottoms division. The company is being demerged into three units – Celebrity Fashions Ltd.; Celebrity Clothing Ltd.; and Indian Terrain.

While the CCL will be a wholly owned subsidiary of CFL, Indian Terrain will be completely independent of CFL. "The decision to separate the units is based on many factors including operational and logistics implications," says S. Surya Narayanan, Executive Director & CFO, Celebrity Fashions Limited.

India: NIFT, New Delhi Organizes Technosummit 2010; Awards the Best Graduation Projects

Neelima Prasher and Priti Agarwal receiving the award for their project 'Development of games for supervisory training' supported by StitchWorld

National Institute of Fashion Technology, New Delhi recently organized 'Technosummit 2010', a platform for recognizing the best of the graduation project from the Master and Bachelors of Fashion Technology batch.

"It is a perfect time for the younger generation to get involved with this transforming industry, which is now changing to compete and survive with a positive outlook. The work of students will be valued and implemented now," said Prabir Jana, Professor, NIFT, New Delhi in his address to the students. "The projects are not solutions given to the industry, but rather directions to look forward and work towards," he added.

The industry guest at the event were, Deepak Mohindra, Editor-in-Chief, *StitchWorld and Apparel Online*, Mayank Kaushik, Director (CSR) – South East Asia, ITX Trading Inditex, Roger Thomas, MD, Methods Apparel Consultancy and Harinder Singh, MD, USI Impex.

"Persistent passion brings results and Industry needs professionals from NIFT and other technical colleges. We all have a good future in the industry as I think it is moving towards professionalism, depending of course on the availability of professionals," said Deepak Mohindra. Mayank Kaushik was all in praise for the NIFT students and their hunger to know more. "The very first day when I met them they talked about SAM, KPIs, SMVs, WIP and all these jargons. My sincere advice to them is to make sure that this hunger is retained with them throughout their life," he said.

"Development of Games for Supervisory Training" by Neelima Prasher and Priti Agarwal, conducted in association with *StitchWorld* won the Best Graduation Project and the Most Innovative Project in Bachelor's programme.

Germany: Texprocess 2011 to Showcase Expert Contract Manufacturers

The latest and the newest machines, plant, processing technologies, IT systems and services for making up textiles and other flexible materials will be showcased at the Texprocess, a new initiative of Messe Frankfurt, the organizer of 150 fairs around the world. The fair will occupy a total of 50,000 sq. metres of exhibition space (gross) with expected footfall of 50,000 visitors. Around 500 exhibitors are expected to present their innovations for the entire textile value chain at Frankfurt Fair and Exhibition Centre, Germany from 24th to 27th May 2011 for a show that has many new firsts to its credit.

Texprocess is not only ready to showcase innovations but also taking many marketing initiatives to make it a top platform to attract contract manufacturers.

This time, besides being part of buying delegations, the contract manufacturers will also make presentations of their technical facilities and expertise and thus give international fashion brands the chance to obtain a comprehensive overview of new factories. "Companies wishing to exhibit in the sourcing area must meet strict criteria. This guarantees a high standard of quality and ensures the sourcing area is of great interest to visitors," says Elgar Straub, GM, VDMA, the conceptual partners of Texprocess.

Texprocess will put forth a structured area for the contractors to present their technical productions capacities – garment machinery, software, know-how, logistics infrastructure, etc. – and to arrange meetings with representatives of international brands.

Susanne Brendle of Messe Frankfurt understands that sourcing is an important subject of Texprocess. She says "The idea to establish a global 'Texprocess Sourcing' platform within the Texprocess fair is a result of intensive discussions with various visitors. Several representatives of international brands had expressed the need of an international platform for interacting and analyzing potential partners for contract manufacturing of garments. As of now such a platform does not exist and thus they have to travel across many countries to meet those potential subcontractors. On the other hand subcontractors from several countries like Tunisia, Egypt, Turkey, Vietnam or Bangladesh, were looking for a platform to present

texprocess

their technical production capacities. Thus Texprocess could be the ideal platform to create such arena."

Texprocess will be held parallel to mightily popular Techtextil, a Trade Fair for Technical Textiles and Non-wovens which will help move Texprocess closer to the expanding markets of technical textiles.

The new section for sourcing will attract more traffic, thus giving an advantage to traditional machinery and technology exhibitors as they may find more potential buyers. While on the one hand representatives of brands who often have own production facilities will get a glimpse of latest technologies, on the other they may advise their subcontractors what machines they should use.

India: Cheran Machines Introduces Printing Technology for Undergarment Industry

Moving with the evolving needs of the industry, Coimbatore-based Cheran Machines is constantly working on upgrading their machines and introducing new technology for specific requirements which led to a tremendous boost in export of undergarments from India in the last two years with Tirupur capturing the major share of business.

A well known ISO 9001:2000 certified company, engaged in manufacturing and export of a wide range of garment printing and textile printing machines, has many products in its portfolio for heat transfer/fusing, label transfer, printing and curing, electric drying and more. "We are a customer-focused company, with a strong commitment for quality that has helped us to build a strong client base over the past 14 years," says Mohan Kumar, Managing Director, Cheran Machines.

To meet the demands of the underwear industry, innovative improvisations have been made on standard machines. In one model of a manual chest printing machine, the company has installed facility for micro adjustment setting which will give more accuracy in prints, as the garment is small with less exposed surface.

Through constant R&D, the company has created a machine that concentrates on small areas of transfers called 'Cute' which is based on the heat transfer size and can alter heater beds. "We are working to expand its presence in the undergarment segment as the potential for growth is huge for both the international and local market," says Mohan.

Hanes, Adidas, Nike , Gerber ,VSS, Lux, Rupa, Amul, VIP, Dixcy, Ramraj, Crystal, Jansons, Jockey, Groversons, Naidu Hall, Zoom are a few big names using Cheran wash care transfer machines. "With our specialized machines, the process of transfer is faster and the quality achieved is higher than other competitive machines," claims Sudheer Nair, CEO, Cheran Machines.

The company created the 'Cute' machine that concentrates on smaller areas

Mohan Kumar, Managing Director, Cheran Machines

Germany: PFAFF 3590 VARIO Computer Stitcher for Maximum Flexibility and Premium Quality

With 140 years of development behind it and one among very few German sewing machine manufacturers, PFAFF is a symbol of assurance, reliability and quality. Emphasizing the same, its new PFAFF 3590 is a modular and freely configurable large area computer stitcher for applications in the automotive, shoe, leather goods and technical textile industries.

The computer stitcher is equipped with a unique, precise and highly flexible feed motion system (patent registered). Optimum stitching and stitch length are guaranteed by the intermittent feed and transport stop when the needle enters the material. The material layers of cut-to-size pieces are prevented from shifting in the sewing work clamp.

PFAFF 3590 VARIO Computer Stitcher

Different sewing area sizes (e.g. 300 x 300 mm or 300 x 500 mm) with the appropriate sewing work clamps are also available. The clamp is constructed simply and can in most cases be produced on-site. The machine has a modular design; special automatic sewing heads with different hook systems allow for thread thicknesses up to 10/3 to be processed with optimum stitch performance.

Ergonomics at the workplace have taken new dimensions with PFAFF 3590. The sewing head can be positioned crosswise or lengthwise to enable optimum access to the needle and material.

Sewing programs and sewing corrections can be performed directly on the machine using a logically constructed touch-control panel, and then saved on SD memory card. The PFAFF 3590 vario works with the PSP (PFAFF STITCH PROGRAM) system. This software can be installed on nearly any conventional PC with a Windows operating system.

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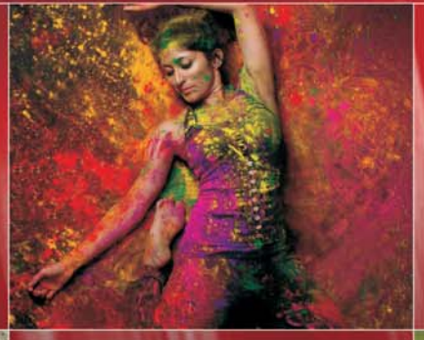

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Germany: AMANN Group Expands its ISA Product Program; Releases New Embroidery Thread Range

AMANN Group, a specialist for sewing and embroidery threads in the world for the last over 150 years, provides perfect solutions in any field of application fulfilling customer requirements. The company has set benchmarks by enhancing its ISA product family and expanded its product program providing the superior value of this thread line.

The US-based International Society of Automation (ISA) founded in 1945, is a principal, global and non-profit organization. The organization sets the standard for automation by helping more than 30,000 members and other professionals worldwide in solving difficult technical problems, and enhancing their leadership and personal career capabilities at the same time.

The colour range for ISACORD – the multi-tasking talent among machine embroidery threads – will now be enlarged by 45 to be available in over 400 colours. It is the most flexible embroidery thread among AMANN range and with its glossy shine of rayon thread it is the most preferred for almost every application. The embroidery thread is setting trend not only because of its versatility, but also due to its reliability in applications at rentable wear and drying in the tunnel finisher.

Besides, AMANN will offer ISAFIL 40 at lower price to the rayon high-fashion embroidery lovers that comprise 110 bright and basic colours. The company has also introduced ISABOB and LIFECYCLE ART 35, the two new members to its embroidery thread range. While ISABOB are pre-wound bobbins for machine embroidery which create remarkable time savings by eliminating the work step of 'self-winding', LIFECYCLE introduces an embroidery thread made from 100% recycled polyester.

For dull embroideries with textile look, AMANN offers finely gradated varieties of shine to all its embroidery customers. While Saba^{C} and Rasant are suitable for dull embroideries, Saba^{C} meets almost every requirement of the embroiderer with up to 500 colours in 10 tickets.

ISACORD – The multi-tasking machine embroidery threads

ISAFIL 40 – The high-fashion embroidery threads in 110 basic colours

Italy: Morgan Tecnica Launches Leonardo High Speed, High Resolution Inkjet Plotter

Morgan Tecnica, an Italian CAD/CAM company is a known name for its Cutting Solutions. The company launched 'Leonardo', a high speed, high resolution Inkjet Plotter. The plotter is not only economic, ergonomic, maintenance free, but also extremely precise. The tension in the plotter is automatically controlled.

"Leonardo has the characteristics of a desk office printer, applied to an ultra-wide industrial plotter. It has more than 3 dozen plastic parts made from exclusive mould. It is more stable and reliable", claims D. Anandakumar, Executive Director (Asia Operations), Morgan Tecnica.

Morgan Tecnica launched Leonardo high speed, high resolution Inkjet Plotter

The printer is available in two and four heads and can print using the standard HP cartridges or the proprietary MT cartridges which provide about 30% productivity. The plotting speeds vary from 50-200 sq. metre/hr, while the resolution range is 300-600 DPI. Not only this, the power consumption of the plotter is merely 70-120W. 'Leonardo' is compatible with HPGL, HPGL/2, ISO, ASTM, AAMA and DXF format and can be connected even wirelessly to a PC apart from conventional USB cable. It also manages print queues via FTP.

USA: Datacolor releases 'Guardian' for Color Assurance; TOOLS 2.0 introduced for Color Quality Control

Datacolor, the global player in digital colour management solutions and colour communication technology, has debuted 'Guardian', a remote instrument monitoring technology and predictive maintenance program for monitoring the overall condition and proper upkeep of the company's high-end spectrophotometers and support to run the business effectively 24x7.

Datacolor's Guardian conducts periodic diagnostic instrument testing through a process of measuring reference grade High Chroma Tiles. Taking only minutes to perform, the data is collected and automatically transmitted to a Datacolor server which then automatically sends results to the Datacolor Guardian sentinel server.

The data is then reviewed by a staff of specially trained Datacolor instrument experts for any possible problematic trends. The expert technicians can detect subtle trends that may adversely affect instrument performance and diagnose the problem before it occurs.

This program helps in preventive maintenance in lowering the cost by eliminating or reducing production errors, leading to higher reliability and increased business.

"Exclusively offered by Datacolor, Guardian is unique to the color spectrophotometer space and a quantum leap in quality management," said Brian Levey, Vice-President, Industrial Business Unit, Datacolor.

Meanwhile, Datacolor has also introduced the latest version of TOOLS 2.0 for maintaining its color quality control and management software for the textile, paper, paint, plastics, ink, cosmetics and automotive industries, among others. The TOOLS 2.0 version quickly and easily generates color measurement files and set pass/fail criteria.

The software has Windows 7 compatibility, Microsoft Office 2007 style interface and updated and easy-to-access features and functionality – such as streamlined navigation, which allows users to generate customized reports and screens for viewing data and configure forms for printing data.

Continuous or discontinuous processing, pre-treatment or post-treatment, a dyer is always in dilemma while achieving scale or defining scope. Although everyone's common goal is to achieve maximum utilization of equipment across different dyeing process and different order volumes, the reality is hounded by traditional beliefs. While efficiency in processing small or medium batches is always under scanner, *Kurt Müller, CText ATI, Area Sales Director, THEN Maschinen GmbH,* demystifies some of the common fixations of traditional dyeing techniques.

The Great Knowledge Divide
Dyeing Fixations

A dye house should not have both continuous and discontinuous machines: Wrong

To most dyers and finishers, continuous and discontinuous processes are mutually exclusive concepts. In cotton finishing, dye houses that start off with exhaust dyeing (for batch/discontinuous dyeing) equipment usually remain with that concept, even if their daily output warrants a closer look at the economic benefits that a combination of the two concepts can offer.

Rather than being mutually exclusive alternatives, continuous and discontinuous wet processing equipments can work perfectly, as highly efficient and economically, compelling complementary solutions. One of the main reasons why such integral solutions have not been widely applied is that they have till date not been available from a single supplier and have thus, been seen as competitive rather than complementary process concepts. Only now the suppliers have created one-stop sales organizations (e.g. FONG'S) that offer both exhaust and continuous equipments.

When existing piece dyeing capacity is at its limits, add more dyeing machines: Not necessarily

Particularly in situations where existing piece dyeing capacity is at its limits, the usual reflex is to add more dyeing machines. However, there are alternatives, some with compelling arguments. The main consideration has to be whether more capacity can be added economically by separating pre-treatment from the core dyeing process.

By separating pre-treatment (e.g. scouring and bleaching) from the core dyeing process, the process time in dyeing machines is reduced by typically around 60 to 90 minutes (the time usually taken for bleaching). This means that in reactive cellulose dyeing, the exhaust process is shortened to 2 hours, allowing correspondingly more batches to be dyed per day. The bleaching is carried out on a continuous line instead.

Continuous processing lines only make sense for extremely large daily outputs: May be

When piece dye houses reach their maximum capacity, the usual opinion is to consider adding more dyeing vessels.

It would surprise most readers to know that a continuous bleaching range already makes a lot of sense with a daily dye house output of around 5 tonnes. That is, by any standards, not a large operation.

As we can see from the above (and quite general) figures, it can also make a lot of sense to first look at which processes that are presently part of the exhaust dyeing process could be handled more economically on a continuous line. This holds particularly true for washing and bleaching. In addition, where vertical operations are concerned, it

also makes sense to approach the issue of surface handle and appearance from the yarn construction and fibre blend issues, rather than devoting up to 30% of the dye house capacity attempting to increase lustre through enzyme treatment (and suffering substantial fabric weight loss in the process).

Exhaust dyeing is the only concept for processing small and medium batches: Not for pre-treatment

Conversely, the commonly held opinion is that exhaust dyeing is the only concept for processing small and medium batches. As we can see from the simple point made above about a bleaching range, continuous processing is a term that does not only cover complete washing, bleaching and dyeing ranges, but also individual process steps. In this article, our focus is not on bed sheet plants, where thousands of metres of fabric are dyed in the same pastel shade for days on end. Far rather, our attention is on dyers and finishers that have smaller batch sizes in many shades but nevertheless use reasonably similar grey fabrics across their range. Can continuous equipment be of any use to them?

Let us look at a medium-size exhaust dye house with a daily (revenue) capacity of 10 tonnes of cotton knit fabric. To achieve this, an installed capacity of 2,500 kg is required (based on 4 batches a day, easily achievable with Airflow-type dyeing machines).

The typical process cycle on a 500 kg machine on medium shades includes:

- Loading: 10 minutes
- Bleaching: 80 minutes (at 110^{0}C)
- Dyeing: 120 minutes
- Washing off: 70 minutes
- Unloading: 10 minutes

This adds up to a total time of 290 minutes, assuming a load of 450 kg. Water consumption per kg of fabric is 31 litres. *(Data based on THEN-AIRFLOW™ machine).*

From the above, we see that almost 30% of the time spent for this all in-process is dedicated to bleaching. Conversely, if the bleaching process were to be continuous, the daily dye house production would increase by 38%, i.e. from the current theoretical batch rate of 4.96 to 6.85. In tonnes per day, we would see an output of more than 15 tonnes – without the addition of a single dyeing machine.

In fact, adding another 5 tonnes of daily capacity would necessitate adding at least 2 dyeing vessels with 500 kg capacity and one with 250 kg (again based on THEN-AIRFLOW productivity).

Bio polishing can reduce dyeing output by 30% or more: True

Bio-polishing has become extremely popular over the last few years, possibly so without anyone in the value-addition chain working out the true cost of the process. Its main purpose is to achieve a smooth fabric surface even when lower quality yarn with a high content of short fibres has been used in knitting. Usually, this type of enzyme treatment is carried out as part of the piece dyeing process and slotted in-between bleaching and dyeing or between dyeing and washing off. (The advantage of bio-polishing between bleaching and dyeing is that the subsequent dyeing is carried out on the fabric post-weight loss).

Embedding the enzyme treatment in the overall dyeing process sounds convenient and cost-effective. However, the fact is that – depending on the desired intensity of the bio-polishing – this additional process step adds 60 to even 90 minutes to the batch time or, in other words, some 20-30% in terms of time.

Logically – and proving the point that nothing in life is free – poorer quality yarn needs more bio-polishing than better quality yarn, often offsetting the lower yarn price of the former. But, coming back to our example of a 10-tonne-per-day dye house, bio-polishing costs us between 2 and 3 tonnes of daily output! Looking at the loss of dyeing capacity caused by bleaching and bio-polishing, we see that these two processes – when integrated into the exhaust dyeing process – reduce our dyeing output by 50%!

Considering only bleaching of knitted fabrics for the moment, one solution is to handle washing and bleaching on a continuous line, such as the SINTENSA and COMPLEXA ranges by GOLLER. These can be used for either RFD or for optical white. As opposed to even the most advanced piece dyeing machines using Airflow technology, this will result in a reduced specific water consumption of around 1 litre per kg of fabric on both RFD and on optical white.

Coming back to the issue of bio-polishing, the alternative is to singe and/or mercerize the cotton as part of the same continuous washing and bleaching process. For this an additional mercerizing module (e.g. CADENA) can be added to the washing/bleaching range mentioned above. For higher-quality fabrics, this process can be combined with a singeing unit.

Other related articles in the Myth Buster Series in StitchWorld

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Of late some companies have changed many of their manufacturing systems from Progressive Bundle Unit (PBU) lines to Modular structures. Workers usually have a tendency to resist any kind of change and rightly so. They object and quiz themselves as to why they should multi-skill, a specific need of the Modular system? Why stand and work or sit and turn 180 degree or even 90 degree and put in their extra labour…? Are the incentives and bonus motivation enough to justify their extra work? *StitchWorld* takes a look and talks to different sections of the industry and academia experts.

Human Element in Teamwork

… It is somewhat easy to balance the group but difficult to manage the human element.

PAUL COLLYER: Partially agree. It is never "somewhat easy" to balance any line or team. It is easy to run a line or team that gives the impression of being balanced, i.e. all operations do the same output and what goes on, comes off with little WIP. That is not the same however to having the team balanced.

It would be interesting to see the actual efficiency of the teams and then compare that to the potential performances of the individuals, one will find a considerable difference. This is particularly true for a team or line in which the workers are demotivated. The difference is because they do the work that comes to them but have no interest or wish to do more even when they know they can because "*it is not giving them anything extra*".

PRABIR JANA: To balance the group and smoothen the flow of work is more of mathematical technical skill. The main challenge is maintaining the group dynamics through balanced incentive system and keeping the momentum going in the group of people which shares the same goal, putting equal effort but earning differently.

LAL SUDHAKARAN: There is a cap on every operation's output which becomes the factory standard due to a certain unsaid group dynamics which often works in the factory. This is what we call "averaged peak production" in that operation. This is way below individual capability of the majority of the operators. Unless a dramatic method change or a clear monetary system is introduced this cannot be broken as operators gain nothing by breaking the status quo.

HUGO RUBINFELD: Yes, handling humans is definitely much more challenging task than balancing the line, as machine and garments can't think but a human mind can. Even after all the correct calculations and availability of resources as per standards, obstacles/bottlenecks can be created if one thinks to do so. But to achieve a marked increase in production efficiency, certain aspects need to be understood. It is imperative to establish optimisation processes.

There are 7 steps in this ladder, i.e. determining the optimum operation cycle, the optimum method, the various Standard Allowed Minutes (SAM) per operation, balancing the line, ensuring that appropriate machines were in use, optimally laid out and the incoming and outgoing product were correctly placed. The aim of this process is to eliminate every action or item that did not add value to the product. An interesting example is of a garment that came to an operator for bartacking the fly. The garment did the rounds and came back to her for bartacking the belt loops before coming back a third time for bartacking the pockets. This operator was working on the same garment three separate times. All that was required was for her to do all three bartack operations in one go.

MANOJ TIWARI: Hike in salary is not the guarantee of improved performance as monetary benefits are not the only motivator. Operator needs to feel attached with the organization and should work with ownership spirit.

Workers resist any kind of change. The reaction is why should they multi-skill? Why stand and work and why turn 180 degree or even 90 degree and exert more?

PAUL COLLYER: It is my experience that workers do not resist change for the sake of it. They only sit at a machine and have no position to lose. Middle managers and supervisors will often resist change because of a fear of losing their position. Workers may decide not to embrace or cooperate with change but that is different from resisting. They may take this attitude because of a number of factors like:

- There is no advantage to them in change happening or just as importantly they do not perceive that there is any advantage. Money is of course a key component of any reason to change.

  I cannot believe that any company can be naive enough to try to implement change in working practices and expect increase in productivity without including the opportunity to increase salaries. Workers are very smart and will not give additional output without an obvious monetary reward.

  Where they are often not so smart is not being able to recognize the opportunity to earn bigger salaries or in believing whether the opportunity is real and genuine. This may be because:

- The difference between existing and potential earnings is not significant enough or does not recognize the additional effort.
- The low increase in output due to the team working not being effective has ment that improved incentive payments have not "kicked in".
- The incentive scheme is too complicated for operators to understand. They cannot relate additional effort or cooperation to reward.
- They do not trust the management.
- They do not understand what they are being asked to do or the reasoning behind it. What amount of team working training has been done and how effective has it been? Has any evaluation been done?

PRABIR JANA: Globally proclaimed teamwork is practiced generally in TSS (Toyota Sewing System) model, which is a stand up hands off system. Lately researchers had raised concern *(Haugue, Jeremy, 1995)* over undue strain on operators due to "zero" WIP and high exhaustion. There is also teamwork practiced in seating posture with WIP maintained between operations.

The logic is that multi skilling is relevant only where transformation is happening from assembly to teamwork. If we consider the transformation from make through to teamwork, then operators are already multi skilled. Only aid of technology and system can make the team work.

LAL SUDHAKARAN: A lot of companies get completely mistaken by taking the averaged peak production as the actual capability of the

"It is my experience that workers do not resist change for the sake of it. Middle managers and supervisors will often resist change because of a fear of losing their position."

PAUL COLLYER,
CONSULTANT WITH OVER 37 YEARS OF EXPERIENCE WORKING WITH THE BEST OF THE COMPANIES IN UK AND OVERSEAS

"In India, transformation from 'make through' to teamwork will be interesting as some of the human dynamics are intrinsic."

PRABIR JANA
PROFESSOR, NIFT
HAVING 19 YEARS OF BALANCED EXPERIENCE, WORKING WITH THE INDUSTRY AND FOR THE INDUSTRY

"A lot of companies get completely mistaken by taking the averaged peak production as the actual capability of the operators and introduce incentive schemes based on it."

LAL SUDHAKARAN
HEAD OF MANUFACTURING
MADURA GARMENTS
IMPLEMENTED 8 MODULAR LINES IN MADURA GARMENTS, BANGALORE

"Handling humans is definitely much more challenging task than balancing the line, as machine and garments can't think but a human mind can."

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AUTHORED A BOOK 'FLEXIBLE MANUFACTURING SYSTEMS – A PRACTICAL APPROACH' PUBLISHED BY CONTACT COMMUNICATIONS

"Hike in salary is not the guarantee of improved performances. Operator needs to feel attached with the organization and work with ownership spirit."

MANOJ TIWARI
ASSTT. PROFESSOR, NIFT
GANDHI NAGAR
HANDLED MODULAR LINES IN VOGUE-VELOCITY INTERNATIONAL, EGYPT

Modular system is very similar to playing football or a hockey game. As a member of the team, everybody is responsible for success as well as failure and every operator should be made to realize that he is responsible to locate or provide solutions to the problems

operators and introduce incentive schemes based on it. This is a clear miscalculation on the part of the management as the performances will suddenly take big jumps if the workforce sees windfalls of fortune in it. Incentives bring in its own problems of execution unless clear thresholds are not established and also standards of performance in quality, throughputs are not established. Establishing the clear thresholds on affixed wage system is critical, before the introduction of incentives. We have been able to establish this and we know that it is just above the present output of this line.

… Effort has been put into team working training and the entire process…

LAL SUDHAKARAN: Rightly so, the emphasis in our company right now is on training the workforce through the SOPs of quality management and throughput processes. The incentives are clearly a quarter away and the Module knows this as it has been communicated while on the training programmes. The kind of engagement they have now is more on softer/process side than technical.

MANOJ TIWARI: Working in a Modular system is very similar to playing football or a hockey game. As a member of the team, everybody is responsible for success as well as failure and every operator should be made to realize that he is responsible to locate or provide solutions to those very problems which will help the process in three ways.

1. Operators will feel proud as positively contributing to the system and feel emotionally attached to the organization.
2. They will feel the sense of responsibility towards the team performance.
3. They will avoid purposely doing mistakes/creating bottlenecks, as the system will work only on their own advise and suggestions.

How do you see the future of transformation from traditional assembly line to teamwork…?

PRABIR JANA: There are always two factors that would spark any system evolution – the change of technology and change of market situation. During the first stage of development, which was driven by *cost reduction* parameters and supported by IE (Industrial Engineering) technique, may be termed as *'fluid stage'* in evolution. The next stage of development was driven by *time reduction* parameters ably supported by JIT (Just in Time), QR (Quick Response) strategies and can be termed as *'transition stage'.*

The success of assembly line manufacturing in automobile industry inspired application of industrial engineering technique in garment manufacturing and *'assembly line'* manufacturing system evolved. Also post World War "Baby Boomer" phenomena fuelled the growth of department stores and branded apparel in Europe and US, which supported the growth of assembly line production system in apparel manufacturing. Once the limitation of automation in sewing was established and other nuances of assembly sewing like long throughput time and ergonomic vulnerability were exposed, the search for an alternative manufacturing system began. After all it is the change of market demand, newer management practices and never-ending quest for better alternative, which fuelled the evolution of teamwork.

Assembly line workers were merely working like robots performing repeated hand movement (aided by industrial engineering practices) and forced to stop thinking. World over the transformation took place from assembly line to teamwork, that is why the difficulty of so-called cultural change of empowering people.

In India, we still have 'make through' system of work in NCR where value-added garments are being made. On closer observation one may find the natural improvisation (commonly known as *jugad*) that has happened in make through where the workers of same ethnicity/religion grouped together to share work and produce more. Is it not a form of teamwork? The management needs to identify and encourage and support such practices with enabling technology to fuel a different evolution of teamwork, from make through to teamwork. The task would relatively be easy due to cultural similarity of both the systems.

MANOJ TIWARI: Definitely the future is for LEAN manufacturing, and assembly lines will not be a business of benefit. To reduce all the Mudas related to Inventory (WIP), over production and poor quality, teamwork (Modular Manufacturing) seems a solution provider.

Apart from it the new Muda (which is still not very much recognized) is "Muda of unused man-power" can be eliminated by teamwork only and it's difficult to reduce in assembly lines.

W. E. Deming calculated that management is responsible for as much as 85% of all production problems and operators for only 15%. But as management, we expect our employees to keep working at a continually improving rate, while achieving the set specification of product. It is very easy for problems to occur, and the symptoms of these problems usually show up in the form of product inconsistency, a product that does not meet the agreed customer specification, late delivery, less/more than ordered quantity, or replacing of materials. But to find cause and take permanent remedial action requires a deep analysis and brainstorming sessions. *Paul F. Bowes, Managing Project Director of Performance for Business Productivity Services Ltd.*, a manufacturing consultancy firm operating in the UK and Asia supporting the apparel industry, shares his experience on how some common problems were sorted out and never repeated again.

Don't Blame Your Employees Solve Your Problems

The apparel industry is not easy to work in. We ask human beings to continually make minute to minute decisions based on the many variable aspects of sewing two, or more, pieces of fabric together. It could be for numerous reasons like fabric is very difficult to handle, stitch count is not correct, there is oil leakage in the machine, needles are breaking, speed is uncontrollable, etc.

The Role of the Manager in Problem Solving

It is a known fact that lot of problems occur because the product specification is not complete or properly documented. For *example* – a boxer short which had side seams that were finished using overlock machine. The customer rejected the garment because the side seams should have been stitched with a twin needle machine. The method and garment specification stated only overlocking nothing more, nothing less. Who is responsible for the incorrect communication?

The management teams have to accept a change in the way they operate instead of playing a blame-culture game from – "Who did it wrong? and Whose fault is it?" to being a "How can we stop this from happening again?" culture.

Your role is to solve the problems that stop employees getting it right the first time, and to make sure that everything goes right so that employees cannot get it wrong.

Problem Solving Approaches

For every problem, there is a cause. It is management's job to find the correct cause(s) as well as its solution so that the problem does not recur.

The examples are taken from real effects that happened in MAS Holdings and Aitken Spence units in Sri Lanka, and garment maker SCAVI in Vietnam and Laos

The following techniques and examples are the key problem solving tools which need to be applied to move the organization forward, and the examples are taken from real effects that happened in MAS Holdings and Aitken Spence units in Sri Lanka, and garment maker SCAVI in Vietnam and Laos. These companies are committed to using these tools to find solutions.

[1] PDCA Cycle – Plan-Do-Check-Act (W. E. Deming)

Example – A shading problem occurred during bra manufacture with the two wings appearing to be different shades to the bra cups, using the same material *(Figure 1)*.

Figure 1 – A shading problem that occurred during bra manufacturing

Using the PDCA approach, the problem was tackled as follows:

Plan – The management team went to the operation where the problem was highlighted *(gemba – actual problematic area)*, and reviewed the number of garments that appeared to be shaded. The physical movement of material was followed from the operator back to the cutting room and the steps involved and storage points were documented.

It was determined that not all but 50 garments were found having shading problems due to one or more of the following causes:

- Cutting section had placed wings from different parts of the lay into the box that was used to take cut parts to the sewing teams,
- Line leader had mixed up the wings and cups from the boxes when giving them to the sewing operators,
- Sewing operator had perhaps removed one defective wing and the counterpart, but the cups from the same ply were not removed, resulting in parts from different plies used on the same garment.

There was no numbering of individual panels for matching as it was considered as wastage, taking into account the quality of fabric supplied.

Figure 2 – Transport boxes created to reduce the chance of pieces getting mixed

A plan was developed to tackle each of the potential causes:

- Each piece in the lay marker was clearly numbered during marker printing.
- After cutting, the extra process of 'sorting' was eliminated and the pieces were removed from the lay and straightway put into the transport boxes, thus reducing the chance of mix-up of pieces from different parts.
- The transport box (Figure 2) was segregated into sections and the wing and cup pieces were placed together in sectioned areas. This made it impossible to leave any piece of the garment out of the box.
- All defective parts were left in the bundle in the correct order, and immediate re-cuts requested (re-cuts were done at the start of the sewing team by the line leader), so that cups and wings would always be matched together correctly, even if removed later for completion of the re-cut work.

Do – The assigned team made changes within a day and management took a week to check and then QA carried it forward.

Check – The outcome of the changes was that the shading problem disappeared.

Act – There was no additional requirement for numbering every panel. If there had still been shading problems the PDCA cycle would have started again. The follow-up action from this exercise was to spread the same good practice across all teams and products.

[2] A3 Problem Solving (called A3 because that is the size of the paper used)

Example – Uneven leg hems on ladies underwear were a major effect being experienced in one factory. The leg hems measured differently from one side to the other *(Figure 3)*.

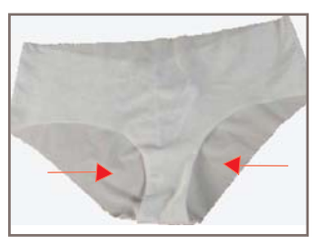


Figure 3 – Uneven leg hems on ladies underwear measured differently from one side to the other

Problem solving methodologies are supported by specific tools such as Fishbone diagram (Ishikawa Diagram), Brainstorming and Five why's

The factory team used the A3 problem solving sheet *(Table 1)* to follow the PDCA methodology and identify an action plan to resolve the problem.

The area of the problem – "Uneven leg hems" was written in. The team went to the sewing floor to identify the operation at which the effect was occurring, "Top-stitch leg hems". The effect or outcome was defined by writing in the product specification standard, and taking a photograph of the underwear with correctly balanced leg hems. This was shown by using a template. The team checked the visual balance and measurements of the leg hems before and after the operation. This was to ensure that the effect was happening at the topstitching operation and not at any prior operation, such as overlocking, or at cutting.

The target for improvement was set as reducing the variability of the leg hems to ± 2 mm within two working days of action plan completion.

The potential causes were identified using the fishbone diagram *(see Diagram 1)*:

- Material thickness variability causing machine running at slightly different speeds during the operation,
- Operator handling inconsistent from right to left leg caused by different method having to be used on each leg,
- Operator did not have any guides for achieving consistent leg hem size,
- Machinery used from one sewing team to another sewing team was of different brands, and also some machines were very old while the others were new.

The implementation plan consisted of reviewing the methods of all leg hem operators, identifying any sewing operators that were achieving consistent leg hem balance, videoing the "best" method, reviewing the method for incorporating any measure devices during the operation.

The new method was defined and implemented with one operator during the following two working days, and once consistency of output was established, all operators were trained in the same handling method. The mechanic team had to ensure that all machinery performed the same for handling.

In problem solving, the methodology of PDCA is supported by the A3 problem solving sheet (Figure 4), which is supported by the following key tools.

PROBLEM SOLVING REPORT OUT FORMAT

AREA OF THE PROBLEM				
EFFECTS OF THE SITUATION		COUNTER MEASURES		
What should happen? (Standard)		Evaluate possible countermeasures		
		Possible countermeasures	Effectiveness	Feasibility	Impact
What is happening? (Actual)					
Difference between Standard and Actual					
		Most appropriate countermeasure(s)			
TARGET FOR IMPROVEMENT		IMPLEMENTATION PLAN			
Do What?		What action is To be taken immediately?	Who is responsible?	By when?		
To What?					
How Much?					
By When?					
CAUSE ANALYSIS					
Potential causes	Check method	Evaluate			
Most likely cause(s)					
CAUSE-EFFECT ANALYSIS TOOL (5 WHY'S / FISHBONE)		FOLLOW-UP / VERIFICATION / STANDARDIZATION (when worked & lessons learned)			

Table 1 – The A3 problem solving sheet used by the factory team

Figure 4 – The puckering visible on the bra cups

Figure 5 – Problem solving sheet implemented in the factory

THE FISHBONE DIAGRAM

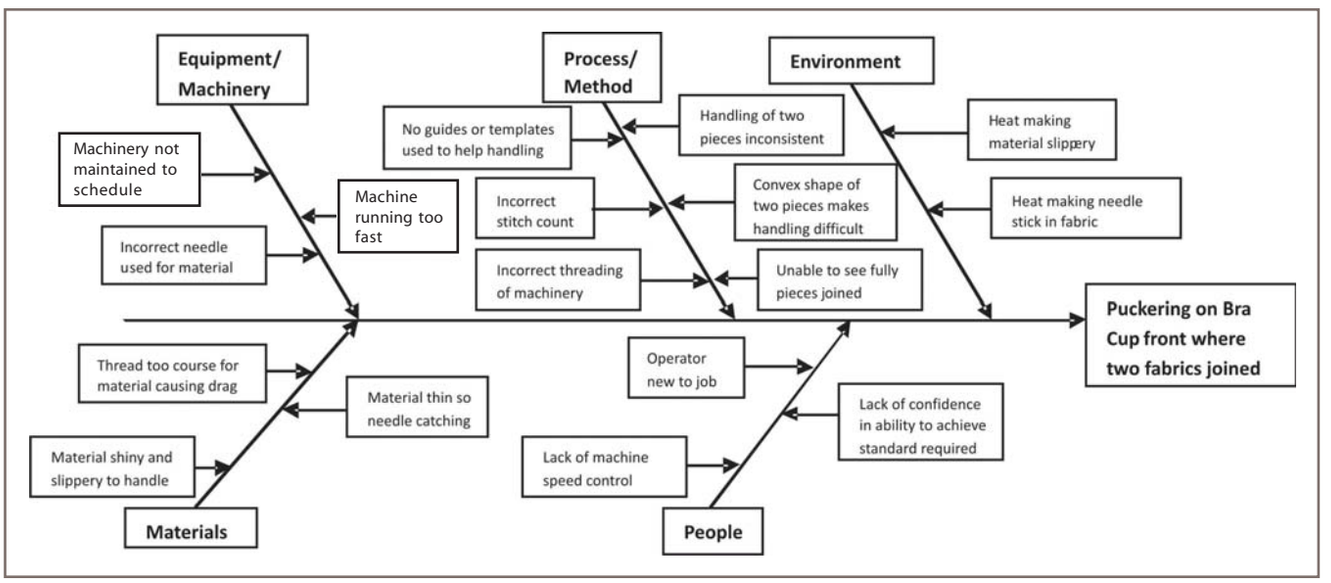


Diagram 1 - The fishbone diagram showing potential causes for puckering on bra cup

[1] Fishbone Diagram (Ishikawa Diagram)

Example – The puckering was visible on the front of the bra cups after two different fabric pieces were joined together and attached to the foam inner cup *(Figure 5)*.

The fishbone diagram as shown in *Diagram 1* was used along with brainstorming to come up with possible causes under the general headings.

[2] Brainstorming

The idea is simple, get your team together and write down as many ideas as possible without pre-judging them.

[3] Five Why's

Example – An operator sewed the wrong size button onto the cuff of the shirt. Using the technique of "5 Why's" we found the cause:

"Why was the wrong button sewn onto the cuff of the shirt?"

- "Because the operator did not have the correct size button."

"Why did the operator have the wrong size button?"

- "Because the stores did not issue the correct button for the cuff, so the operator assumed that it was the same as for the front."

"Why did the stores not issue the correct size button for the cuff?"

- "Because they thought it was the same size as on the front of the garment."

"Why did they think it was the same size as the front of the garment?"

- "Because they did not check the specification fully and were rushing to issue the accessories as they arrived late."

The effect was a simple error, but the causes meant that solutions had to be implemented as follows:

Short term fix: A template of the button sizes for the front and cuff for each garment size was placed on the operator's machine. The operator checked that she had received the correct button sizes for the size of garment she was working on each time she got a packet of buttons from the stores.

Long term fix: Stores and Merchandising teams worked together to ensure that accessories were available at least two working days before they were required online.

Conclusion

It doesn't matter how you capture the information. The key is to go to where the effect of the problem is – find out the current situation, measure it, identify potential causes and its solutions, create an action plan, and TAKE ACTION.

Once you have implemented changes, check to make sure that you are getting the desired effect, and if not, start again.

Finally, keep going. In our industry, everyday brings new and unexpected effects. If you can provide solutions, you will always be in demand.

In the previous article (*SW May 2010*), we discussed the nuances of the Single Needle Lockstitch Machine. However, special folds, curves and shapes require extra operator skill, but that too does not ensure accuracy and right quality. In this article, *Y.P. Garg, a sewing machinery expert offering his consultancy services to the industry for the last 22 years,* explains the nuances of gauge parts of the single needle lockstitch machine which can simplify the complex operations to achieve higher productivity while reducing operator skills which is usually wasted while handling or manipulating different parts.

Easing Sewing Complexities
Using Right Gauge Parts

The sewing process is completed in two steps: Feeding of the fabric in and out of the needle plate, and formation of stitch. So, the gauge parts are also divided into two categories depending on whether they feed or stitch. Presser foot, needle plate and feed dog are *feeding gauge parts*, while, needle, hook set, bobbin and bobbin case are *sewing gauge parts*.

The first prerequisite for a perfect seam is correct feeding; therefore an accurate control of fabric under the presser foot by the operator is very important. To perform the task with high accuracy requires highly skilled operator, but unfortunately the operation with such skill levels are not easy to train and retain. It is better to use compatible gauge parts for controlling and guiding fabric.

Presser Foot

The basic purpose of a presser foot is to hold the fabric in place while it is moving through the sewing machine but the availability of 200 different mechanisms and styles in pressure feet emphasis more than that. The different presser feet manipulate the fabric in a certain way to obtain the desired quality results and also help improve productivity. While you can do the majority of your sewing with just one basic foot, other specialized presser feet can make more complex sewing tasks easier such as hemming or gathering fabric or reduce pucker.

Presser foot (and feed dog) for straight seams

Contact area of presser foot with feed dog, on all four sides of the needle, feeds the fabric.

For stitching straight seams, a presser foot with even toe (having both toes equal) coupled with a 4 row feed dog is most appropriate (Figure 1).

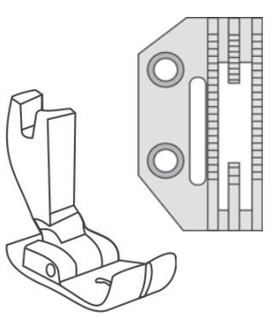


Figure 1 - *Four Row feed dog with even toe presser foot for straight seams*

The first prerequisite for a perfect seam is correct feeding; therefore an accurate control of fabric under the presser foot by the operator is very important

The contact area of feed dog with presser foot on all sides is equal, so feeding is also equal on all sides. Also, due to proper grip on all sides, the fabric wavers less, ensuring that the feeding is perfect for straight seams. Moreover, in a 4 row feed dog, there is an additional row of feeding teeth which gives support to the fabric at the centre. All these factors contribute their bit in reducing the skill requirements of the operator, making it possible for him to work with higher degree of concentration on a straight seam.

For accurate straight line sewing, the fabric piece to be sewn is fitted in a stitching template made of acrylic and the operator just needs to guide the template to the needle on a track made on the machine bed. This system of tracks not only improves accuracy but also increases the sewing speed.

Presser foot (and feed dog) for curved plies

For curved plies, feeding is not necessarily required to be equal on all sides as in a curve, the length of the edge is not equal (it is longer or shorter, see Figure 2) to the length of the seam. In this case, a feed dog with three rows along with matching presser foot with shorter right toe is most suitable. Since the left toe of the feed dog is longer, the feeding in the left is more and this facilitates easy handling of

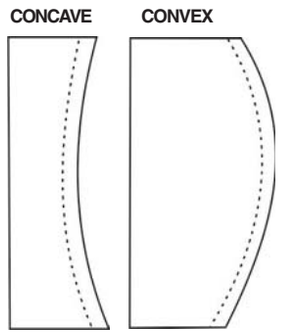


Figure 2 - *The length of the edge is shorter than seam length in concave shapes, while it is longer in convex seams*

the heavy bulk of the fabric hanging on the left side of the needle. Also, foot contact with the feed dog in the right of the needle is less. This means that the grip on the right side is less, making it easy for the operator to adjust the curved plies near the needle.

If we use a feed dog with three rows for straight seam, the lesser grip on the right side of the fabric will create undue flapping of fabric (Figure 3).

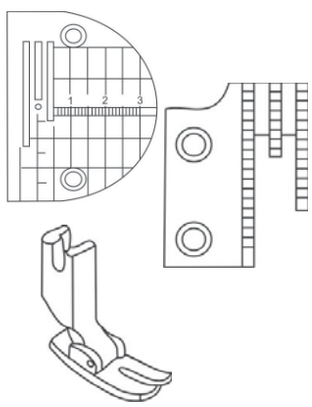


Figure 3 - *Three row feed dog with uneven toe presser foot*

Presser foot for tighter/ smaller curves

A narrower presser foot for tighter, sharper and smaller curves (Figure 4) is preferred. All because the area of contact in front of the needle grips the fabric; and firmer this grip is, the more difficult it is for the operator to turn the fabric. A narrow toe of the presser foot grips the fabric on a smaller area, making it easier for the operator to control curved fabric closer to the needle point. The sharper the curve, smaller and narrower presser feet would obviously become more suitable.

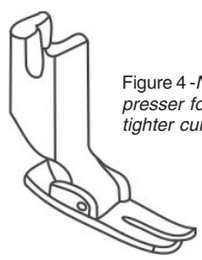
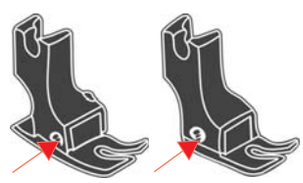


Figure 4 - *Narrow presser foot for tighter curve*

Hinged presser foot

Most of the presser feet used in factories today is hinged. Even the earlier mentioned presser feet for straight and curved seams are hinged. A hinged presser foot is moulded in 2 separate pieces (body and toe) joined together by means of a hinge. Such presser feet gallop while seam is being stitched (an effect commonly called cantilever effect). Since the presser foot is hinged, it is free to perform motion somewhat similar to human foot while walking. Hinged presser foot can be used for all sorts of seams, but it is especially handy while stitching crossover seams (seam over seams) or any other seam where thickness varies. The cantilever effect compensates for the uneven thickness rendering a perfect seam.

The dynamics of hinge position in a presser foot is analogical to a see-saw. The longer the arm length of a see-saw is, lesser is the pressure required to press the arm and vice versa. Similarly, when the hinge is close to the needle penetration point, the pressure applied by the presser foot on the fabric is higher which is good for medium to heavy weight fabrics (Figure 5).



Presser foot with hinge close to needle penetration point (ideal for medium to heavy weight fabrics)

Presser foot away from needle penetration point (ideal for lightweight fabrics)

Figure 5

For lightweight fabrics, use a presser foot with the hinge away from the needle penetration point so that the pressure on the fabric is less.

To use non-hinged presser feet, the garment should not have any cross seams to pass over or any thickness variation otherwise there is a possibility of fabric damage

Non-hinged presser foot

Non-hinged presser feet/ solid presser feet (Figures 6 & 7) are used for attaching pipings, cordings and zippers where they provide more stability as they don't gallop. To use them, the garment should not have any cross seams to pass over or any thickness variation otherwise there is a possibility of fabric damage.

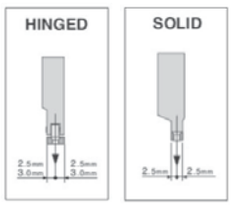


Figure 6 - *Hinged and solid presser foot*

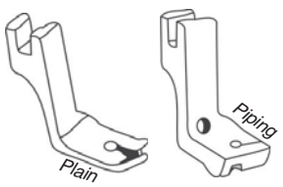


Figure 7 - *Solid presser foot for plain seams and piping*

Compensating Presser Foot

Seams that involve top stitching, fabric thickness in both sides of needle is different, and to accommodate the fabric thickness, a compensating presser foot is best suited. For this, the compensation presser foot has one toe free to move up or come down adjusting to the thickness of the fabric. Also they have a guide in the toe which is used to maintain the even seam margin while top stitching.

These feet are of two types, namely – CR (Compensating Right) and CL (Compensating Left) with various sizes varying from 1/32" to 1/2".

There are also many other types of compensating presser feet specific to a particular application:

A presser foot (see Figure 8) which has the right guide in contact with edge of fabric in front allow sudden meandering and turning of fabric, while the left toe and heal is feeding the fabric.

The presser foot (Figure 9) with an extremely small toe in front of needle reduces the grip in the front to make it easier to take turns while top stitching on curves.

For faster and stable top stitching of profiles, i.e. fused collar/cuffs with uniform seam allowance, a presser foot with guide in front of the toe is preferred (Figure 10).

The presser foot with a longer right toe (K type) makes it suitable for light fabric and knit fabric which are more prone to flapping (Figure 11). The extra grip on the right prevents any fabric flapping.

Dense fabrics where structural jamming of fabric causes puckering, broader area near needle hole (T-type) allows displacement of yarns of fabric thus reducing the visual distortion and structural jamming of fabric near needle hole (Figure 12). It is different from the K-type (Figure 11), as it has a broader needle hole which accommodates the displaced yarns when the needle penetrates.

Presser feet with narrow toes (see Figure 13) are suitable for top stitching on narrower plies with less area.

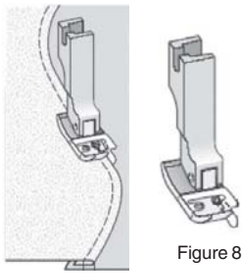


Figure 8

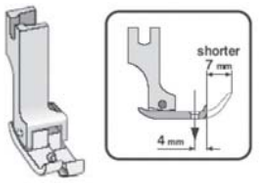


Figure 9

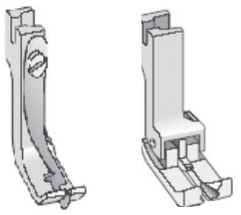


Figure 10

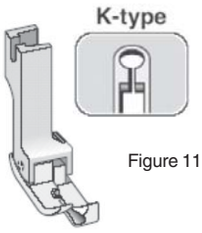


Figure 11

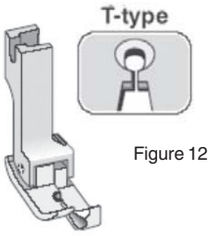


Figure 12

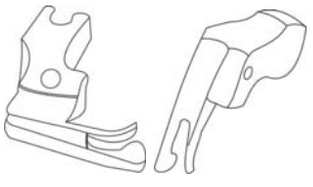


Figure 13 - *Presser foot for topstitching narrower plies*

In the I-type presser foot (Figure 14), the area of contact in front of the needle is more. Moreover, the feed dog is light weight, making it suitable for light weight fabric. More grip in the front also prevents the slipping of fabric and gives more control.

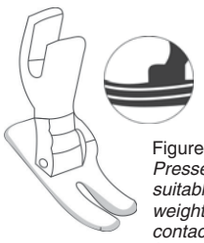


Figure 14 - *Presser foot suitable for light weight due to less contact area in front of the needle*

The presser foot with a dual adjustable hinge (Figure 15) whose position can be adjusted on the front and back side heals is a special anti-puckering type presser foot for light fabric.

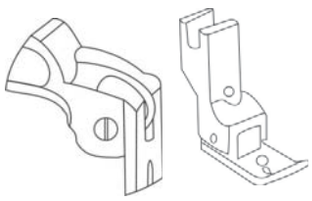


Figure 15 - *Dual adjustable hinge reduces puckering*

So it can have controlled double cantilever effect (on the front and back as well).

A special presser foot-needle plate combination is meant for controlling/reducing puckering which occurs due to feed dog/needle plate/ presser feet. While stitching, lower ply usually tends to feed more than upper ply as it is in direct contact with the feed dog, which causes puckering. In this setup

(Figure 16) the lower ply is tensed due to springy plate in front of the needle. Moreover, this springy plate prevents any ply slippage during sewing. The presser feet with specially created spring reduces pressure on the fabric at the time of stitch forming.

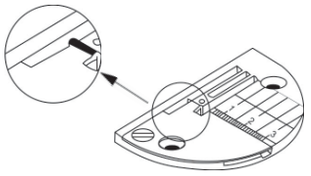


Figure 16 - *Springy plate in front of the needle prevents any ply slippage*

The presser foot with one side narrow feet is best for manipulating curves. The part of the presser foot on the right side of the needle is thinner, allowing the operator to feed and manipulate fabric for ease of operation at curves (Figure 17). Similarly, presser feet with left side narrow are also available.

Figure 17 - *Narrow right feet eases manipulation of fabric at curves*

Special presser feet

Presser feet for small curves – This presser foot has a special ball beneath it which makes it possible to turn the fabric sharply. (Figure 18)

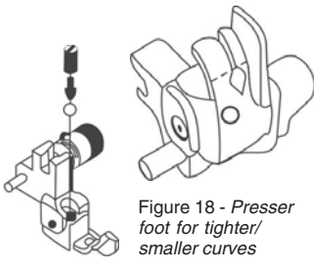


Figure 18 - *Presser foot for tighter/ smaller curves*

Presser foot for ditch stitch (Figure 20) - This particular type of presser foot has a guide on the right toe to ensure that the stitch being formed falls exactly into the ditch in the waist band.

Figure 20 - *Presser foot for ditch stitch*

Sliding presser foot – This presser foot slides with the movement of feeding in elliptical motion, in direction of feed dog (Action can be called floating type, thus reducing feed pucker). It is used for stretchable fabrics which are prone to pucker and where lower ply gets damaged because of stretch (for example Bias or Crepes). (Figure 21)

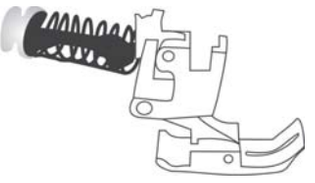


Figure 21 - *Sliding presser foot*

Transparent presser foot - Wherever engineered (precise) matching of checks and stripes is required, it is difficult to see under the presser foot. For such cases special see-through plastic presser foot with Teflon sheet are available.

Feed Dogs

Feed dogs are the feeder mechanism in a sewing machine right under the presser foot which are used to pull fabric through a sewing mechanism. Typically resembling two or three short, thin metal bars, crosscut with diagonal furrows, which move in a elliptical motion within the grooves of the throat plate/needle plate. The feed dog also regulates the stitch length.

Selecting the right feed dog and needle plate for thin and thick fabric (light to heavy) Heavier the material, bigger is the feed dog pitch (teeth per inch) and thicker is the needle; also the bigger needle-hole size. Besides, feed dog have number of rows with varying sizes with the matching needle plate for specific applications in different pitches and needle hole sizes.

General Adjustments applicable to feed dogs

Front and back adjustment – In all sewing machines the static position of feed dog (when no stitching takes place) can be shifted towards or away from the operator to adjust the pulling or pushing action of the fabric and any other undue movement or flapping of the fabric.

Up and down adjustments – The height of the feed dog is adjustable. Higher the feed dog more is the feeding.

Slanting forward and backward adjustments – When the feed dog is tilted so that the rear portion is elevated (up) and front portion down, then we get the pulling effect, resulting in less puckering. Reverse setting increases puckering (this is done to create gathering effect).

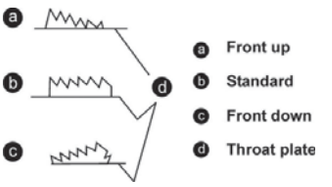


Figure 22 - *Slanting adjustment of the feed dog*

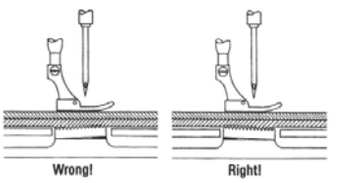


Figure 23 - *Setting of the Feed dog*

Feed Dog Textures

Angular cut and Diamond cut feed dogs (Figure 24) are usually used for sensitive fabrics which are likely to have grain damage. The point of contact is on a bias so the teeth of the feed dog touch multiple warps and wefts.

Diamond cut feed dog is usually preferred on crepes like georgette, chiffon or fabric with lots of grains to reduce their flattening.

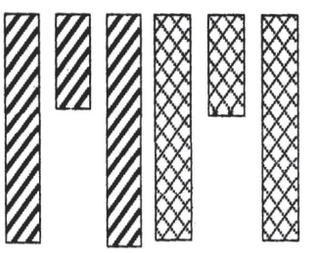


Figure 24 - Feed dog textures

Wherever engineered (precise) matching of checks and stripes is required, it is difficult to see under the presser foot. For such cases special see-through plastic presser foot with Teflon sheet are available

Needle Plate

The needle plate (or throat plate) is a removable part, which protects the bobbin and underside of the sewing machine. The throat plate has seam guides. Always verify that the machine seam guide is accurate with the needle position you are using. Many newer machines have built in visibility of the bobbin area so you remember to fill the bobbin before starting a long seam. The throat plate is devised with hole to allow the needle to penetrate into the fabric and slots to allow the feed-dog to emerge from underneath.

Needle plate chamfering for stitch stability

Each needle plate has radius (shown as R in Figure 25), which is called chamfering of needle plate. It is responsible for stitch stability. The radius of chamfering depends on the kind of fabric, needle size and thread thickness. At the time of piercing, fabric goes down the needle hole to an extent and this chamfered radius allows warp and weft of the fabric to spread within the chamfering radius, thus reducing the flapping action.

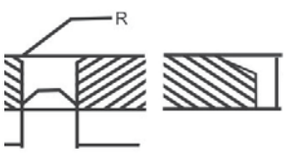


Figure 25.
Needle plate chamfering

Needle plate for folders and binders

Fabric has the tendency to unravel or bounce back specifically when folded before actual stitch formation (Figure 26). So, the aim while feeding in from binders/folders is to deliver fabric closest to needle to minimize/ eliminate unraveling.

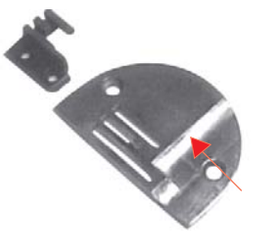


Figure 26.
Chamfering of needle plate

Folders usually are to be fitted on the machine bed plate. They have got some thickness and they usually deliver the fabric at a higher angle than the needle plate, thus allowing the fabric to relax between needle plate and the folder. So, to avoid the higher angle, front portion of the needle plate is chamfered (cut down) so that folder can be placed in the chamfered portion to deliver the fabric as parallel to the needle plate as possible. These are usually available with 3 to 6 rows for different widths of the folding material to be fed at higher speeds.

Have you ever considered training your supervisors? If problems like low profit, employee apathy, poor quality, excessive labour turnover or absenteeism, unionization threats, restricted output and resistance to change sound familiar to you, it's high time you did. Training of supervisors however cannot be done using cognitive or theoretical methods keeping in view their educational qualifications. It has to be done with the aid of something interactive and practical which is easier for them to follow.

"Let's Make You Super Wiser", a game-based supervisor training module focusing on the roles and responsibilities of a supervisor has been developed by *Neelima Prasher and Priti Agarwal, both former students of Department of Fashion Technology NIFT, New Delhi under the guidance of Prof. Prabir Jana from NIFT and in collaboration with Contact Communications (Industry mentor Shlok Hariramani)*, during their graduation research project. The following pages outline the main aspects of the training module.

Make Supervisor Wiser
Play Games

A training session in progress at Golden Strand, Noida

Supervisors involved in a game at Shyam Tex Exports, Faridabad

The supervisor is one of the most important person in the entire garment manufacturing process, because it is he who manages the needle up and down, which keeps the organization black, but sadly it is the most neglected function in the garment industry. The traditional garment industry approach of promoting an operator to the position of supervisor is hardly appropriate in today's competitive industry. Majority of the supervisors working in the industry have no professional education in garment manufacturing; their knowledge is based on their work experience only.

Improving supervisory practices is crucial to the success of India's garment industry. In the face of increasing competition, the garment industry depends on the optimum utilization of the capabilities of its workforce. Improving labour-management relations and productivity is important, and training can make a difference between success and failure. Training of supervisors to make them understand what is expected of them and also their daily job responsibility therefore becomes very important. "Let's Make You Super Wiser", a game-based supervisor training module has been developed to address this issue.

Why Games?

Information-based techniques, such as lectures and conferences, are designed to impart large amounts of factual information to many people simultaneously, making them very efficient and cost-effective. However, because they are usually unidirectional, they are not suitable for learning procedures or skills; their main strength is in the dissemination of factual or background information.

ST-12

Digitally Controlled Fully Programmable Button Feeder Attachment

Successfully running in Bangladesh & Srilanka

PATENT

APPLICATION

This robot mechanism device is used to feed the buttons to the button clamp on the button sewing machine. Operator no need to align the holes of button. With its increased feeding speed, the sewing machine head speed can be used up to maximum, which results in higher productivity. Using the device a beginner shows double productivity than skilled operation.

FEATURES

- Easy installation to any brand of lockstitch button sewing machine.
- Different type of Sorting method in vibrator. Vibrator speed can be controlled as per requirement. Less traveling time between vibrator and clamp due to minimum distance.
- Transfer Pin to be changed by operator when the size of the buttons are changed, as per their center hole distances.
- Two different modes available; Automatic (Continues feeding to the button from the feeder with the help of sensor), Manual (Operator manually places) the button to the clamp.
- Fully programmable digitally controlled mechanism with LCD.
- The X & Y axis automatically get adjusted according to the button dia. The sample button to be kept in a place so encoder automatically give signals to change X & Y axis stepping motor.

Manufactured By :

NKN (Korea)

ST-10

Button Wrapping & Knotting Machine

Normal Thread Used

PATENT

APPLICATION

The machine is used for Wrapping & Knotting of the Button after providing looseness in a Button Stitching Machine. This process provides a strengthen steam of button which is attached to the fabric with looseness. By using this process the button hole placket fits easily into the button placket. Also after fixing the button there in no expanding view of the button hole.

FEATURES

- Fully programmable LCD Operation Panel
- Wrapping Mechanism : The stepping motor controlled by Microprocessor ensure that wrapping frequency is equally divided between the button and the fabric. The distance can be programmed on the LCD display Panel.
- Knotting & Wrapping Option : The default setting in the machine is programmed as one knotting is staring wrapping, three knotting in end. There is a programming facility available in control panel option as (a) Knotting, Wrapping, Knotting (b) Knotting (c) Wrapping.
- Knotting Mechanism : Individual arms controlled by Microprocessor and Stepping Motor ensured a perfect double hand made knotting without any use of needle and hook assembly.
- Thread Mechanism : By using pneumatic system easy to thread the machine without any delay. The way of threading is also explained in the LCD Display panel.
- Thread Trimming Mechanism : By using pneumatic thread trimmings system it is used guaranteed that there will be no damage to the button & the fabric.

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Practice-based methods, such as games and simulations are designed to allow the learner to rehearse the material being learned, and receive feedback on his or her performance. These methods are best suited for learning interpersonal skills, complicated procedures, or the use of tools or equipments. Because of the feedback and practice design, learning occurs more quickly and with better retention.

Similarly, the lecture-based methods are more suitable if the participants are comfortable with the aspect of classroom learning. The target audiences here – the supervisors – however are people who believe in learning practically as they have majorly learnt all they know by actually doing it. So it becomes necessary to design a training module for them which keep in mind the way of learning which is preferred by them.

Also the training module developed drives its inspiration from Confucius' principle…

"Tell me and I'll forget. Show me and I'll remember. Involve me and I'll understand".

Therefore, a supervisory training module has been developed based on games to ensure that basic education level does not hinder while imparting training and efficacy is maximum. The training module comprises of a presentation which uses lots of visuals and videos and less of text, games, interesting discussion points and feedback forms to be filled by the supervisors. The entire module is in Hindi for easy understanding of supervisors (in the Delhi-NCR region). The module has 12 games and the training duration is 2 hours spanning over 2 days.

How the Games were Developed?

A lot of research and effort was involved in the development of games for the training module. Initially, various sources for training/ learning games were surveyed which included reading management books, literature on learning games for children, etc. The sources of information included websites, ebooks, book previews and library visits to IIT (Indian Institute of Technology) Central Library and AADI (Action for Ability Development and Inclusion) School Library. Also an institute visit was undertaken to Rural Development and Self Employment Training Institute to practically see how the games were being used for training. Some games were selected after this research and some games were developed by the students on their own. The games shortlisted through various sources were adapted to suit the training needs. The final games were pilot tested at different companies and they were fine tuned. The improvised games were documented as a part of the module.

GAME 1.
KNOW THEM!

Objective: To make the supervisors understand the importance of knowing their operator's skills and abilities (Operator skill matrix).

One person is called upon at random to play the game. The person has to write a word exactly as given (Diagram 1) with each alphabet in the same colour as shown.

Diagram 1 - Alphabet writing

र ा ज म ह ल

Scenario 1: The participant is given 5 pens all of which look identical, i.e. the colours of their ink are not apparent by looking at them. The player needs to check it by writing with each one of them and then write the right letter in right colour. The time taken by the player to complete the task is noted.

Result: While playing the game, it is found that since all the pens appear to be same, it becomes difficult to choose the right pen, and the player wastes a lot of time checking the colour of the pen before actually writing the letter.

Scenario 2: Now the participant is again given these 5 pens but the colours of their ink are apparent by looking at them. The participant is now asked to repeat the task. Time taken by the player in this case is also noted.

Result: While playing the game in the second scenario, it is found that task of checking the colour of the pen is eliminated as the refill inside the pen is of the same colour as the body of the pen.

Conclusion: If results of scenario 1 and scenario 2 are seen, we find that the task is completed faster when we are aware of the colour of the pens. Similarly, it is extremely important for the supervisors to know their operator's skills and abilities so that when line setting is done for a new style, each operator is assigned a task which he/she is capable of performing successfully.

GAME 2.
BALANCED!

Objective: To make the participants understand the importance of line balancing in improving production.

In this game, two people are called at random to play the game. The task of one person is to write the words as shown in Diagram 2 on the paper sheet provided and the second person has to fold the paper sheet as shown in Diagram 3.

Scenario 1: Two people are put to do the jobs. One person writes in the prescribed format (as shown in Diagram 2) and the other person simply folds the page (as shown in Diagram 3) on which the writing has been done. The output (number of folded pages) in this case is noted within 30 seconds.

Result: The person doing the folding job stands idle for some of the time as the other person writes.

Scenario 2: One more person is called up for the game and is asked to write in the format. The output in this case is also noted in the same time period.

Result: The person doing the folding has more work now when compared to the previous scenario and he is occupied with work for a greater percentage of time. Also, the production (number of folded pieces) is more in this case.

Conclusion: If the results of scenario 1 and scenario 2 are seen, we observe that the task of writing takes up more time when compared to folding the page. So when two people are engaged in doing the task of writing, the folding operator is also engaged in his task for more amount of time as compared to the previous case and also the output in this case increases. Therefore this activity demonstrates the importance of line balancing as to how it increases production and ensures optimum labour utilization.

Diagram 2 - Writing format

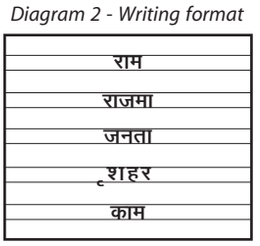
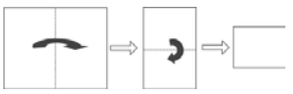


Diagram 3 - Folding procedure



GAME 3.
TRAINING THE OPERATORS

Objective: To make the participants understand the importance of operator training.

Here, two people are called at random to play the game. Each of them is given a puzzle board and puzzle pieces to complete the puzzle as shown in Diagram 4.

Scenario 1: The first participant is given the puzzle pieces and the puzzle board and is asked to arrange the puzzle pieces in the desired shape on the puzzle board. This participant is only told that the numbered faces of the puzzle pieces should face up and nothing else. The time taken to do this is noted.

Result: The participant is confused and has no idea where to start. He keeps placing the pieces at random and tries to solve the puzzle. Sometimes he might not even be able to solve it. (In such cases, stop him after giving considerable time).

Scenario 2: The second participant is given instructions on where the various coloured pieces fit in. He is told two main things – that numbering on the pieces goes from top to bottom; and that once the numbers are arranged, the pieces get automatically fitted in correct position. In other words, if the numbers appear upside down, the person is placing the pieces incorrectly. For this purpose, he is shown the above illustration. The time taken to complete the task now is noted.

Diagram 4 - Puzzle Board

Result: The participant is more confident as he knows what exactly is to be done and starts the job as soon as he is handed the pieces.

Conclusion: On analyzing scenario 1 and scenario 2, it is seen that instructions are important. It is very important for supervisors to train their operators to get better results because only when the operators know what exactly is to be done and how it is to be done, will they be able to perform, giving higher output.

Response from the Industry...

The training module was executed at RADNIK Exports, Gurgaon; Shyamtex Exports, Faridabad; M.M. Exports, Faridabad; Golden Strand Pvt. Ltd., Noida; Marco Overseas, Noida; and Manvi Impex, Delhi. The pilot testing at these companies in all involved 39 supervisors.

The method of training through games was found to be effective and well received by the supervisors as well as the higher management of the apparel industry. It was found that effectiveness of game based training has no relation with educational background of supervisors and understanding level is higher than any cognitive (theory based) approach.

The supervisors gave positive feedback about the training module. Here, we discuss what the supervisors had to say about the training they received.

"The use of pictures is something new and it helps us to understand and retain more."
— SUPERVISOR, RADNIK (215 UNIT)

"Learning through games was fun as training like these should happen often as they are beneficial and help us focus on our work."
— JAKKI, SUPERVISOR, RADNIK (294 UNIT)

"The use of pictures and videos has helped us understand a lot better and we can even remember it. Even the games played were more interesting and fun."
— SUPERVISOR, M.M. EXPORTS

"The training experience of learning through games was very interesting but the information about time study and new machineries should also be included."
— NEELAM SHARMA, SUPERVISOR, M.M. EXPORTS

"Training was good and it would be all the more better if garment-related videos are also added."
— RAM KISHORE, SUPERVISOR, GOLDEN STRAND PVT. LTD.

"The learning through games keep you gripped and don't let you get bored during the training."
— KAMAL CHAUHAN, SUPERVISOR, MANVI IMPEX

TABLE 1: TRAINING MODULE FOR SUPERVISORS

SKILL CATEGORY	ROLE	NAME OF GAME	GAME FOCUS
Technical skills	Measuring work and setting target	Boat making exercise	Target setting
	Line balancing	Balanced!	Line balancing concept
	Instructing operators and giving orders	Training the operators Braiding!	Instruction/ Training Instruction method
Management skills	Team building and role definition in the workforce	Deck them!	Working together
		Jigsaw team building	Working together
	Dealing with excuses, especially "That's not my job" syndrome	Figure it out	Working with onus
Natural skills	Instructing operators and giving orders	A read and do Test	Right communi-cation
	Knowing operator skill matrix	Know them!	Know operator skills
	Introducing and orienting new employees	Introductions	Induction
	Making sure that no preferential treatment is given to any employee	Not fair!	Biasness
	Quality checking/ Inspection	Arrange the shades	Shade matching

Skills/Roles Addressed by the Games

The games developed in the training module cover various roles of supervisors and the role each particular game discusses about has been summarized in Table 1. The skill category to which the particular role belongs has also been mentioned.

The games developed are for the apparel industry supervisors involved with the cutting, sewing as well as the finishing departments. These games can be used for training of all these categories of supervisors. However, there are two games which may not be particularly useful for training cutting supervisors. These are 'Balanced' and 'Figure it out' because the former demonstrates the concept of line balancing which is not very essential for the cutting supervisors to know and the latter involves the knowledge of sewing defects which cutting supervisors may be apprehensive about.

Although all the games have a primary role that they explain, some games may be used to explain more than one role. For example: 'Know them' is primarily to demonstrate the importance of his operator skill matrix. It may however be used to demonstrate that newer and more effective methods must be sought for doing a certain task.

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With global industry becoming increasingly less tolerant to 'mistakes' and buyers searching for better services, the challenge to be efficient is not only for the factories, but the buying offices too are taking on more responsibilities and training their people to execute defined roles in the 'best' way possible or to create a knowledge centre to help its employees achieve more. Triburg, one of the largest buyer operations in India, has taken the concept of skill development to another level and besides on-floor training, has developed an in-house module for knowledge management. This module has the double responsibility of skilling employees while also having documented case studies of problem areas in handling products with suggested solutions. *Manas Chakrabarti, Chief Learning Officer, Triburg,* shares the 'knowledge management' module at the buying office and the edge that it has provided in skill development with *Team StitchWorld*.

Knowledge Management @ Triburg

Over the last 30 years, Triburg, India's leading apparel sourcing company, has built a brand that has three key features: 360-degree thinking, deep engagement with the product, and continuous learning. Given the diversity of products that the company deals with, learning accumulates very quickly on a daily basis. In the early days of the company, living the essence of the brand was easy because you could just get people together for intensive sharing and training sessions.

As Triburg teams grew larger and more specialized, and as they became more geographically dispersed, the strategy of getting people together became increasingly difficult. The company realized that the solution lay in using a technology-based approach to 'knowledge management'.

Triburg has created a comprehensive 'knowledge management' platform that addresses the complex learning needs of a dynamic, ever-changing industry. Developed entirely in-house, the platform is flexible, scalable, secure and robust. As the site evolves, some parts of it will take on the shape of a performance support system (PSS), which means a tool that can be used to support an Associate's current tasks. An example of a PSS is the set of conversion tools we have built into the site for converting fabric weight, length, currency, time zones, etc. Other parts of the site will remain focused on the core learning issues of conceptual understanding, case-based reasoning and analytical and decision making skills.

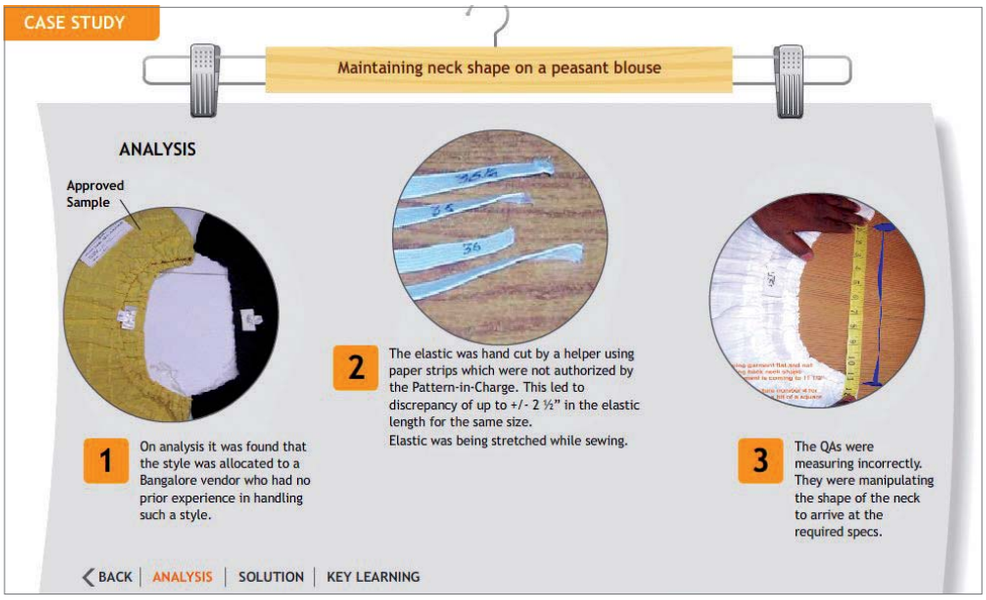
The most pressing knowledge management need at Triburg is to share learning from past mistakes. Although teams typically are specialized by product type, many issues are common across teams. Also, problems solved by one

Triburg has created a comprehensive 'knowledge management' platform that addresses the complex learning needs of a dynamic, ever-changing industry and shares learning from past mistakes. Developed entirely in-house, the platform is flexible, scalable, secure and robust

team are repeated by others because they do not know about solutions that exist in other teams, sometimes in other cities.

The Case Studies section of the learning website has a large collection of past issues and their resolution. The cases are classified in terms of fabric, trims & embellishments, product development, product testing, technical evaluation, manufacturing, and wet & dry processes. Each case describes the problem or issue, provides perspectives from multiple roles (e.g. merchant, QA, customer, etc.) and describes the solution. Each case ends with key learning that users can remember and apply to their own situations.

One of the most popular parts of the site is Simulations. These are interactive exercises that place Associates in realistic business situations. Users have to navigate through the situation using their knowledge of merchandising and product management. Associates are presented with a series of cumulative decisions – correct decisions take them to mission success, while wrong decisions lead to failure. Three scores are tracked in each Simulation: Cost of Quality, Resolution Time and Network Quotient. Network Quotient measures the degree to which a user reaches out to experts in the system while trying to solve



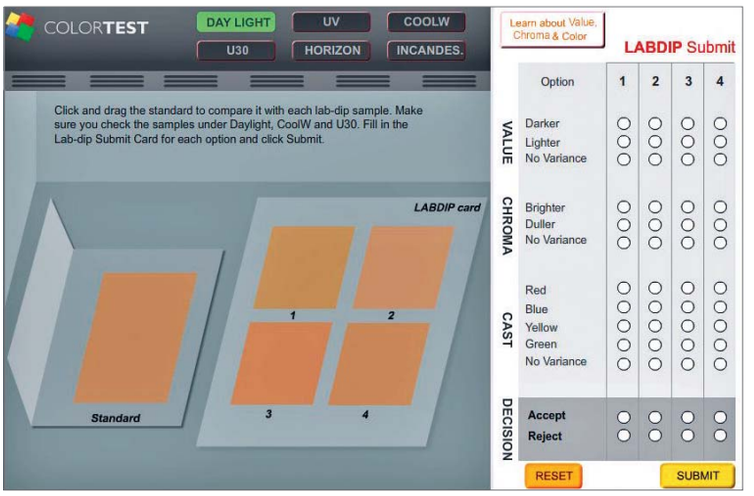
The software also has many case studies with solutions for problems that arise during production

their business problem. This is one of the most important lessons that Triburg instills in each Associate – don't fly solo, but use the expertise that exists in the company.

Simulations have turned out to be the most powerful training tool on the site. They train the user to think logically and holistically about problems and how to approach them. Simulations mimic the real world of decisions, but allow Associates to make mistakes and learn from them. A 15-day decision making process might be compressed into a 30-minute Simulation, leading to an intense learning experience.

Interestingly, Simulations are often used in groups of three to five Associates. At each decision point, the group debates the pros and cons of each decision and learns from that group interaction as well. Simulations module turned out to be a powerful tool in candidate selection. Every action and mouse-click of the user is recorded, so we can analyze the thought process of the user. We are able to report how many times a person attempted each Simulation – how long they took, were they successful, their sequence of decision making and their scores on each attempt. It's almost as if you can look into the mind of the candidate!

There are several other kinds of interactive learning modules on the site. Some deal with colour and train the eye of the merchant through a simulated light box. Users can test their colour discrimination and be aware of their strengths and weaknesses when it comes to colour approvals. The online colour discrimination test also records scores, and displays names of Associates with the best colour discrimination ability. Other modules deal with fits and patterns, where the user can change patterns and see the result on a 3-D model. The idea is not to make merchants pattern experts but to create a vocabulary that can be used in productive discussions with the customer and the technical team. Interpreting and closing fit



This section on COLORTEST trains the eye for correct colour identification

comments quickly can have a significant impact on timeliness and customer satisfaction.

The Product Development module on the site includes several interactive exercises in which the user is given a style and has to come up with its design options. As the user makes changes to the style, the cumulative impact of the changes is shown on each of the factors on a dashboard. This module trains the Associates to think in terms of multiple dimensions of the product. An online coaching tool called the Email Coach was created wherein the Associates were presented with a range of situations. Based on a situation, the Associate has to compose an email. This email is then sent to a team of Coaches in the company who provide detailed feedback on the quality of the email. Associates can see their own emails and feedback as well as all other Associates' emails. Names of Associates and Coaches are not included to ensure that people do not feel insecure about posting their emails and receiving feedback.

For new hires at Triburg, one of the most important places to visit on the site is the Process Overview Section. This section describes the Triburg SOPs through an interactive process map. The user can drill down to the lowest level of each process. Each step of a process is described in detail. Document and formats relevant to a step are available for download and review. Apart from interactive modules, the site includes a comprehensive database of information related to textiles and apparels. The database contains descriptions of key concepts, such as different kinds of weaves. There are videos of important manufacturing and finishing processes, as well as a glossary of terms. So, if a customer is interested in sublimation printing, all that the Associate has to do is visit the site to know what that means.

For people to invest time in learning, and to take the time to anticipate problems, there needs to be a cultural change in the industry. Traditionally, people have been rewarded for their fire-fighting ability. Very rarely do we investigate why the fire started in the first place and what we can do to make sure it never happens again. Short-term productivity has been more important than long-term success. Triburg is trying to reverse this tide. As a global player, the company needs to create, share and reapply knowledge on a global scale. This can only happen through smart use of information technology and the sustained engagement of every Associate as an active contributor. Much needs to be learnt and implemented to make this work for the long term. It's going to be an exciting journey!

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E. H. Turel-Vibemac to Organize "TUREL CLASSIC" Private Show from 17-19 July

The Duo to open exclusive 'Spares and Service Centre' in Bangalore

Private shows are important for the industry as they provide a focused platform for the exhibitors and visitors to exchange in detail the technicalities of specific machines for a particular line. While the exhibitors are sure to attract a captive audience intending to use those very machines, visitors, get the opportunity to see live demos of those very machines which are exacting their requirements.

Keeping in line with their objective of bringing the latest technology into the Indian Sewing Industry for its captive audience, E.H. Turel and Vibemac together are organizing – "TUREL CLASSIC", an in-house exhibition at E. H. TUREL Centre of Competence (COC), Bangalore. Manned by skilled technicians – to demonstrate the quick yet detailed production capability of the machines and the simple yet effective methods of handling the products, the machinery show will focus on the most advanced technologies available in the International Sewing Industry Circuit.

1010V4F1 for J-stitch

The exhibition will showcase for the first time in India the much awaited 'Double Colour Technology' from Vibemac which makes it possible to stitch with two different colour threads, stitch lengths and thread thickness in one shot. This technology is available in the new V700 back pocket hemming unit, with features that boast of improved sewing performances, more flexibility and incredible stitching quality to hem 2000 pockets per hour. The machine is able to stitch on every kind of fabric, any size/shape of pockets without adjustments.

Another advanced machine the 1010V4DCS, back pocket decorative unit has an unloader and stacker which allows one operator to easily run two machines at the same time, thereby increasing the productivity by 25%.

For J-stitch Vibemac offers 1010V4F1 in Double Colour Technology, which stitches around 300 Js per hour without depending on operator skills.

The V100H is a double head pocket creaser which is designed to allow quick change of jigs. It works with new folders to crease even the pockets of irregular shapes independently.

Apart from the DCT series, other advanced technology machines will also be put up at the show which will include 3022WB406FLX, waistband flexible unit, convertible from lockstich to chainstitch or a mix of both at the same time, with a sophisticated puller system specific for double contour waistbands; 4650EV7PR and

4650EV8R, programmable loop setters, with 4 different loops available (normal, sportswear, classic and double; 3022BHE, bottom hemming unit, convertible from lockstich to chainstitch; 2261H feed off the arm machine with smart puller system and DCP (Dynamic Pressure Control) presser foot for a constant stitch length even on heavy thickness.

The show will also include ASS, Bella, Duerkopp-Adler, IMA, Japsew, Kaiyu, Kingtex, Macpi, Maier, Naomoto, Supercrease and Typical technologies from the portfolio of Turel Group, besides automats and demonstrations from other reputed sewing machine manufacturers.

Another highlight of show would be the launch of the collaboration between Turel and Vibemac of the start up of their first ever exclusive 'Spares and Service Centre' which will make available genuine Vibemac spares at the best prices to the Indian and South East Asian countries.

1010V4DCS Back pocket decorative unit

3022 BH Bottom hemming unit

Expecting a huge turnout of existing and new customers, both the companies are very optimistic of the future of the industry. "I have many customers in India and every second day I get new enquiries from unexpected quarters showing that the industry is ready to adopt better technologies," says Enrico Guerreschi, Vibemac Sales Director, Worldwide Market. Moreover, the Indian market is producing almost 60-70% for the local market. The show will provide a good platform to tell our customers that Vibemac gives the possibility to customize even a loop bartack to let their products become more original, adds Enrico.

Viraf Turel, MD, E. H. Turel is happy with the way the industry is moving forward and says, "Presently the industry is booked till October and the way the Chinese industry is getting uncompetitive due to the increase in labour wages and the hardening of the Yuan, I see lot many orders coming to India beyond October."

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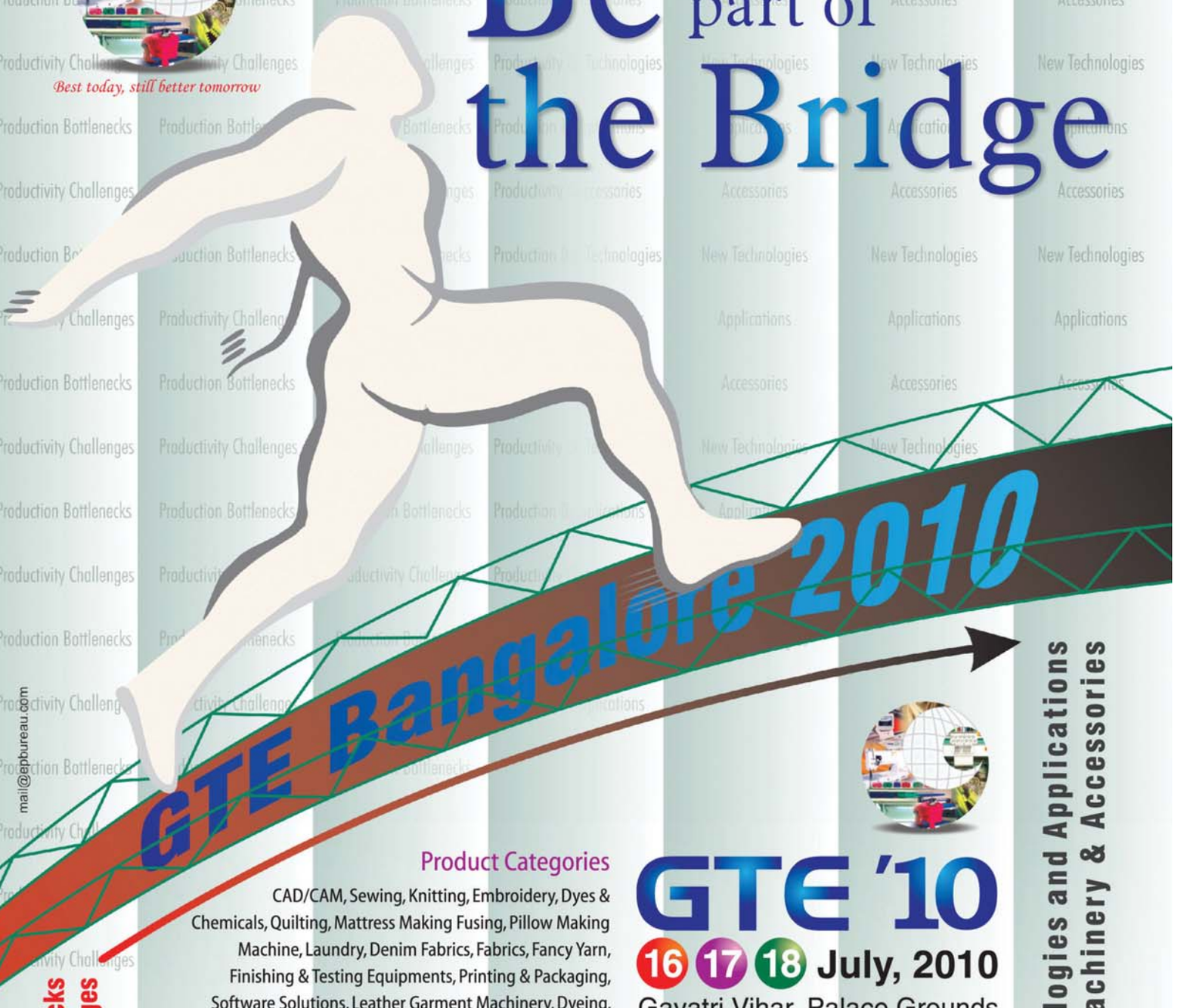

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