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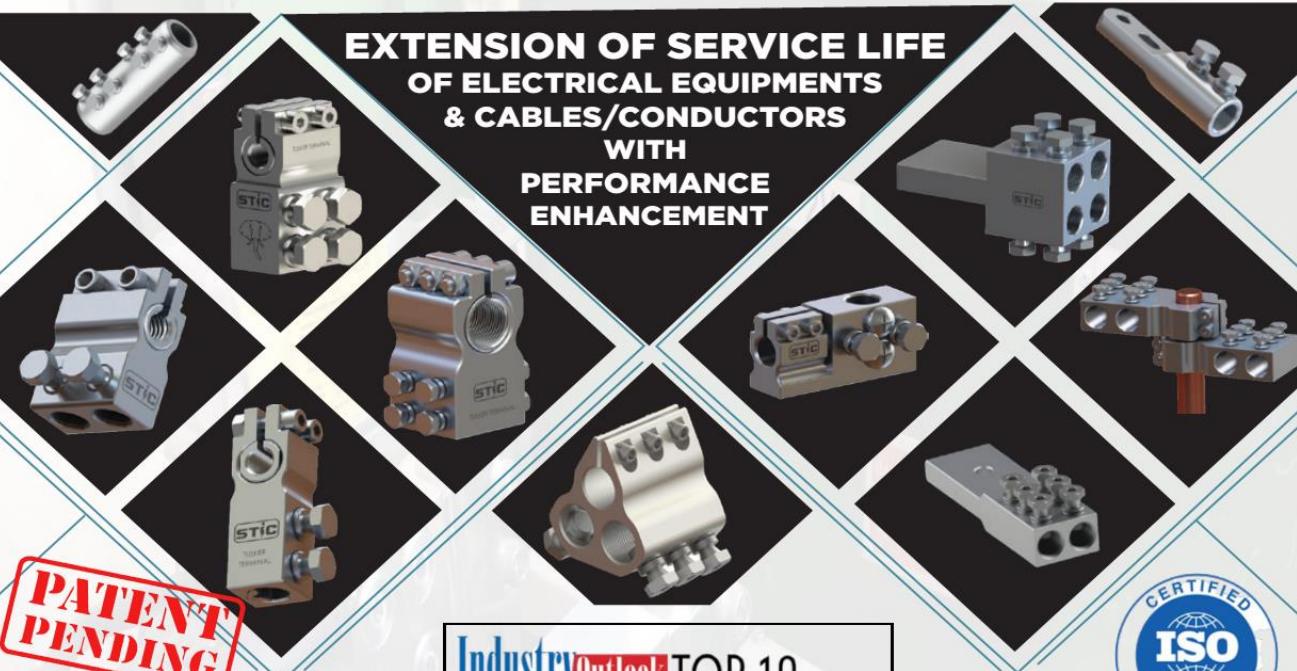
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EDITOR'S NOTE



Strengthening the Connectivity

Connectors are finding their applications across industries such as transportation, telecom, computer and peripheral, industrial, and consumer electronics. Increasing urbanization and industrialization along with automation needs are expected to give a fillip to the growth of this market going forward. In this issue, we have focused on this segment. The cover story of this issue features MG Electrica which is one of the ISO 9001, 14001, 45001 certified companies with CE, UL and ROHS approval. It is also IATF16949 certified to meet the automotive industry requirements. The certifications are testimony to the reliability of the products that are manufactured by the company. With all the certifications and good infrastructure, having multinational customers in the field of electrical and automobiles, MG Electrica products are well accepted in the industry. The company also has a dealer network all over India to help and serve customers in time. The issue also contains a story on Modvak. Based out of Haryana, the company since its inception in 1998 has had a vision to be the leading manufacturer of precision components for automotive and electrical applications. Following the 'Make in India' initiative, the firm has been actively localizing parts from Japan, Korea and USA for the Indian automotive market. Reading on you will find more such stories.

In addition, the issue also acquaints you with the other top companies in this domain. After studying the industry landscape in-depth, we have zeroed in on the top 10 companies that have excelled in this field with their meticulous approach. Having proven their dedication to efficiency in order to meet the customer expectations in an end-to-end manner, these companies have stood out from the crowd.

We look forward to receiving your feedback and suggestions.

Sudhakar Singh

Sudhakar Singh
Managing Editor
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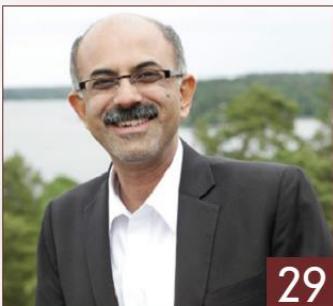
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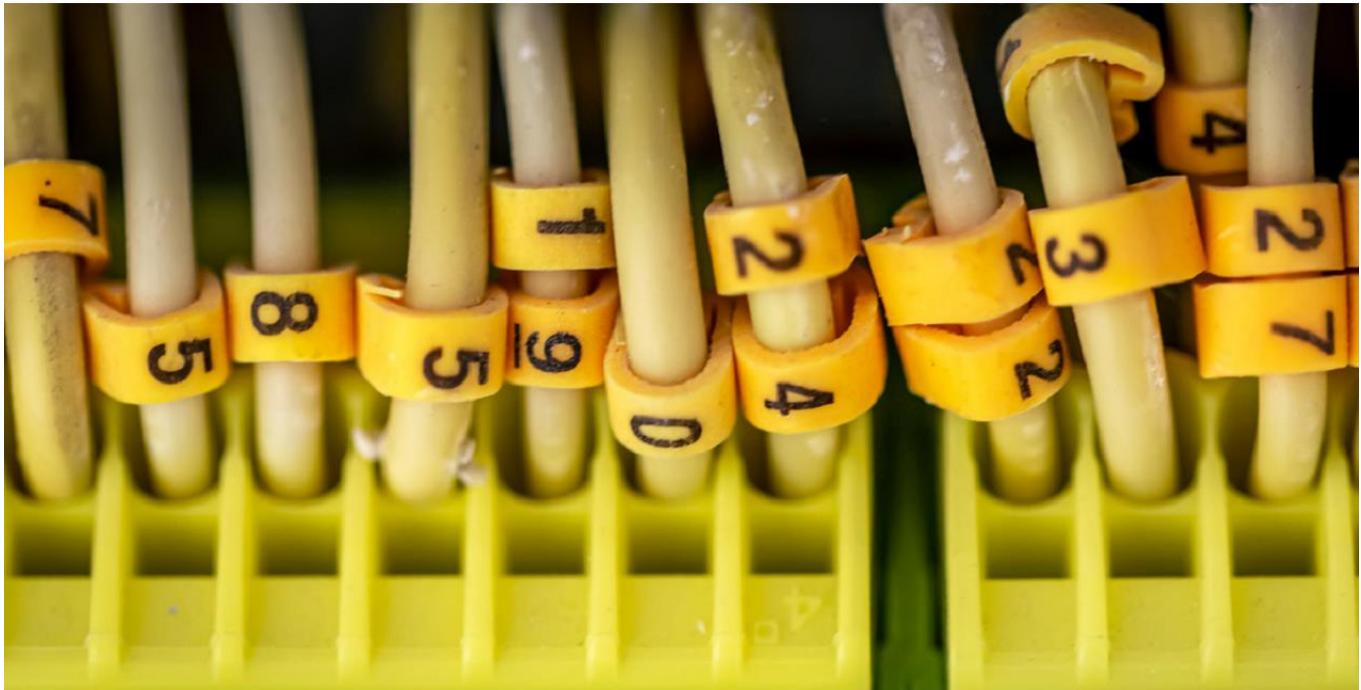
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Jayantiprasad Gupta, Director

Mukesh Gupta, Director



CONNECTORS: SIMPLIFYING THE MANUFACTURING & MODIFICATION OF ELECTRICAL SYSTEMS



In recent decades the global textile industry has marked an enormous growth in the overall market size, expounding on the increased global demand. Alongside surging operations and an economic boom, the textile industry across the globe is fighting with the pre-existing challenges that are now evolving at a compounding rate. Topics like environmental pollution, work safety, and consumer health, are of critical concern and need a sustainable solution. At the center of all chemicals, have

As both businesses, as well as consumers, demand for more convenience, mobility, power as well as speed from the devices they use on a daily basis, design engineers need more from the connectivity solutions they use in order to push these devices to the next level. Highly powerful, versatile as well as innovative connectors are becoming available for serving

these designs & several factors that are driving the growth of the electronics industry; however, the 5 key technology trends which follow will have a strong influence on new connector design & development in the near future.

HIGH-SPEED CONNECTIVITY SOLUTIONS

Since the 5G networks have begun to roll out, high-speed connectors, as well as cables, are required for supporting this infrastructure & the higher data rates it will carry, substantially. However, very powerful new and advanced technologies should be made possible through this instantaneous connectivity. Network equipment as well as remote radio & active antenna systems will bear the burden of this particular activity. Samtec offers a wide range of interconnect solutions which emphasize vertically integrated high-speed connectors. These are then

combined with high-performance micro-coaxial cables. The firm manufactures its own unique cable products.

MAGNETIC, LED, VIBRATION & COMBINATION USER-RECOGNITION

For several years now, with an aim to show positive connector engagement, the users have been dependent on tactile as well as audible solutions and some of the latest interconnect solutions are taking this to a new level with magnetic, LED, or vibration features, or combinations of technologies that is designed for assuring users that they have achieved a secure coupling and

this is true and highly critical for difficult-to-reach architectures as well as high-reliability applications that comprise medical, aerospace applications etc. LEMO's Halo Connectors consist of an LED-illuminated flange which very clearly shows the connection status. This sends alerts to users related to connection issues or renders unmistakable visual confirmation of securely mated connectors. And, these connectors possess an array of LEDs surrounding circularly and are positioned on the connector flange.

MINIATURIZED CONNECTORS & HIGH-DENSITY CONTACTS

Trends that are favoring portability, mobility as well as wearable devices are going to influence all the markets & connector suppliers are providing miniaturized form factors with higher contact densities in order to make these compact designs possible. The latest generation of connectivity products uses space & decreases weight without making any compromises in functionality & this trend has bolstered a boom in wearable devices. This has led to higher flexibility & user-friendly designs to several markets such as medical, consumer and like.

One such company that is into the designing and manufacturing of both standard, custom as well as application-specific micro as well as nano connectors & cable assemblies for devices where miniaturization is needed is Omnetics Connector Corporation.

HOW WIRELESS CHARGING HEADWINDS CREATE ADOPTION TAILWINDS

While wireless power transfer - the transmission of electrical energy without any traditional plug-&-play connectors are designed for increasing the mobility, convenience as well as safety of electronic devices, wireless charging has emerged as a popular feature for smartphones, fitness bands, handheld computers & several other devices. Now, this is also emerging for electric vehicles, while in its early stage the designers were drawn to the convenience as well as interoperability that wireless charging can render to users. However, at

present engineers inspect this technology with an eye towards removing a few conventional mechanical connectors.

The potential of Near-field communication or NFC - the newest entrant for wireless power standards is massive, which has an installed base of billions of devices. Although Near-Field Communication has been conventionally implemented as a communications platform, the NFC Forum standards body changed on a minimum amount of power transfer as part of its protocol.

This helps in creating newer opportunities for wireless power transfer, which comprises Galaxy Fit from Samsung and Gentle Monster smart glasses from Huawei. And, in order for this technology to pull off, the amount of power that has been received should be increased while keeping Near-field Communication data transfer rates in the range of 108 to 848 Kilobyte per second. "We're seeing a number of applications where connectors are being eliminated as a result of adding wireless charging", said Rob Diebold, global director of sales at NuCurrent.

THE ADOPTION OF WIRELESS CHARGING TECHNOLOGIES IS ALL SET TO CONTINUE AS THERE IS A SHIFT TOWARDS GREENER ENERGY

INCREASING ADOPTION OF EV CONNECTIVITY SOLUTIONS

The adoption of wireless charging technologies is all set to continue as there is a shift towards greener energy. The way energy is captured, stored, consumed as well as delivered is of huge importance to consumers & this trend continues to bring in more and more opportunities for power charging connectors as well as emerging wireless charging technologies. Although wireless charging will disrupt the Electric Vehicle charging connector market, it will also drive EV adoption.

THE ROAD AHEAD

While wireless charging technologies would be disruptive for plug-&-play charging stations, these will create other power connector & cable opportunities. Also, the convenience of wireless charging could likely act as a catalyst for widespread for Electric Vehicle adoption since the already-densely connected technologies continue to evolve, creative engineers will continue to build innovative connectivity products which effectively as well as reliably overcome new challenges and as a consequence inspire new design opportunities. In

► INDUSTRY INSIGHTS

TECHNOLOGY DRIVEN REFINEMENT OF BUSINESS CONTINUITY

By Vinod Raju, Head - IT & Enterprise Solutions, Expo Freight

Working without Information Technology is like trying to breath without Oxygen! It's just not possible anymore!

In February 2020, when it started dawning on us that the Covid-19 virus could result in a minor disruption in our day-to-day activities (including perhaps, the inability to work from the office premises), we knew it was time for the 'Business Continuity' measures to kick in.

One of the first things that had to be done, was to ensure remote accessibility of the company's systems & software applications. This meant laptops with network connectivity for those 'critical users' who normally use desktops. Critical users being those personnel, who were essential in ensuring the continuity of the business operations during any emergency. Turns out that there were several such users across the country who worked on Desktops!

Laptop requirements were quickly identified, and vendors were contacted for renting out the laptops, as remote working or work from home (WFH) seemed to be a temporary phenomenon, renting rather than procurement seemed the better option. This decision was acted on swiftly and we assumed that we would be one of the first of the blocks to do so. Only to realise that we were not! And had lost the 'initial mover's advantage'. Therefore, the first challenge we faced was to procure laptops on rent across the country. Within a couple weeks this hurdle was crossed.

Once the laptops were all setup up and available, the second challenge was to ensure good robust connectivity for our users from their homes. It should be noted here that several users returned to their hometowns which in many cases were in remote parts of the country. Initially the only connectivity that was available were mobile phone hotspots. Over a period as users settled down for the long haul, broad band connectivity replaced the hotspot. The mobile hotspot became a 'back-up' for the broadband.



Vinod Raju,
Head - IT & Enterprise
Solutions

The third challenge for business continuity was accessing the enterprise applications such as emails, operational, HR applications. Fortunately, this was not a big challenge. As part of our digitisation journey all our applications were on the cloud adopting the SaaS model. Hence, this part of the business continuity plan was relatively easy. It must be noted here that due to the pandemic and its lockdown effects; Cloud Computing has gained enormous traction.

Challenge number four getting users to interact with each other from their homes. Traditionally the forwarding industry and its personnel have been slow adopters of technology. Hence initiating & training users to interact with each other using collaborative tools was a task for the IT Support Staff

across the country. Users who were used to personal interaction had to now get retrained using other mediums of communication. The adoption of this took the most amount of time.

Once the above four challenges were addressed, remote working/WFH became relatively hassle free, with users becoming, on occasions, even more productive than the pre-pandemic days!!

OBSERVATIONS ON REMOTE WORKING/WFH

Remote working/WFH due to the pandemic, has thrown up some very interesting observations:

Reduction in Paper Usage: A happy unexpected consequence of the lockdown has been a reduction in paper usage caused by reduction in printing. Since, during the lockdown, it wasn't physically possible to sign documents, digital signature solutions (which have been around for a while now) became popular. Users and managements realised that with the appropriate technologies it really isn't necessary to print documents anymore, unless mandated by law.

The usage of such digital signature solutions can go a long way in contributing to the environment sustainability initiatives and efforts of a company.



THE USAGE OF SUCH DIGITAL SIGNATURE SOLUTIONS CAN GO A LONG WAY IN CONTRIBUTING TO THE ENVIRONMENT SUSTAINABILITY INITIATIVES AND EFFORTS OF A COMPANY

Increased Incidents of Hardware Failure: Incidents of hardware failure have increased during the lockdown. This could be attributed to fluctuations in the electricity supply in most parts of the country. In our experience apart from a very few metros, most other cities experience fluctuations in the electricity supplied. 'Unclean' supply of electricity results in damage to sensitive electronic equipment (such as laptops) unless a UPS or a stabilizer has been invested in. This unfortunately wasn't the case as most WFH users did not foresee this as a long-term situation.

Hence, the pandemic has highlighted that the quality of the electricity that is supplied by the local authorities in our cities, towns and villages has definite scope for improvement.

Need for Improvement in Network Connectivity: Although most of our users were able to connect to the internet and our software applications, the stability and performance of the connectivity left a lot to be desired. Network infrastructure is another area which must improve in the country.

Need for Desktops: One of the many learnings from the pandemic has been need for desktops. Given the paucity of space in residences in some of our cities and towns, it makes more sense to procure laptops instead of desktop even though desktops cost less. In future emergencies at least one activity (renting of laptops) from the business continuity checklist, can be struck off.

Improved Technology Awareness & Process Compliance: Due to the new working environment users were forced to adapt to new technologies such as the collaborative solutions mentioned above. Users have been forced to get a lot more process oriented. Eg.

- Logging in issues into ticketing systems to ensure resolution of issues, as against just hopping across to the IT support staff and reporting issues verbally.
- Improved documentation for assigning, reporting, and reviewing activities undertaken, vis-à-vis verbal interaction as was the case in the pre-pandemic days.

WHAT THE FUTURE HOLDS FOR THE REMOTE WORKING/WFH CONCEPT

Once the lockdown was imposed and employees were well settled with their technology infrastructure to work from home, as mentioned above, productivity of employees seemed to improve! Everyone was very happy about this improved productivity and felt that this would be the new normal. Managements were happy that not only did productivity increase, office overheads too reduced. However, a major point needs to be noted here is that due to the lockdown everything was closed, hence the distractions too were less. Thereby resulting in increased productivity. The WFH is purely a temporary business continuity short term measure. As the covid cases around the country reduce and the restrictions lifted, everything around has begun to open up. In such a scenario, distractions increase too. WFH will cease to be as productive as it has been during the lockdown and hence will not remain a very attractive proposition for management. I am sure this drop in productivity is already being experienced by many now. At best, management will need to exercise the remote working/WFH option on a case-to-case basis. Therefore, in my opinion in the long run the new hybrid model of working will not be applicable to all employees but to those disciplined few who remain more effective and productive working remotely. The Pandemic and the ensuing lockdowns have been a great 'use case' for business continuity planning. The biggest benefit of the Pandemic has been the refinement of the Business Continuity Plans of companies!  11 NOVEMBER 2022

**IndustryOutlook TOP 10
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MG ELECTRICA

**Leading Electrical
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Connectors are the key elements in any electrical connection. They are used wherever electrical wire comes to use like electrical equipment, projects in industry or utility. India is one of the fastest growing countries in the world and infrastructure development is being planned aggressively for the next 10 years. Looking at the export market for connector, it is very big and majorly sourcing from China and Eastern Europe. With the recent geographical turn around in the world owing to the pandemic, companies are looking for options and this has opened doors for Indian manufacturers worldwide. MG Electrica from Nashik is one of the ISO 9001, 14001, 45001 certified companies with CE, UL and ROHS approval. It is also IATF 16949 certified to meet the automotive industry requirements. The certifications are testimony to the reliability of the products that are manufactured by the company.

According to the management of the company, customers are looking for quality suppliers who can deliver quantity on time and meet the global standards. Keeping this in mind, the company has built its infrastructure of 25000 sqft and scaling its manufacturing capacity and bringing in lot of automated machines to deliver quantity at consistent quality. "From a business standpoint, there are two kinds of markets for these products in India. First one is the price sensitive market and another is the quality sensitive market. We usually go for the clients in the quality sensitive market because we have all the quality standard certifications for all our products that make them more trustworthy in the market," states Mukesh Gupta, Managing Director, MG Electrica.

COVER STORY





Eyes on Excellence

With all these certifications and good infrastructure, having multinational customers in the field of electrical and automobiles MG Electrica products are very well accepted in the industry. Added to this, the company also has a dealer network all over India to help and serve customers in time. Today MG Electrica is among the top three brands in India for lugs and connectors and is also a well-recognized name in the world market. The company has a wide network of 100 plus dealers all across the country which it has slowly and steadily built since its inception in 2008. The director, Mukesh Gupta can be said as one of the veterans in this industry having prior experience in one of the giant business houses in the world. His experience in this company helped him gain the needed experience that was required to start MG Electrica. He is the Managing Director & driving force behind MG ELECTRICA. Mukesh Gupta is an Engineering graduate & holds a Masters in Management from renowned institutes in India. He brings with him incredible amount of technical as well as commercial expertise into the organization. His vast technical knowledge, exceptional sales expertise & comprehensive understanding of contemporary market requirements have been the constant source of inspiration & growth for MG Electrica. Manish Gupta Finance Director adds value in financial perspective & administration. Their father J. P Gupta adds his years of experience in all strategic matters and guides both Brothers.

MG Electrica has been successfully able to achieve this stature in the market because of a young professional team who believe in the company vision which is 'To become a global brand in connectors'. The team follows in system and defined processes of manufacturing which are pre-calibrated to avoid any rejection and rework. "As the director of the company my role is more of development of systems and products. We produce around 4000 variety of connectors as per IEC 61238, DIN and IS Standards, also we produce customize connectors as per the customers requirement. Our set up is equipped with the design and tool room to give customers delivery on time and required solution. We are using the latest Siemens and solid works software which helps us to develop tools faster. We are having 300 direct customers in India and abroad where we serve them on time using dedicated software for PPC and RM Planning to work out bill of material and plan the

manufacturing schedule. This helps us to serve timely delivery", mentions Mukesh.

The manufacturing process established by MG Electrica uses the latest technologies for all its production processes creating high efficiency in the working systems. The company uses the most advanced machines for all its production processes & has all its systems with high quality adherence. This constant updating in the company machinery & processes helps it in manufacturing high quality products, reduction in wastage, meeting environmental norms, increase productivity & produce tools and terminals with zero error possibilities. MG Electrica always strives hard to satisfy all the needs of its customers & maintain accuracy in all the products that it delivers. It is the only company in the field of lugs and connectors which gives a batch number on every packed polybag of the product to give traceability right from raw material to the packaging. MG Electrica is amongst the few companies in the world who is IATF Certified in its field of connector giving batch code for traceability and well equipped tool room to make customized Lugs and solution to the customer's non-standard requirement

Growth Story

The journey of MG Electrica started in 2008. The only idea when Mukesh Gupta started this venture was that he wanted to create a brand which is known all over the world in its field. The company started this journey with a small setup of 300 square feet rented place with a single set of machine and few team members.

It was a difficult job to sell a consumable product in an overcrowded industry. As a policy the company decided that it will not compromise on quality and will give the best service. "We went to all major cities and tried to meet all dealers and major customers with consistent follow-up. We could get few non-standard customized inquiries where we gave solutions to them and today we are a default supplier to many major multinational customers all over the country", says the MD.

Future Endeavours

MG Electrica is planning to manufacture allied components like cable glands, earthing accessories and panel accessories which are required by the same set of customers. So if it also introduces this product in the next one year the company will automatically grow two times in the next two years. When it comes to the domestic industry, the company wants to widen its dealer network and make a solid network of over 200 dealers all across the country in the coming three years. "The future plan is to cover to the global market. We are already strong in Middle East market and are making inroads to the European market. To make this task easier and grow faster, we are looking for a joint venture with a global company who could be a partner to our growth in global perspective and we will push them in the Indian market", concludes the MD. ■



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► INDUSTRY INSIGHTS

WHAT IS SIX SIGMA? IMPORTANCE OF SIX SIGMA IN TODAY'S WORLD

Rahul Iyer, Founder, CEO & Lead Trainer, Advanced Innovation Group Pro Excellence, As a specialized in change Management, Root Cause Analysis, Standardization Initiatives, Six Sigma/Lean Practices Rahul has an overall experience of 18 years and earlier he worked with The Bank of New York Mellon & Wipro and he has written 40 digital books of Six Sigma and Project Management courses.



*Rahul Iyer,
Founder, CEO & Lead Trainer*

What is Six Sigma, the term Bill Smith, while working in Motorola propounded and propagated? How much do we know about it? Is it the new flavour of the season or a new technology that people have just woken up to? Six Sigma is a process. It didn't spring up overnight. It has been around, and it is going to be around. Six Sigma, simply put, is a more innovative way to manage a business. It is process driven, puts the customer first, and uses stark facts and data to achieve a better solution.

There came a time when the denominator management system came into being, and organisations thought getting rid of employees was the sure-shot way to profitability. But the denominator management idea backfired, as with less staff, the quality started worsening, which resulted in reduced customer satisfaction, which further reduced the existing business, ending up in market share loss and competitors winning it all. This is the time that Six Sigma started gaining popularity, and organisations and employees started understanding the efficacy of this approach.

WHAT IS THE METHODOLOGY THAT SIX SIGMA USES?

There are three unique ways in which Six Sigma differs from the other Total Quality Management (TQM) processes, specifically:

1. Six Sigma is intrinsically focused on customers.
2. Six Sigma-driven projects produce massive returns on investments.
3. Six Sigma inherently changes how management operates.

THE SIX THEORIES OF SIX SIGMA

A quick look at the six principles -

1. Customer-Centricity- As mentioned earlier, Six Sigma's primary focus is customer-centricity. Six Sigma breakthroughs are measured by their impact on customer satisfaction and value.
2. Data and Fact Driven- The Six Sigma practice begins by elucidating what information or data are cardinal in measuring business performance and then collates the data to analyse key variables.



3. The Process is King- Six Sigma accords 'process' as the central vehicle toward attaining success. Whether an organization is designing products or providing services, mastering the various workflows and processes is THE key to creating a competitive edge.

4. Proactive Management- Proactive means being aware of what might happen rather than reacting to a situation. Six Sigma puts much weight on proactive management that can adopt methodologies that can be a game-changer.

5. Boundaryless Collaboration- GE's Chairman Jack Welch coined the term Boundaryless. He was one of the proponents of Six Sigma. Boundaryless means breaking down organizational barriers and increasing teamwork. The opportunities for seamless collaboration within the organization, between organizations, with vendors and customers, are stupendous. If organizations, internally and externally, work for a common goal customer satisfaction and profitability there will be a complete paradigm shift.

6. Being tolerant of failure to achieve perfection- Sounds contradictory but the two ideas are complementary. If people or the management team are afraid of taking risks, they will never try and, in the process, will never reach a near-perfect state.

ADDITIONAL BENEFITS OF ADOPTING A SIX SIGMA APPROACH

Six Sigma, as mentioned earlier, helps improve accuracy in the process by focusing on defect-per-million-opportunity or DPMO and can play a vital role in creating strategic decisions to improve the organisation's revenue. It reduces the variation

in operations, focuses on efficiency, and avoids waste. With the pandemic largely behind us, the global workforce and working patterns have evolved and undergone tremendous change. Six Sigma is the perfect tool to help with change management and cope with the new normal. With emerging technologies, customer expectations are changing rapidly, and with customer centricity at its core, Six Sigma is THE tool for every organization and individual to move forward and create a global niche.

Six Sigma helps you to acquire acuity in driving critical decisions through problem-solving based on objective data as a substitute for subjective opinion. It enables you to understand applying a structured methodology to solve problems of any proportion. Thus, it is not surprising that organizations and employees will look for a solution that is tried and tested with positive results in an evolving world. Former GE CEO Jack Welch, back in 1997 wrote in their annual report that "We didn't invent Six Sigma- we learned it. The cumulative impact on the company's numbers is neither anecdotal nor a product of charts. It is the product of 276,600 people executing and delivering the result of Six Sigma to our bottom line".

**“
IF ORGANIZATIONS,
INTERNALLY AND EXTERNALLY,
WORK FOR A COMMON GOAL
CUSTOMER SATISFACTION
AND PROFITABILITY THERE
WILL BE A COMPLETE
PARADIGM SHIFT**

Twenty-five years since then, it is once again of extreme importance that we propagate the brilliant theory, which is Six Sigma, in a world that is ever-changing and highly competitive, where speed and acumen may not get you to the top of the ladder and may not take an organization to the zenith. It is time to take up the reigns of Six Sigma in our hands because it is Six Sigma that will help organizations nurture empowered employees to distinguish and propel improvement ideas. [In](#)

COMPANY SPOTLIGHT

SHRIPAT TECH INNOVATION CORPORATION

PIONEERING INNOVATIVE CONNECTOR SOLUTIONS



Shrivivas B. Shripat,
Founder

The Electrical Power Connectors (New and Retrofit/ Replacement) have an estimated market potential of around INR 3000 Crores (~400 million USD). With mass deployment of Right Connectors, approximate savings (on account of reduction in AT&C Loss - Technical losses & Revenue losses due to failures) which the nation can accrue is about INR 1000 Crores (~125 million USD) annually. Until now, electrical systems designers have focused more on equipment and cables as major components of a network. Although these are extremely important, it is often forgotten how these pieces of equipment are connected, which determines how efficient and reliable they are. Today, connectors are getting the attention, they deserve, to optimize cost with minimum power loss and to improve network efficiency. Shripat Tech-Innovation Corporation (STIC) is one such firm making leaps of advancement in the retrofit/replacement industry and has the true potential to be part of the upcoming new projects.

STIC's real strength has been understanding its client's needs and coming up with Innovative yet Cost Effective solutions for connectors. The resounding success the firm has achieved with long-term repeat contracts and orders

is a testament to their ability to deliver maximum value to customers in all areas like price, delivery, quality, consistency, and most importantly delivering the best performance. With the expansion of the Internet of Things(IoT) and 5G, STIC has created a 'Unique Communicable Connector' for Smart Grid applications exhibited at ELECRAMA-2020. They offer ready-to-install and fit-and-forget solutions that do not require continuous monitoring & ensure long-term reliability of the connection.



MILLIONS of Equipment – BILLIONs of Connectors, is how STIC sees the market size for connectors & with the ever-increasing number of Electrical Equipment Network, this market is poised to grow more than ever before

STIC is well versed with market dynamics due to its experience in Product Development and Management, Engineering, Sales, and Marketing portfolios with major reputed connector manufacturers. Our Vision statement "Enabling customers to achieve their Business & Social objectives within defined Timelines & Cost" clearly specifies our intention to provide end-to-end Solutions which are Reliable in Long Term, Energy Efficient, and Affordable," shares Shrinivas B. Shripat, Founder, Shripat Tech-Innovation Corporation. The firm's product lineup includes 'TUSKER', new-gen robust connectors, 'EASYCON', which are shear bolted lugs and ferrules and 'POWERKON' – substation connectors up to 400KV. STIC has collaborated with major companies like ADANI, MPMKVCL, NPCL, TORRENT POWER and more. In addition, the company received commitments from DMRC, PSTCL, HVPNL, and L&T-

CONNECTORS MANUFACTURERS



NPL to replace their conventional connectors with TUSKER Terminals up to 400kV. "Designed in India, manufactured in India, made for India, is the key differentiator. Rather than looking for already developed products, STIC seeks out noise factors to solve with their unique innovative designs.", shares Shrinivas B. Shripat.



Enabling customers to achieve their Business & Social objectives within defined Timelines & Cost" clearly specifies our intention to provide end-to-end Solutions

The foundation for STIC's current success is built upon many thought processes before its inception. A year full of

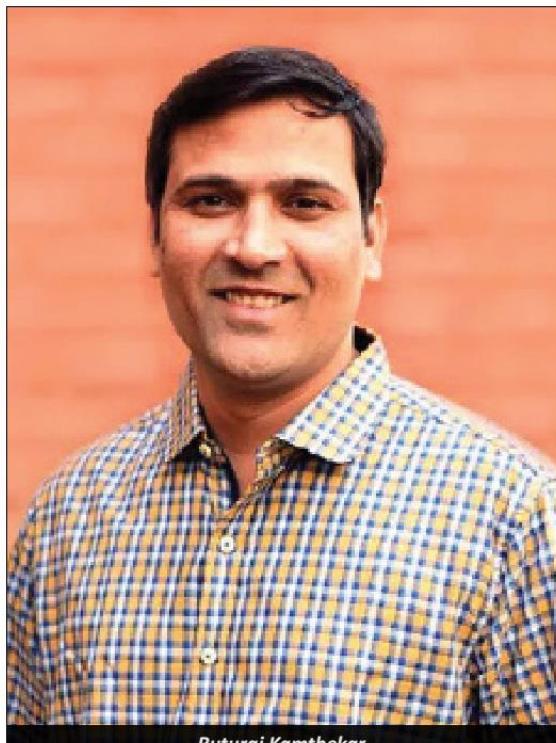
random activities showed their presence with some initial orders during the first year, including setting up the factory and test lab, making samples, conducting tests in-house, and visiting customers. A COVID outbreak in the 2nd year forced the firm to rethink its strategy and gave the company a rejuvenated understanding of its action plan. Despite these odds, they delivered continuous positive results and are on track to meet its goals in the next decade. STIC's team of experts bring together more than 100 years of experience in a wide variety of fields.

As of FY22, STIC has expanded its manufacturing facilities by adding a few more Automatic CNC Machines and enhancing its Test Lab facilities. The firm has taken orders so far from both contractors and OEMs, as well as from government utilities through OPEN Tender Opportunities. With its innovative, competitive, futuristic, and customer-centric approach, STIC has set new MSME standards in Electrical Industry. As part of the firm's commitment to India's participation in COP26, it will contribute to the Indian Government's vision to reduce AT&C losses using innovative products in the Indian Electrical Connectors market. With an enviable position in this connector segment, STIC is poised for success and will be the preferred 'Go-to' Partner. [In](#)

► INDUSTRY INSIGHTS

DIGITALIZATION: TAKING FOOD PACKAGING TO THE NEXT LEVEL

Ruturaj, a seasoned professional with end-to-end knowledge of the Flexible Packaging Industry & Business, achieved growth through working in Technology, Operations Management, Product Development & Innovation functions in a career of two decades.



*Ruturaj Kamthekar,
Head of Innovation & Technical*

Digitalization is transforming almost every aspect of society and the packaging industry is no different. Digital trends are changing the dynamics in the packaging value chain. Brand owners now want

the packaging to be interactive and to be used as a consumer engagement and data mining tool. In response, digitalization tools are evolving to be compatible with conventional packaging machinery and formats. A classic example of the same is the developments in digital printing, which started as a response to decreasing lot sizes per stock-keeping unit (SKU) but has been more successfully adopted as personalisation and variable data printing technology.

Big brand owners are facing different challenges, each coming from the competition, ever-increasing consumer demands, and the entry of private labels, forcing them to rethink their value chains. This is leading to profound changes in the global packaging industry. The packaging industry is adopting various digital tools to meet the demands coming from brand owners, including digital printing options, various QR codes, smart packaging, and RFID integration, to name a few. The pace of digitalization in the packaging value chain is increasing rapidly and all the stakeholders in the value chain need to adapt to the changing times and demands, all the while keeping an eye out for additional opportunities for digitalization and growth.

DIGITALIZATION AT THE HEART OF SUSTAINABILITY

Digitalisation is offering many avenues of use in packaging and manufacturing. Not only does it enable new features in packaging, it's also at the heart of sustainability efforts that the industry is embarking on. Digitalization is now driving improvements in operational performance by way of connected 'smart' machines (Industry 4.0), assisting in the design for circularity through smart packaging

(embedded codes for automatic post-use sorting), allowing superior energy utilization platforms, thereby lowering overall carbon footprint of the products.



DIGITALISATION IS OFFERING MANY AVENUES OF USE IN PACKAGING AND MANUFACTURING. NOT ONLY DOES IT ENABLE NEW FEATURES IN PACKAGING, IT'S ALSO AT THE HEART OF SUSTAINABILITY EFFORTS THAT THE INDUSTRY IS EMBARKING ON

Packaging sustainability remains an industry-shaping trend. Global FMCG multinationals and big retailers have made commitments to ensure that all the packaging that they use is designed for recycling, mostly by 2025. This is being followed by investments and collaboration in the entire value chain to develop sufficient recycling infrastructure so that packaging is not only designed for recycling, but it also actually gets recycled. Digitalization is again at the centre of this recyclable packaging since each packaging type (Polythene, Polypropylene, Paper, and more) needs to be identified and sorted into different material types post use. This is being achieved by embedding machine identifiable codes into packaging which are recognized by scanners installed on high-technology sorting machines.

The pandemic reemphasized and redefined the need for food safety and hygiene as food reaches the consumers and remains safe over its entire shelf life. Digitalization of packaging indicating codes and 'best by' tags is

empowering customers to know that what they are buying is safe and healthy.

SMART PACKAGING WILL ENHANCE RECYCLABILITY, TRACERABILITY, & SAFETY

Digital technologies provide the possibility for transformative advancements in the food packaging industry. Traceability, convenience, and tamper detection are secondary features, which are becoming increasingly important. Additionally, one of the key values in smart packaging is the easy access to information on the raw materials used in the packaging, which facilitates easier recycling.

Going forward, the increasing speed of digitalization will lead to digital influence on the value chain through automation and the widespread use of new technologies. These will not only improve cost efficiency and productivity but will also make the distribution of products more resilient and transparent through real-time tracking. This development could lead to a greater need to integrate technology, radio-frequency identification (RFID) tags, and near-field communications (NFC) into product packaging. Whatever the outcome, innovative packaging design will play an important role in enabling this – and packaging manufacturers will need to re-evaluate their strategies in view of the evolving trends.

VISION OF A DIGITALLY ENABLED FUTURE

In the modern food system, the packaging is every bit as important as its contents. Packaging can now be embedded with technology that offers a range of functionality. Digitalization is proving to be a powerful catalyst for information transparency – blockchain, ingredients authenticity, among others, leading to value creation. Through digitalization, the entire value chain will become more transparent, agile, and flexible. Also, across the whole production workflow, timely decisions will be made possible. The industry will enter a period where connected systems will contribute data to the entire production process for faster and more precise optimization.

At Huhtamaki, digitalization is a key differentiator for our products and a business imperative for our operations. Digital technology and data will inevitably reshape the way we do business with our customers and our operations. We see digitalization as the enabler and connector for our strategic priorities to deliver growth. To become the first choice in sustainable packaging solutions, we must digitally enhance the efficiency of our operations, facilitate ease of doing business with us for our customers and develop digital products and services including smart packaging. [In](#)

COMPANY SPOTLIGHT

KHIMJI FLOW EQUIPMENTS

ONE STOP SHOP FOR ALL TYPES OF INDUSTRIAL VALVES



Prashant P Khoday,
CEO

Rapid urbanisation and construction of smart cities coupled with the need and demand to have a broad connected network for the transportation of industrial equipment is creating lucrative growth opportunities for the industrial valves market. Rise in the demand for oil and gas, wastewater and power activities has led to the

rise in demand for industrial valves. Increasing demand for industrial valves by pharmaceutical companies recently due to the spread of coronavirus has further bolstered the growth. Automation in valves has made major advancements, owing to growing emphasis on precise positioning and automation of industrial valves. Today, clients from all the industries expect products at competitive price with good after-sales services.

Meeting this need is Khimji Flow Equipments Pvt Ltd which manufactures all kind of industrial valves under one roof including Ball Valves, Gate Valves, Globe, Check, Plug, Butterfly, Diaphragm Valves and Piston Valves at competitive prices and responds quickly to after sales services. The manufacturing process of the company is supported by a total quality system, accredited by ISO 9001, EMS & OHSAS certification. The products manufactured by the firm are subjected to demanding controls, including 100 per cent inspection. "Our firm is committed to design, manufacture and deliver quality products and services on time that meet the unique needs and expectations of each customer", says Prashant P Khoday, CEO

Sharp Focus on Research & Development

The company is known for partnering with its customers to meet the ever increasing challenges of severe service applications. Building upon its extensive field experience, the firm relentlessly pursues research and development breakthroughs in design, materials, coatings and other technologies to deliver the most trusted, highest quality valves in any industry. Khimji Flow Equipments Pvt Ltd makes sure that every aspect of the experience is designed to provide the products, services, knowledge and responses on time as promised to the clients.

CONNECTORS MANUFACTURERS



Khimji Flow Equipments Pvt Ltd designs ball valves that can offer good flow control capabilities even at high pressure. All the valves designed by the company offer compact actuation due to their rotary quarter-turn operation. The firm also manufactures fire-safe versions of the valves that can be used in the oil and petrochemical industries. The company ensures a positive customer experience and makes available products that are of top notch quality. Customer centricity is at the core of Khimji Flow Equipments Pvt Ltd and it is this belief that has led the business to build long term relationships with customers.



KFEL is committed to design, manufacture and deliver quality products and services on time that meet the unique needs and expectations of each customer

Over the past seven years, the company has supplied millions of valves to major oil and gas companies worldwide.



Its name has become synonymous with absolute reliability, superior quality and competitive pricing. The firm has built a solid foundation and infrastructure for valves manufacturing and strives to continually improve its processes. Today, the company has its clients in all parts of India and it also exports its products to overseas countries like Malaysia, New Zealand, Bahrain, Australia and UAE. Khimji Flow Equipments Pvt Ltd is always in the pursuit of new technology to stay up to date in the global arena. In the coming future, it aims to be known as a company which has a commitment to excel as it has the right blend of infrastructure and capabilities to deliver the best services to its clients. [In](#)

► INDUSTRY INSIGHTS



INNOVATIONS IN THE WIRES & CABLES INDUSTRY TO MEET THE CHANGING CUSTOMER REQUIREMENTS

Anil Gupta, CMD - KEI Industries, in interaction with Industry Outlook, shares his views on how the wires and cables industry is evolving currently and how is the industry innovating to meet the changing requirements of diverse industrial clients.

RISING URBANIZATION AND GROWING INFRASTRUCTURE WORLDWIDE ARE CREATING A SURGE IN DEMAND FOR WIRES AND CABLES. HOW DO YOU SEE THE WIRE AND CABLE INDUSTRY DEVELOPING CURRENTLY?

In an emerging economy like India, where there is huge scope for growth in the construction and infrastructure sector and increasing demand for real estate and other infrastructures such as hotels, hospitals, and residential houses, the demand for the wire and cable industry is also increasing to a great extent. While we know that other projects such as railways, metros, power transmission & distribution, and power generation have been there for quite some decades, the demand for wire and cables is robust, especially in India, and it will continue to grow significantly year after year.

WITH THE EVER-CHANGING PRODUCT PREFERENCES OF THE CLIENTS, STAYING ON PAR WITH THE CHANGING DEMAND PATTERN HAS BEEN A MAJOR CHALLENGE FOR THE CABLE AND WIRE INDUSTRY. HOW IS THE

CABLE AND WIRE INDUSTRY INNOVATING TO MEET THE CHANGING REQUIREMENTS OF DIFFERENT INDUSTRIAL CLIENTS?

The changing needs of the wire and cable industry are due to the changing specifications of the end uses of the cable. Usually, the power cable specifications remain constant but in the case of special cables such as instrumentation cables or specialty cables, which go into some systems, the demand specifications change.

The pattern in the construction industry is changing now as the trend is towards using flame retardant low smoke and halogen power cables or low smoke zero halogen products, owing to their better fire safety and better fire-resistant properties. The other changes are mainly due to the end user specifications that include solar cables for solar power or cables used in wind power, thermal power station, oil & gas project, or petrochemical project. Therefore, the project specifications are usually prepared by the electrical consultants and the project developers and the

cable industry has to manufacture or develop cables according to those specifications. The specifications often differ in terms of the properties of the insulation and outer sheath materials, but the metals remain the same, there is not much difference in the metal specifications.

IN ORDER TO REUSE THE METALS FROM CABLES AND WIRES, BURNING THE OUTER LAYER BECOMES NECESSARY. THIS IN TURN LEADS TO THE EMISSION OF POLLUTANTS LIKE BROMINATED AND CHLORINATED DIOXINS AS WELL AS CARCINOGENS INTO THE ENVIRONMENT. HOW IS THE WIRE AND CABLE INDUSTRY SOLVING THIS ISSUE?

At present, the trends have changed and today cables are not burned to take out the metal for recycling. There are machines developed by companies that help in separating the insulating and sheathing materials of the metal. Therefore, the metals are taken out separately and the insulating and sheathing materials are taken out separately. Furthermore, these insulating and sheathing materials

are also reprocessed in order to use in some cheaper products and some non-critical items, which can be made from reprocessed or recycled plastics. Therefore, the issue of burning plastic materials is very less now, and it is almost non-existent.

"

NO CONSTRUCTION OR INFRASTRUCTURE PROJECTS CAN BE COMPLETED WITHOUT USING WIRES AND CABLES AS EVERY PIECE OF EQUIPMENT IN EVERY HOUSE, FACTORY, AND INFRASTRUCTURE NEEDS ELECTRICITY, WHICH CAN BE TRANSMITTED ONLY THROUGH INSULATED WIRES AND CABLES

AS PER STATISTICS AVAILABLE ON FIRE ACCIDENTS IN BUILDINGS, 40 PERCENT OF THE ACCIDENTS ARE ATTRIBUTED TO ELECTRICAL ISSUES. HOW ARE THE INDIAN MANUFACTURERS WORKING TO DEVELOP SAFER CABLES AND WIRES?

40 percent of the fire accidents in buildings are indeed attributed to electrical products or electrical issues. However, the truth is that these accidents do not occur due to the failure of electric products, but mainly because of poor workmanship of the electrical contractor or electrician in jointing the cables or terminating the cables within the building which leads to these accidents. Therefore, there are failures in the execution of the job in



the houses or at the sites which leads to fire accidents while it is very difficult to point out the exact reason that caused a fire accident, it is always said that it occurred due to a short circuit. However, the reason for a short circuit is really difficult to define, and mostly wherever we have witnessed it, it has been due to poor workmanship on the part of the electrical contractor.

THE PRICE HIKE OF THE CRITICAL RAW MATERIALS, SUCH AS ZINC, ALUMINIUM, AND COPPER, HAS CREATED A LASTING IMPACT ON THE INDUSTRY. HOW IS THE INDUSTRY INNOVATING TO PASS MINIMUM IMPACT TO THE CLIENT?

It is very difficult to reduce the impact of price rise in these critical inputs because the cable industry has standard specifications that are approved by the Bureau of Indian standards, IEC, or any standard specifications prevailing in any country. Therefore, we cannot reduce the specification parameters to reduce the cost. However, the only way is to improve the efficiencies of the plant or other costs such as overhead costs and transportation costs. One can

reduce the impact by one or one and a half percent, but it is not possible to reduce the impact of the input prices increasing.

HOW DO YOU SEE THE WIRES & CABLES INDUSTRY EVOLVING IN THE FUTURE?

The electric wire and cable industry is an essential part of the economy of every country. No work or construction or infrastructure projects can be completed without using Wires and Cables because every piece of equipment in every house, factory, and infrastructure needs electricity, and it can be transmitted only through insulated wires and cables. Therefore, in the developing economies, we can witness good growth in the requirement for new products and a surge in replacement demand for the old infrastructure as well. There are two types of demands. The first is the new capital expenditure for the new projects and the second is the replacement demand for the old infrastructure or old houses. Hence, the demand for wire and cables will always be bullish and growing. [In](#)



**IndustryOutlook TOP 10
CONNECTORS
MANUFACTURERS 2022**

Given the rapid digital transformation in India, in the back of the Digital India project, there has been a robust increase in the demand for cable connectors in the country today. According to Stellarmr.com, the Indian Cable Connector market size was valued at \$5.06 billion in 2020, and the total Indian Cable Connector revenue is expected to reach \$9.19 billion, growing at a CAGR of 8.9 percent through 2021 to 2027. In this fast-paced business world, high-performance networks are necessary for business, manufacturing, surveillance, and broadcasting, and cable connectors seem to provide reliable connectivity, high performance, and efficiency. Conclusively, the cable connectors market is witnessing robust demands with cables like USB Type-C and HDMI largely, India being the home of the second-highest number of internet consumers in the world.

Additionally, according to industryarc.com, the Industrial Connectors market size was valued at \$5.3 billion in 2020, and it is estimated to grow at a CAGR of 6.9 percent during 2021-2026. The growth is mainly attributed to the increasing adoption of IoT and automation technologies in industries,

and is set to drive the market growth. Also, integration of superior connector products in automotive parts such as powertrain, safety and body electronics is set to propel the market growth. The increasing trend for connected cars and the adoption of connectors in automotive sector is also set to propel the market growth. The growing demand for safety systems thus has a direct effect on the demand for industrial connectors, which in turn drives market growth. Well, with such diversified usage as the demand is huge, there are many promising connector manufacturers comprehending these demands offering their quality products.

Industry Outlook in this issue presents a list of 'Top 10 Connectors Manufacturers – 2022' who have leveraged their extensive industry expertise and experience in offering high quality connectors in the industry. The following list has been prepared after being closely scrutinized by a distinguished panel of judges including CXOs, analysts, and our editorial board. We recognize their valuable contribution to the ever expanding and competitive market and their ability to sustain themselves and emerge as top contestants through their reliable products.

TOP 10 CONNECTORS MANUFACTURERS - 2022

COMPANY	MANAGEMENT	DESCRIPTION
Amphenol Interconnect Bangalore amphenol-in.com	Joshy Paul, GM & CEO	A leading Interconnect solution providing company with a product portfolio of connectors, accessories, cable assemblies and system integration
Harting India Bangalore harting.com	Dr. Girish Rao, Managing Director	A global leader of supplying connectivity solutions for the three main lifelines of industrial technology i.e. data, signals and power
HGS India Delhi hgsindia.com	Pushkar Misra, President & CEO	A renowned global supplier for geophone strings (land and marsh) and offers an exhaustive product range which includes all types of telemetry, shallow refraction and multi pair cables and seismic connectors
Jetronics India Mumbai jetronicsindia.com	Anil Bangia, CEO	One of the leading manufacturer connectors with complete focus on meeting highest quality standards and matching customers expectations worldwide
MG Electrica Nashik mgelectrica.com	Mukesh Gupta, Jayantiprasad Gupta, & Manish Gupta, Directors	A young professional team strives to leverage excellence to become a global brand in connectors
Modvak Bahadurgarh modvak.com	Deepak Sharma, Managing Director	Offers an exhaustive range of over 700 Terminals & 100 Plastic Connectors in Automotive, Appliances, Electrical, Electronics and Aerospace Industries
Molex India Bangalore molex.com	Girish Kumar Cherukad, Director	From design and development to testing and delivery, the firm works with its customers to build products with innovative technology and improve lives all over the world
Rotary Connectors Bangalore rotaryconnectors.com	Gangadhar Mani, Managing Director	A leading manufacturer and market leader of interconnection solutions, one of the few Indian companies, which started manufacture of high performance MIL grade circular connectors
Shripat Tech Innovation Corporation, Mumbai shripat-india.com	Shrinivas B. Shripat, Founder	With true potential to be a part of every industry the firm understands the client's needs and coming up with Innovative yet Cost-effective solutions for connectors
Toyo Connectors & Cables Mumbai toyoconnectors.com	Praaksh Bharwani, Owner	A one-stop shop for any requirement of terminal blocks, IC sockets, cables, Relimates (wire harness), cable assy. connectors, RF connectors, D sub connectors, shielded cables, and more

MODVAK

TRANSFORMING AUTOMOTIVE SEGMENT THROUGH QUALITY & VALUE CONNECTORS



Deepak Sharma,
Managing Director

Connectors market in India has been affected by various downturns in the last few years. From BS6 transition in 2019 to Covid lockdowns in 2020 and 2021. 2022 has also been impacted by commodity prices volatility due to the Ukraine-Russia conflict. The future, however, looks ever so bright for the connectors market as a whole. The switch towards EVs and Government initiatives for parts localisation are the key growth drivers for the industry bringing massive growth opportunities for capable manufacturers.

Based out of Haryana, Modvak since its inception in 1998 has had a vision to be the leading manufacturers of precision components for automotive and electrical applications. Honouring the 'Make in India' initiative, the firm has been actively localising parts from Japan, Korea and USA for the Indian automotive market. Talking about the market expectations from connector manufacturers, Modvak's Managing Director Deepak Sharma mentions, "Indian customers are keen on procuring quality products, fast Just-in-time deliveries, and cost-effective propositions. And a firm which is able to score big on all of the three scoreboard is the one who gets to be on the top. Our goal at Modvak from the start is to be a

single window solution to all the plastic and sheet metal Terminals & Connectors procurement. We give a quick and effective value offer to our customers with special respect to the quality of our parts so that our customer can always stay stress free about their Purchases".

Merging Client-Centric Service Values with Quality & Technology

Modvak focuses on all types of wiring harness manufacturers, whether it be local manufacturers in the appliances segment, or the biggest Auto Ancillaries in the world. The firm is positioned as the one-stop-shop for all kinds of Terminals & Connectors procurement. Driven by the mission to provide quality parts at big volumes and effective prices, Modvak achieves this through special tools, special machines, special material, and special methodology towards quality controls. Modvak is a ISO, IATF and Maruti green certified organisation where focus on quality systems is what helps us maintain their product's quality.

Modvak offers an exhaustive range of over 700 Terminals & 100 Plastic Connectors in Automotive, Appliances, Electrical, Electronics and Aerospace Industries. Each and Every single of their parts are designed and developed in-house with their advanced R&D centre equipped with best-in-class machines, equipment from the US (Haas), Japan (Sodick) & Taiwan (Joemars). This allows them to maintain their high-quality standards and offer cost savings through special focus on tool life, part quality and stamping speeds.

Shedding light on the advanced capabilities of the firm, Deepak Sharma says, "We have over 40 production machines and assemblies which makes us capable



of manufacturing over 150 crore connectors, terminals and components annually. Our development centre is equipped with highly technical engineers & designers with experience of over 10 to 35 years, monthly developing tools in double digits. We have a timeline of products to develop for the next two years for such OEMs which would be direct substitutes to world renowned connectors manufacturers".

The Path Ahead

Modvak was conceived in a room smaller than a cricket pitch but with an appetite bigger than the whole stadium. In the beginning, capital was limited, machinery was manual, and the customer base was small. But as the order book and plant grew, Modvak got organised into a pivotal player for the industry. And now Modvak has 2 state-of-the-art plants employing over 150 members, manufacturing precise sheet metal and plastic components for 4W and 2W OEMs.

Talking about future plans for the firm Deepak Sharma concludes, "We are entering into more markets with various consolidated offerings; from Child parts to assembled critical parts. We are making new additions to our R&D centre and Production capabilities, getting the best-in-class machines from Charmilles to Bruderer to compete with International manufacturers. We are highly optimistic about India becoming the 4th largest economy with 5 trillion dollar economy boosting our industries and Modvak." ||

► INDUSTRY INSIGHTS

UPCOMING SMART AUTOMATION TRENDS TO TRANSFORM MANUFACTURING IN INDIA

By Nitin Lall GM - Industrial Technique, Atlas Copco



Nitin Lall,
GM - Industrial Technique

It is fascinating how technology is always evolving. It is not just the evolution of technology that makes groundbreaking innovation possible; it is mostly about how industries adopt these technologies and incorporate them to optimize business operations. Manufacturing is one such field that has been growing and revolutionizing operations over the last few years. For manufacturing leaders, the past few years have brought new operating landscapes that comprise long-standing patterns. It is quite necessary to adopt the latest techniques and keep growing; those who did not evolve with time are now out of business. On the other side, those who are game changers in this field have manufactured a whole new range of products from phones to EVs.

INDUSTRY 4.0, THE CHALLENGES, & THE OPPORTUNITIES

Today, the world is more connected than ever. Technology is not only synchronizing the connect between people but also between machines and devices on a global scale. In what we call Industry 4.0, commonly referred as the fourth industrial revolution spearheaded by the infusion of Internet

of Things (IoT), data and computing power, technologies such as Machine Learning (ML) Artificial Intelligence (AI), and industrial automation have already started to permeate and alter the course of every layer of the manufacturing industry. Smart Manufacturing is one of the industrial revolutions that is the intelligent, real-time optimization and orchestration of physical, business, and digital processes across the value chain and within factories.

The technology required under smart manufacturing is affordable, but the implementation cost is yet serving as the barrier for many industrialists and wide adoption. Businesses are increasingly turning to machine-to-machine communications (M2M) and analytics, as clean data becomes a pre-requisite for companies for productivity. By making a switch to M2M, manufacturers can reduce costs, optimize, and integrate processes, and get comprehensive insights into their manufacturing processes. Automation is not everything under IoT/Industry 4.0 - mistake proofing and continuous improvement drives are equally important which can be effectively implemented rather than completely changing manufacturing processes. Together, these new capabilities will carry enterprises into the digital age, seamlessly transforming organizations and compounding business value.

WHERE DOES INDIA STAND CURRENTLY?

In India, the Government is trying to create a conducive ecosystem for manufacturing and exporting electronics goods like Television, Closed Circuits, TVs, Air Conditioners with the help of members of the Electronics and Computer Software Export Promotion Council. India only shared 2.84 percent in the world manufacturing value-added till 2018. The manufacturing sector contributes 17 percent of GDP, with the vision statement increasing the share to 25 percent by this year-end. It is imperative to understand why China is the manufacturing hub and India has much to improve. There is a need for a policy frame to change the ground realities.

One of the primary initiatives which India can work upon in the manufacturing sector is to upskill our human resources.



The vast diversity of the country makes it difficult and also challenging. The manufacturing quality will get enhanced if there is proper education and training. If the same is achieved, we will be able to manufacture products of good quality and a reasonable cost.

HOW SMART MANUFACTURING IS AIDING COMPANIES

With Industry 4.0, smart automation is coming to aid the companies for faster production and increases operational efficiency. The concept of Smart manufacturing has been changing and evolving among expert practitioners, early adopters, and industry strategists. Manufacturers are now rethinking a competitive advantage for the post-pandemic situation applying hybrid cloud and Artificial Intelligence to build agility, intelligence, and automation across key functional areas.

Industry 4.0 smart automation increases product quality and productivity and decreases the downtime and revenues that go with it. The Indian automation sector is worth \$2 billion, according to industry estimates.

The trends under smart automation that will change the future of manufacturing are:

MANAGING SUPPLY CHAINS

Smart automation's advanced technologies automate the analysis and collection of machine data that enable the predictive ability to anticipate and correct the failures and before they occur.

Today without automation facilities, the supply chain is highly complex, and it is difficult for enterprises to monitor progress, predict, and lower the risk. The data analytics and visualization tools help improve the supply chain. Supply chain management apps can be accessed through any tablet, smartphone, or computer, simplifying the supply chain by bringing together the latest in cloud, big data, graph, and mobile technologies to deliver accurate and real-time information.

CLOUD COMPUTING

In a cloud-based solution, productivity can be tracked remotely from anywhere and update the supplier and manufacturer daily. Also, operational data is accumulated automatically to calculate performance areas such as machine utilization and line utilization.

By using cloud computing, enterprises can avoid paying the ITs and ignore the complexities to maintain the infrastructure and can pay only when they use the service. This will develop a predictive model from each production line to minimize the downtime and optimize the future production schedule to promote productivity and increase profitability.

For IoT, enterprises need to have seamless connectivity and a limitless repository of data. Cloud computing enables the extraction, analysis, and storage information that might affect the production line.

HOW SMART MANUFACTURING CAN GIVE A BOOST TO 'MAKE IN INDIA'

By implementing these manufacturing trends, India can transform the future of Manufacturers by increasing productivity and decreasing the cost of revenue. India should work on the skilling and training of the workforce working in the manufacturing industry; with these smart automation technologies, India can excel in Pharmaceuticals, Medical Devices, Smart Devices, Electronics manufacturing.

It will lead to ample opportunities for SME and large-scale industries, to increase exports and preparing India towards a manufacturing hub. To complement, we need to implement solid practices which will assure we produce finished products without any quality defects, at the same time we are able to generate data giving us solid power of analysis and traceability. This is possible by implementing smart manufacturing practices.

A forward-looking philosophy, collaborative efforts by central and state governments, investment in R&D, and skilled workforce along with a robust human-machine interface will be some of the key differentiators for manufacturers to leverage the digital manufacturing revolution and reaping benefits of enhanced competitiveness. **III**

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► INDUSTRY INSIGHTS

WEAVING SUSTAINABILITY INTO THE DNA OF TEXTILE INDUSTRY

K. K. Laluria, Executive Director & CEO at Indo Count Industries Limited, in an interaction with Industry Outlook, shares his insights on present state and future opportunities for the Indian textile industry. During the conversation he also discusses the issues pertaining to sustainability, lead time, automation and more.



**K. K. Laluria,
Executive Director & CEO**

THE DOMESTIC TEXTILE INDUSTRY IN INDIA CONTRIBUTES FIVE PERCENT TO THE COUNTRY'S GDP, SEVEN PERCENT OF INDUSTRY OUTPUT IN VALUE TERMS, AND 12 PERCENT OF THE COUNTRY'S EXPORT EARNINGS. HOW IS THE TEXTILE INDUSTRY OF INDIA DEVELOPING?

Textile has been a core industry of India, with the market expected to be worth more than \$209 billion by 2029. Looking at the global scenario, there are five countries—Bangladesh, China, India, Pakistan and Vietnam, that dominate the global textile market. However, with Bangladesh and Vietnam lacking the domestic production of raw material, and the global companies looking forward to instituting the China plus one strategy. The overall scenario holds great

potential for the Indian textile industry to evolve as a global leader.

Moreover, along with the established spinning and weaving base, India has now remarkably expanded the domestic production of raw materials, such as cotton. Furthermore, the huge domestic consumer base of India has helped the industry to constantly evolve in terms of quality. Today, the government is also bringing in multiple schemes that are expected to give the industry additional impetus. With all the factors working in tandem, the Indian textile industry will further its share in the global market.

UNLIKE IN DEVELOPED COUNTRIES, TEXTILE FACTORIES IN INDIA ARE NOT FULLY AUTOMATED AND REMAIN LABOUR-INTENSIVE. HOW DO YOU SEE THE INDUSTRY DEVELOPING IN TERMS OF TECHNOLOGY ADOPTION?

The Indian textile industry is now massively investing in automation and digitization that it deems necessary to improve productivity and competitiveness. Hence, starting with spinning, weaving, dyeing and finishing, we see advanced, state-of-the-art machinery already being deployed to increase operational efficiency. Today, machineries like laser-cutting machines, Eaton systems, automatic packaging and folding systems, conveyor belts, and more are increasingly deployed by the manufacturers. That being said, the textile industry needs to harness the potential of the IT industry of India, and move towards data driven operations. Applications like ERP's needs to be implemented at a larger form to optimise the operations and take faster decisions. From the manufacturing perspective, the cotton sewing process has been a pain point with a dearth of automation. Hence, in order to

improve the operational efficiency the industry needs to take first place action and introduce novel technologies.

THE AVERAGE LEAD TIME IN MANUFACTURING AND DELIVERY SUMS TO AROUND 45 TO 65 DAYS FROM FABRIC BUYING TO SHIPMENT OF APPAREL. HOW CAN THIS BE REDUCED?

There are different segments in the entire value chain of textile production. Starting with raw material sourcing to spinning, weaving, dyeing, finishing and sewing, a textile generally passes through different stages of production. That being said, in India, these operations are largely performed in a standalone form and there are a handful of players who have integrated their entire operations. This in turn largely increases the turnaround time, as goods take longer time to travel from one point to another.

Secondly, most of the Indian manufacturers operate in a B2B format, following the made-to-order production approach. This makes the manufacturers largely dependent on changing requirements, wherein they have to constantly check with multiple factors like, fabric type, dyeing process, design, sewing, export, and others. This further elongates the overall process of textile production. To overcome this situation, Indian manufacturers are now slowly transcending towards having a more of a branded approach. With a move towards the B2C model, the producers are looking forward to consolidating the supply chain, ensuring quick turnaround time. Moreover, with increased adoption of technology and digitization, shorter lead time will be a much attainable game.

ENVIRONMENTAL COMPLIANCE OFTEN ISN'T AT THE TOP OF TEXTILE AND GARMENT IMPORTERS' CONCERN. HOW IS THE INDUSTRY WORKING TO ESTABLISH SUSTAINABLE PRACTICES IN THE OPERATION LINE?

Sustainability has now become the DNA of the textile industry as any changes over the present climatic condition will incur a direct effect on the supply chain of the raw materials. Hence, manufacturers are now playing an active role in ensuring that sustainability and green practices are instituted right from the raw materials manufacturing stage. They are constantly collaborating with the farmers to educate them on the use of fertilisers and pesticides and other farming related factors. We can also note the industry transcending towards utilization of organic cotton.

On the operational side, new regulations like zero liquid discharge, and more, are brought by the government to ensure no damage is done to the soil and surrounding environment. Today, many players are integrating effluent treatment plants to control its effluent and reuse the water for other operations. The industry is also investing on green power sources like - solar energy.

At Indo Count, we are also actively working on the sustainability end, and have released our first ESG report. We are now participating and registering ourselves with UNGC, CDP, SBTi, who perform a transparent assessment of a company's operation and come out with a report available in the public domain. We are further participating in the SDP set out by the UN to put the right step forwards towards a sustainable future.

HOW DO YOU SEE THE TEXTILE INDUSTRY OF INDIA DEVELOPING IN THE FUTURE?

With rising labor costs in China, the country is losing its competitiveness in the global market, creating new opportunities for the Indian industry in the global domain. On the other hand, India is also actively working to evolve as a global textile manufacturing leader. Starting from new technology adoption to digitization and automation the nation's textile industry is doing it all to create a robust position for itself.



SUSTAINABILITY HAS NOW BECOME THE DNA OF THE TEXTILE INDUSTRY AS ANY CHANGES OVER THE PRESENT CLIMATIC CONDITION WILL INCUR A DIRECT EFFECT ON THE SUPPLY CHAIN OF THE RAW MATERIALS. HENCE, MANUFACTURERS ARE NOW PLAYING AN ACTIVE ROLE IN ENSURING THAT SUSTAINABILITY & GREEN PRACTICES

These efforts are already bringing massive results for the nation. For example- in sheet export, India now has 60 percent market share in the US, and the country's textile industry is growing at a nine percent CAGR. Furthermore, the Government is also playing a crucial role in the overall development of the nation's textile industry. New schemes like: ROSCTL, interest equalization scheme, PLI, textile mitra park, are all focusing to develop textile trade in the global arena. Moreover, FTA with countries like - Australia, UAE, UK, EU, Canada, will bring more demand for Indian goods. Today, we see every textile company progressing in an active form. For example— within 15 years of our operations, we have evolved as the largest manufacturer of bed linen in the world with showrooms in more than 54 countries in the world. All these factors show that as a company and a country we are equally geared up to attain the goal of 100 billion export. [In](#)

► AFTERWORD



HEALTHCARE- INFORMATION SECURITY ASPECTS

By Sourabh Tiwari, CIO, Meril Group of Companies

Information Security is a critical requirement in the Banking and Healthcare industry. News abounds about data theft and breaches affecting millions of customers. With increasing threat vectors and rising intensity of attacks it is important that we have a robust security framework. The article highlights the critical facets for protecting the business from various types of cyberattacks and secures the business-critical information.

As Banks & Financial Institutions and Healthcare providers are dealing with confidential Personally Identifiable Information (PII), Protected Health Information (PHI) it requires a high degree of safety and security. While there has been a good amount of focus on protecting the assets in terms of physical and logical security still there have been discernible gaping holes-

a. Risk Assessment & Treatment: Risk management is a key element of information security and privacy governance. The identification, assessment and mitigation of top and emerging risks should be through a well-defined internal process through the use of appropriate Risk management policies, procedures and tools. Risk assessment should cover financial risks such as credit risk, business risk, market risk, liquidity risk and non-financial risks (NFRs) including reputational risk and operational risk.

b. Logical Security: Adequate controls need to be deployed at the desktop level to prevent any form of data leakage. To access remote applications, documents, desktops securely Citrix application is installed on all end point devices. The access to the application should be through 2-factor authentication. Besides disabling Internet services, Personal mails such as Gmail, Yahoo Mail, and access to home drive should be disabled. USB and CD & DVD ROMs are also disabled. Right click access to save on desktop and Utilities to create, read, and edit text files. Operating system should be latest and supported by OEM. There should be a daily Anti-Virus signature update and patches should be deployed at least once a month. The internal and external Vulnerability scan to be conducted on a quarterly basis and all the critical and major gaps to be acted upon. For all applications Penetration Testing should be con-

ducted and all the gaps to be fixed on an annual basis. The list of employees having privileged access to the IT Infrastructure (Application servers, database servers, database, network devices, VPN, Antivirus, Firewalls, Workstations, and Products/ Applications) should be reconciled with the active employee list on the date of review by the concerned Project Manager on a monthly basis. Similarly all user access to the above IT infrastructure should be reconciled at least once in two months.

c. 24x7 Physical Security & Surveillance: It is one of the most overlooked aspects of security. As per a 2015 study of healthcare data breaches found that physical security is the most common cause of security compromise. Hence the need for adopting a layered security strategy to protect the crown jewels which are the raison d'etre of the business.



**AS BANKS & FINANCIAL INSTITUTIONS AND
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d. Social Engineering: 98 percent of cyber-attacks rely on social engineering. The human firewall is the weakest link in information security and deception as a technique is used by cyber criminals to manipulate the employees to divulge confidential or personal information. There are various techniques used such as Phishing (Email), Vishing (Voice), Smishing (SMS), shoulder surfing, dumpster diving, impersonation, whaling used to target the gullible employees and exploit them to break the security protocols and procedures. ■



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