VOL 3, ISSUE 2 - JULY-AUGUST 2019

MODERN MANUFACTURING INDIA

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The Official Magazine of

Indian Machine Tool Manufacturers' Association

In Association with

Modern Machine Shop

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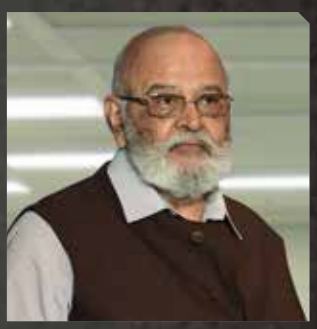

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IMPRINT

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Publishing frequency: 6 times per year

[AT11-15E]

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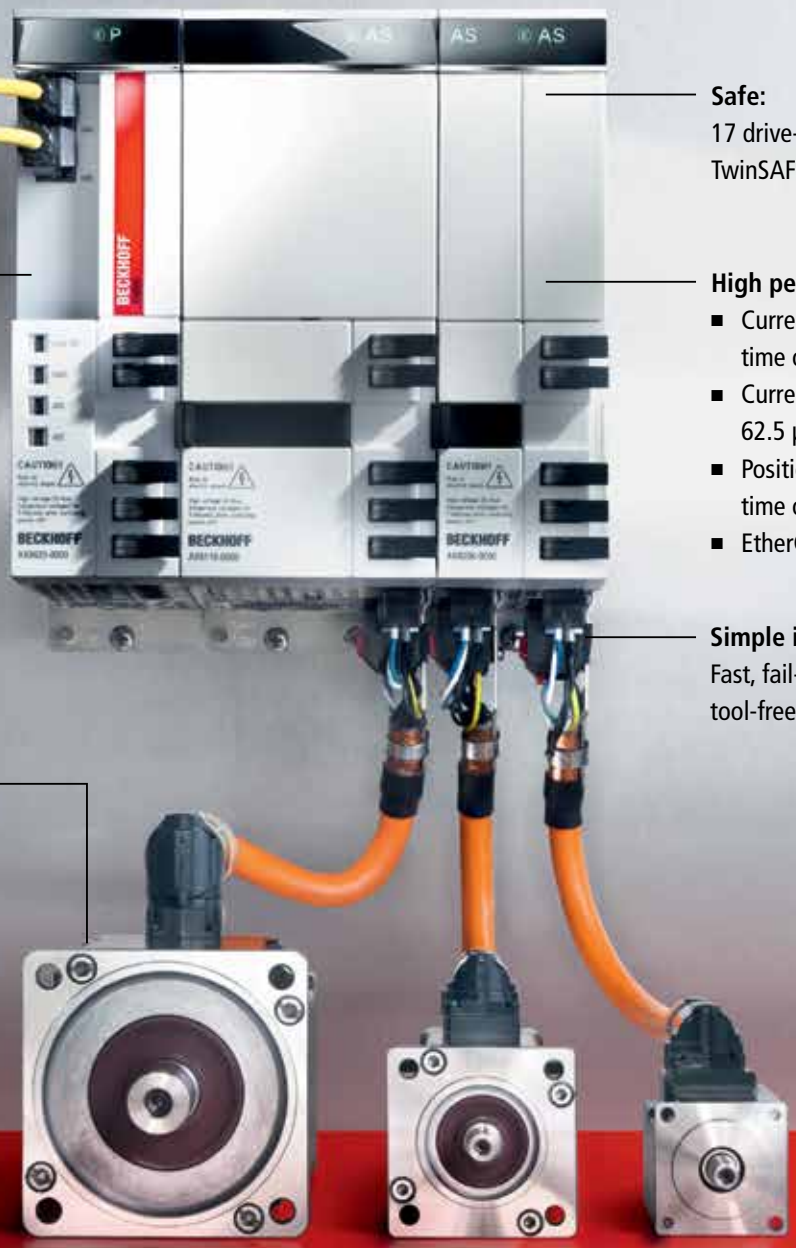

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New Automation Technology **BECKHOFF**

USHERING IN RENEWED HOPES

The year 2019 - 2020 is bringing in a lot of renewed hopes for India. The country has elected the NDA Government led by Prime Minister Narendra Modi with a thumping majority which sets it on a path for aspirational and inclusive growth. In one of his first meetings with central government secretaries since the formation of the government, the Prime Minister stressed the need for taking decisions to make India a $5 trillion economy with the manufacturing sector contributing around $1 trillion towards it.

As per the International Monetary Fund (IMF), India's GDP is estimated to grow at a rate of 7.3 percent in 2019 backed by exports and resilient consumption. Reserve Bank of India cut repo rate by 25 bps to 5.75 percent from 6 percent, bringing cheers for borrowers. Banks are expected to pass on the benefits of the rate cuts which means consumers will have more money in their hands to spend.

Manufacturing growth has always been crucial for various industry sectors. It is extremely important for industry associations and central and state governments in India to work in tandem towards globalization and assimilation into the world economy. Indian Machine Tool Manufacturers' Association (IMTMA) has been playing the role of a catalyst in driving the machine tool industry's growth.

Automobile and auto components will continue to remain the bulwark for machine tool business in the near future. However, it is believed that disruptions in the industries will open up new avenues in the sunrise sectors.

I am pleased to inform our readers that the Indian machine tool industry has moved up by one notch in both consumption and production in the global list of machine tool producing and consuming countries. India is ranked 7th in consumption and 9th in production globally, as per Gardner's 'World Machine Tool Output Survey 2019'.

Manufacturing thrives when industrial collaborations happen ushering in positive sentiment in the market and uplifting the economy of the country. Embracing technology will enable industries to firm up their business activities. To enable India's regional industry players get a peek into the latest technologies, IMTMA is organizing regional machine tool exhibitions – Delhi Machine Tool Expo 2019 in Greater Noida (near Delhi) and Chennai Machine Tool Expo 2019 in Chennai – this year.

Both these expos will give further impetus to our idea that regional machine tool exhibitions are the way to address the requirements of manufacturing units in Tier II and Tier III cities. I call upon the industry and all stakeholders involved to wholeheartedly support our expos by taking part in these exhibitions.

Happy reading!

P RAMADAS
President
Indian Machine Tool Manufacturers' Association (IMTMA)

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V ANBU
DIRECTOR GENERAL & CEO
IMTMA

Dear MMI Readers,

Indian Machine Tool Manufacturers' Association (IMTMA) is delighted to publish the July edition of its MMI magazine. Many thanks for your continued interest. Our MMI team with its intensive research and analysis strives to bring to you the latest information on the developments taking place in the manufacturing industry spread throughout India and beyond to your desk. This month's edition focuses on medical machining.

Adopting technologies such as Industry 4.0 and additive manufacturing / 3D printing will enable the manufacturing industry to meet the aspirations of customers besides establishing a 'connect' between sellers of machine tools and their end-users. Read on for a quick peek into an opinion piece by IMTMA on tapping opportunities in Tier II and Tier III cities and a focused article on green manufacturing and why it is important for the manufacturing industry to adopt it in its production line.

As we continue to share inspirational stories from the industry, we also reach out to you for your feedback, comments and thoughts to make this magazine all the more insightful and interesting. This will help us understand your requirements and enable us to meet your expectations. I thank you once again for your interest in the activities of the Association. You can download previous issues of MMI from the IMTMA website.

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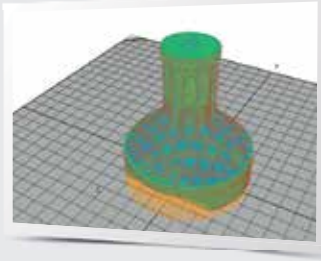

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ENGAGING THE AUDIENCE

By now you must have gathered that I keep drawing parallels from everyday life to make my point. The truth is that there is a lot to be learnt from mundane occurrences. My attempt is to learn and spread the gained wisdom. Just like the other day, my niece of sunny disposition came back from the playground rather sullen. A high-handed older kid had not let her play football. The episode continued but with a turn of events. The little one returned to the playground, resolute to straighten the matter. Undaunted she presented her case, unfolding the cons of her absence from the team. Not only did she get in but was also made responsible to coach kids younger than her.

What she made use of was the power of effective communication in the face of which the older kid had to give in. Communication is such a tool that should never be undermined. History is replete with catastrophes that were result of communication gone wrong. Essentially, our ability to communicate is a major deciding factor in our pursuit of goals, whether it is with family, co-workers, clients or customers. It is a crucial aspect of productivity in all spheres of life.

> *"The two words 'information' and 'communication' are often used interchangeably, but they signify quite different things. Information is giving out; communication is getting through."*
>
> *– Sydney J Harris*

Our endeavor with MMI is similar - to facilitate thought leaders and innovators communicate with you compellingly and share the cutting-edge in the field. We hope that this issue too reflects our earnest efforts to curate pieces from myriad industry sectors and demonstrate how collective deliberation gives shape to ideas, turning the seemingly impossible into possible.

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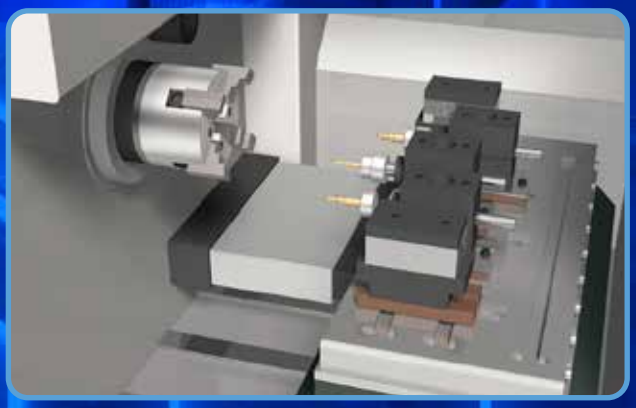

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UNEARTHING THE POTENTIAL OF TIER II AND TIER III CITIES IN INDIA

With the aim to connect with the machine tool manufacturers of smaller cities around Delhi and Chennai, and level out the playing field for them, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing regional machine tool expos in the two cities in the coming months. Stay tuned.

Source: Magic Wand Media

Gone are the days when the Tier II and Tier III cities had to wait to upgrade to the latest technologies. Today, consumers in smaller cities are using modern technologies as their counterparts in the larger Tier I cities. They are well-versed with the technological advancements and are exploring ways to bring them to their doorsteps. This is where regional expos organized by Indian Machine Tool Manufacturers' Association (IMTMA) in different Indian cities play a pivotal role in connecting the manufacturing innovators to the end users.

Opportunities await here

Engaging with these cities can be a good idea for a relatively cost-effective labor and service cost as well as to purchase real estate at affordable prices. Tapping them can pay rich dividends for the manufacturing industry as they are becoming favorable business destinations. Most of these cities now have industrial clusters, are governed by business-friendly administrations and are well connected to major economic hubs in India. Cities such as Kanpur, Amritsar, Chandigarh, Nashik, Nagpur, Vadodara, Surat, Ahmedabad, Vishakhapatnam, Coimbatore, Kochi, and many more have developed or are developing infrastructure to support large-scale economic activities. Companies with adequate resources can grow their business independently in these cities. They can set up the basic infrastructure and logistics, train local labor in fundamental tasks, and create a well-developed business ecosystem.

Regional shows help connect

Speaking on IMTMA's endeavor to connect with Tier II and III cities through its regional trade

shows, P Ramadas, President, IMTMA, notes that organizing shows in different regions enhances the potential of the various industries situated in the vicinity of the city where the show is organized. For example, a manufacturer based in Ludhiana will find it easier to come to Delhi to display his machines and connect with the customers visiting the show. Likewise, a show in Chennai will attract manufacturers based in Coimbatore and other neighboring places to attend and connect with the business fraternity of the region.

Agreeing to Ramadas's views, V Anbu, Director General & CEO, IMTMA, points to the commendable job the union and state governments are doing with their strong support to city administrations to upgrade the infrastructure such as airports and railway stations, develop road networks, and introduce special economic zones. As improvement happens over a period of time these cities will turn into innovation centers which will bode well for manufacturing.

The development which is to happen from such engagements paints an optimistic picture for the market and economy. To facilitate that and help India's regional industry players keep pace with the technological developments in the global manufacturing space, IMTMA is organizing two regional machine tool expos this year.

The third edition of Delhi Machine Tool Expo (DMTX 2019) at India Expo Centre & Mart, Greater Noida, Delhi – NCR from August 08 – 11, 2019 will lay out a red carpet for the local industries' growth. Metrology Expo, an exhibition on metrology, testing instrument and equipment, and Weld Expo, an exhibition on welding, cutting and joining will be held concurrently. Exhibitors will be showcasing their disruptive offerings such as additive manufacturing / 3D printing machines and Industry 4.0 software and hardware. In the same spirit, the Association is organizing the first-ever Chennai Machine Tool Expo (CMTX 2019) at Chennai Trade Centre in Chennai from September 26 – 29, 2019.

The intent behind IMTMA's regional shows is to offer equal opportunities to industrial units spread far and wide in the country for them to explore the newest innovations in the field and adopt them in their business to scale up further.

The intent behind the shows is to offer equal opportunities to regional industrial units spread far and wide in the country for them to explore the newest innovations in the field and adopt them in their business to scale up further.

GREEN, THE NEW BLACK IN MANUFACTURING

With the growing realization of the benefits that stem from sustainable manufacturing methods and technologies, manufacturers today are more willing to go green than ever. Indian Machine Tool Manufacturers' Association (IMTMA), in its commitment to steer the Indian machine tool industry towards increased progress, also lends support to this much-needed manufacturing trend.

Green has become a buzzword in almost every sphere of activity today. Taking stock of the advantages that entail the adoption of green manufacturing, the Indian manufacturing industry is also steadily but surely warming up to it.

With environmental concerns bothering our very existence, the industry is taking the much-required initiative of using energy and other resources efficiently and minimizing the generation of waste. In order to become sustainable and gain a competitive edge, businesses have started adopting environmental-friendly manufacturing practices and renewing their production processes.

Green advantages

Everything is green in such an industrial set-up – with workers using fewer natural resources, a decrease in pollution, elimination of waste, recycling, use of renewable energy, water conservation, product stewardship and lifecycle, reuse of materials, and moderate emissions in manufacturing processes, and so on. Companies that adopt green practices in manufacturing benefit through cost savings, brand enhancement with customers, and also attract higher investor interests.

For green manufacturing to succeed, the industry needs to plan for green as a core business strategy, execute green initiatives across the value chain, and communicate its benefits to all stakeholders involved. Although the Indian manufacturing industry has begun showing its inclination towards adopting green practices in its activities, there is a substantial scope on the policy front, both for the manufacturing of green products and the implementation of sustainable processes to go up a notch. Once fully implemented it will bring substantial benefits, tangible as well as intangible.

On the impact of green manufacturing on the machine tool industry, P Ramadas, President, Indian Machine Tool Manufacturers' Association (IMTMA), notes that companies gain an edge in competitiveness and profits when they successfully reduce carbon footprints and make sustainable green practices an integral part of their value proportion to consumers. V Anbu, Director General & CEO, IMTMA, seconds his take and adds that industrial units are slowly transforming to become green centers. The industry, however, needs to develop a well-drafted plan for long-term returns. The Government, he further adds, can chip in with regulatory mechanisms which will help the industry.

Supporting the cause

With the view to aid its member companies in their quest to become world-class green manufacturing companies and enable them to manufacture machine tools as green products, IMTMA has set up a Green Manufacturing Cell in June 2018. Six companies – Ace Designers Ltd, Ace Manufacturing Systems Ltd, Kennametal India Ltd, UCAM Pvt Ltd, Wendt (India) Ltd, and Yuken India Ltd – have registered under this program. IMTMA sees green manufacturing as a means to prevent pollution, conserve energy and save natural resources. Towards this, the Association conducts trainings, seminars, and other forms of support to help companies achieve Green Company ratings from certified green experts or agencies such as CII GBC Green Co.

Albeit a tad late, the Indian machine tool industry is taking heed of the situation that demands being mindful of the resources it consumes and the waste that is left in the wake of its processes. It's a long journey ahead but what matters is that it's begun.

Source: Magic Wand Media

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BIEC Marks GED 2019

Bengaluru, India – Bangalore International Exhibition Centre (BIEC) extended its support to Global Exhibitions Day (GED) 2019 and World Environment Day to propagate the importance of exhibitions for the development of various industries across sectors. The Centre celebrated GED 2019 and World Environment Day on June 5, 2019 and pledged itself to commit to green practices at BIEC and encourage and support to organize eco-friendly and zero waste exhibitions and events. Speaking about the importance of exhibitions, V Anbu, Director General & CEO, IMTMA and BIEC and the newly elected President of UFI, the Global Association of the Exhibition Industry, for 2020 – 2021, said, "Exhibitions offer one of the best face-to-face opportunities for business and learning, and create an ecosystem where many players take part and reap benefits. They are one of the greatest enablers of industry growth and development."

Source: IMTMA

Automation Perks Highlighted

Pune, India – Autodesk, for the fifth consecutive year, organized the Moldflow Summit 2019. The event saw participation from around 350 professionals in the manufacturing, automotive, plastic engineering industry and marquee Autodesk customers like Tata Motors, Tata Technologies, Mahindra & Mahindra, Bajaj Auto, Whirlpool, LG, IFB, Schneider Electric, DuPont, Indo German Tool Room (IGTR) among others. The event showcased the success stories of some customers along with Moldflow in the 4th industrial revolution, its new features and the related R&D.

In his keynote address, Mike Malkin, Senior Director, Global Sales - Autodesk Inc., discussed how automation will enable to do more, better, with less time, resource and negative impact on the world we live in.

A key highlight was an interactive session by Mark Hennebicque, Simulation Business Line Manager, Autodesk Inc., on Generative Design in action, one of the latest innovations from Autodesk for Indian customers.

Source: Autodesk Inc.

(First from left): Pankaj Gauba, Head, Digital Manufacturing — India, ASEAN & ANZ, Autodesk

ExxonMobil's Mobil DTE™ 20 Ultra Series

Pune, India – ExxonMobil™ has launched Mobil DTE™ 20 Ultra Series – a technologically advanced series of hydraulic oils designed for all types of hydraulic systems and components such as close clearance servo-valves and high accuracy numerically controlled (NC) machine tools. The series promises to lower maintenance frequency, thus minimizing man-machine interaction, which makes the site safer for industrial workers. In addition to this, with 2 time oil life it would also support environmental care by reduction in hydraulic oil consumption. Providing improved deposit control of 89.2 percent for longer oil life and precision operations, Mobil DTE 20 Ultra Series also delivers superior wear protection to extend component life. "Hydraulic systems operate under high-pressure and high-output environment. One of the major challenges faced by industries is that of performance, productivity and efficiency," said Shankar Karnik, General Manager, Industrial Lubricants, ExxonMobil Lubricants Pvt Ltd. "With Mobil DTE 20 Ultra Series, consumers now have a new technology developed to deliver trusted performance and extended component life, with reduced maintenance costs and system wear."

Source: ExxonMobil Lubricants Pvt Ltd

(L to R): Sumit Rana, South AP Offer Development Manager; Ankush Khanna, South AP Commercial Brand Manager; and Shankar Karnik, General Manager – Industrial Lubricants, during the launch of Mobil DTE™ 20 Ultra Series — a technologically advanced series of hydraulic oils by ExxonMobil Lubricants Pvt Ltd.

Stress on Digitalization

Mumbai, India – Focusing on digitalization, the Siemens Innovation Day 2019 addressed topics of vital importance for India including Smart Urban Infrastructure, Digital Enterprise, Connected Mobility, Future of Energy, Artificial Intelligence, Digital Twin, Internet of Things and the startup ecosystem. The company also announced the opening of a Next47 office in Bangalore, an independent global venture firm committed to helping connect Siemens customers to startup innovation from around the world. Dr Roland Busch, Chief Operating Officer, Chief Technology Officer and Member of the Managing Board, Siemens AG, said, "India is a key focus market and plays an important role in our global digitalization strategy. Research and Software Development in India coupled with the sharpened focus on Start-Up innovations through Next47 will actively drive the implementation of cutting-edge technologies."

Source: Siemens

New Air Compressors

Pune, India – Atlas Copco has launched five new specially designed products in the air compressor segment for the Indian market, providing an edge to small and medium scale business units. This new range includes piston air compressors, screw air compressors, and on-site nitrogen generator series to cater to the changing demands of customers from different sectors across India including food and beverages, cement, textile, foundry & forging, general engineering, metal, auto & ancillaries, paper and many more. Conrad Latham, General Manager, Compressor Technique, Atlas Copco India, said, "The new range of air compressors in piston and screw technologies are a result of Atlas Copco's continued commitment to work with manufacturing companies to reduce their energy bills in line with the governments focus on energy efficiency."

Source: Atlas Copco India

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3DEXPERIENCE On Wheels

Pune, India – Dassault Systèmes recently launched the '3DEXPERIENCE On Wheels - Connected Factory' campaign in Pune. This is the second direct customer outreach campaign this year with the ongoing Connected Value Network campaign that is focused on the supplier ecosystem in manufacturing. It is a technology showcase of a fully functional factory assembly line mounted on a vehicle that showcases transformational experiences for a smart and connected factory of the future. Samson Khaou, Managing Director, India, Dassault Systèmes, said "We, at Dassault Systèmes, have the vision and strategy in Industry Renaissance and with the 3DEXPERIENCE platform, we are a game-changer, leveraging our capacity to help manufacturers in India to reinvent themselves." The campaign breaks the barrier to show the integration between the virtual and the real through a set of experiences for Manufacturing Operations Management, 3DEXPERIENCE Twin, Advanced Planning and Scheduling, Lean Management and Analytics.

Source: Dassault Systèmes

Dassault Systèmes launches Connected Factory to enhance technology adoption in Indian manufacturing

MEI's first 'e-F@ctory Alliance Meet'

Pune, India – Mitsubishi Electric recently organized 'e-F@ctory Alliance Meet' in Pune where its associates came together to get the hang of IOT/IIOT and Digital Transformation. It was a forum for its partners, industry, industry associations and academia to discuss the challenges faced by the industry and how e-F@ctory concept of Mitsubishi Electric can facilitate the role of technology in the context of smart manufacturing.

Source: Mitsubishi Electric India

Deliberating on Future of Mobility

Bengaluru, India – IJCCI (Indo Japan Chamber of Commerce and Industries) along with JETRO (Japan External Trade Organization) Bangalore held a Seminar on 'Future of Mobility' on July 04, 2019, at Royal Orchid Hotel, Bengaluru. The seminar provided insights from E-mobility experts such as Sun Mobility, Toyota Kirloskar Motors and Ather Energy. Electric vehicles are to bring along advances in battery technologies, power management, and networked vehicles. With Bangalore being a technology and innovation hub, it is a huge opportunity for the city to leverage the revolution the Indian Automotive industry is undergoing to achieve a leadership position not only within India, but even globally.

Source: IJCCI

Takashi Suzuki, Director General, JETRO addressing the audience during the event.

EVENT CALENDAR

EVENT NAME	CONTACT	DATE & VENUE
DELHI MACHINE TOOL EXPO (DMTX) 2019	T: +91 80 6624 6600 E: info@imtma.in www.mtx.co.in	August 08–11, 2019 Pragati Maidan New Delhi, India
EMO HANNOVER 2019	T: +91 22 6687 550 001 E: info@hmf-in www.emo-hannover.de	September 16–21, 2019 Hanover Fairground Messegelände Hannover, Germany
CHENNAI MACHINE TOOL EXPO (CMTX) 2019	T: +91 80 6624 6600 E: info@imtma.in www.mtx.co.in	September 26–29, 2019 Chennai Trade Centre Chennai, India
MTA HANOI 2019	T: +65 6233 6688 E: machine-isoa@ubm.com www.mtahanoi.com/en-us/	October 16–18, 2019 Hanoi International Exhibition Center Hanoi, Vietnam
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BI-MU 2020	T: +39 0226 255 .233 / .234 / .860 E: bimu.esp@ucimu.it www.bimu.it/en/	October 14–17, 2020 Fiera Milano, Rho Milan, Italy
TAIWAN INTERNATIONAL MACHINE TOOL SHOW (TMTS) 2020	T: +886 4 2350 7586 E: tmts@tmba.org.tw www.tmts.tw	November 10–14, 2020 Taichung Taiwan

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IN THE TOP GEAR

The Indian automotive industry has come a long way making rapid strides and providing a fillip to other industries along the way. However, there remain challenges to be surmounted for the industry to leverage significant opportunities that await it.

Source: Magic Wand Media

RAJIV GANDHI
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The Automotive industry has created mobility on a scale that might have never been thought of, and the effect it has on the lives of people is still incalculable. It is, by nature, a well-knit web that encompasses many other industries, and is among key contributors to the economy of a country. Its forward and backward linkages are so well developed that a minuscule percentage of growth in the auto sector proliferates to bring significant improvements in the economic indicators.

Fillip to other industries

The auto industry is globally worth over $2.4 trillion. Its effect on other industries is remarkable. A major share of products from steel and rubber industries go to this industry. It is also one of the largest consumers of machine tools and has cast a profound influence on the design and development of highly specialized machine tools. Moreover, the special requirements of automotive mass production have stimulated technological advances in steelmaking, paint and plate-glass manufacturing, petroleum refining and other industrial processes.

The rise in efficiency and productivity in the automotive sector helps accelerate the efficiency of other sectors as well. Therefore, the industry has come to be recognized as one of the key drivers of economic growth, contributing significantly to the overall GDP of a nation. Hence, a competitive auto industry reflects on the productivity of a nation's factors of production (labor, land, and capital) employed during production processes. Prize-winning economist Paul Krugman once aptly quoted: 'Productivity isn't everything, but in the long run it is almost everything'. Competitiveness is one of the byproducts of higher productivity that we tend to achieve by using our resources well.

Indian auto picture

India has some great advantages in this changing automotive landscape. What differentiates India from developed nations is

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its strong emerging market and more than a billion consumers with their increasing purchasing power. At this juncture, the critical thing is keeping pace with the rapidly changing technologies. How well can we adopt and adapt to them will decide our future.

With the country being on every major global automotive player's radar, the Indian auto industry has witnessed a slew of investments in recent years. Several global manufacturers have set up their bases in India. The industry is also fast becoming an outsourcing hub for automobile companies worldwide, as indicated by the zooming automobile exports from the country.

For the first time, India has made it to the Top 100 in World Bank's 'Ease of Doing Business' global rankings due to sustained business reforms as a result of supportive government policies and thrust. Additionally, the customer base of the industry comprises the world's youngest population with increasing disposable income. This scenario is further supported by factors such as the availability of skilled labor at low cost and low-cost steel production. Demand is linked to economic growth and a rise in income levels. Further, it is inversely related to the interest rates and fuel prices as 85 percent of the total vehicles are bought on credit. Per capita penetration at around 22 cars per 1,000 people is itself an indicator that India serves as a red hot destination for global players. With all the above factors in its favor, India is slated to attract more investment and influx of new technologies. It's now up to the industry to leverage this opportunity.

What differentiates India from developed nations is its strong emerging market and more than a billion consumers with their increasing purchasing power.

Coping with challenges

With all the optimism breeding in the Indian automotive industry, it does face new and pressing challenges such as globalization, individualization, digitalization and increasing competition. Increasing safety requirements and voluntary environmental commitments by the industry also add to the lot. Size is no longer a guarantee of success; only those companies that can explore new ways to create value will prosper in the future. Upcoming challenges like Quick changeover from BS IV to BS VI emissions, Hybrid vehicles, EVs, CAFE norms and various safety regulations are forcing auto manufacturers to enter into an Eco space that is more collaborative to develop a conducive infrastructure and ensure sustenance at large.

What is more important in this scenario, compared to other big markets such as China and the US, is how Indian businesses adopt and adapt to the changing environment, and boost their competitiveness to offer superior products for exports and domestic consumption. How things unfold in the next few years will indicate the direction of the third wave of generational shift — how fast India's middle class widens, the pace at which India's economy goes electric, and how soon the country's auto emission norms match global standards.

We need to use the nation's factors of production – labor, land, and capital – to drive competitiveness in the auto industry. The entire value chain including part manufacturers, logistic suppliers, core auto sector and dealers have to be competitive. High focus on localization and export of vehicles and spares can also help create skilled labor across the country. Increasing software content in automobiles is a new field that is coming up with technological disruptions. India is already proving its worth here and emerging as one of the largest exporters of connected and software solutions for automobiles. In this regard, a number of manufacturers are setting up their backend for research and development in India to support their global markets.

Hence, we must be competitive not just in using our resources for volume production, but also for building flexibility as the core strength. Being productive ensures we can serve the demand, but the true test is in being productive while managing a volatile environment.

Things Indian auto units must do for being productive:

- **Learn, unlearn and re-learn;**
- **Put the maximum effort in creating flexible processes and equipment;**
- **Design the processes in such a way defects are not generated and if they are process defects, they must be filtered out from the value chain;**
- **Cost advantage is directly proportional to competitiveness. It's time to switch from the lowest cost mindset to a maximum value over a lifecycle concept. This is the way one can make their entire systems much more efficient and systematic;**
- **It's highly important to work towards saving our environment. Irrespective of whether a company is polluting or non-polluting, protection of the environment should be the concern of every socially responsible organization;**
- **Last but not the least, one must design processes around their people since they are the ones who will make them win.**

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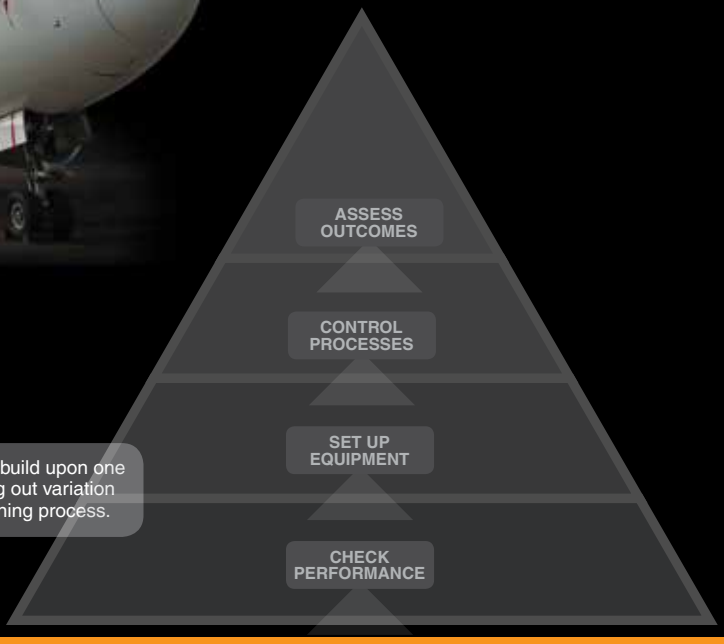

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BIG CHANGES AHEAD

The medical device industry is poised for tremendous growth. Suppliers should be prepared to adapt to the changing needs of their customers.

Source: Magic Wand Media

RAY ZIGANTO
Founder & CEO
Linara International
Ray@Linara International.com

In the medical device industry, we are poised to see tremendous growth and changes in the very near future. Are you prepared to keep pace? Are you ready to lead?

According to KPMG's 'Medical Devices 2030' study, the global medical device market is expected to grow by more than 5 percent a year and reach $800 billion in revenue by 2030. The US and China markets alone will account for almost two-thirds of that volume.

If your analysis stops there and you build a strategy solely around volume, your revenue will likely fall short of what is possible. That is because you are reacting to the wrong signal.

The growth at your OEM customers will be realized in proportion to their ability to cope with the change that's happening in their environment. By itself, 'change' isn't a new phenomenon. What is new is the rate, scope and scale of change that we are experiencing. According to the McKinsey Global Institute, the transformation of society is happening 10 times as fast and at 300 times the scale, or roughly 3,000 times the impact of the industrial revolution.

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Just like the OEMs, your real value as a supplier is a function of how well you adapt and support your customer in responding to the changes and challenges they face. Let's take a closer look at some of the high-impact changes that medical device OEMs are facing and what you can do to adapt and win.

According to KPMG's 'Medical Devices 2030' study, the global medical device market is expected to grow by more than 5 percent a year and reach $800 billion in revenue by 2030.

From B2B to B2C

The trend in the coming years will continue to push medical device companies out of their traditional manufacturing (B2B) role into providing more holistic solutions for their ultimate customer, the patient (B2C). One example is in the area of patient monitoring. In 2016, the number of patients being monitored remotely grew by 44 percent and is projected to exceed 50 million by 2021, while the global market for remote patient monitoring devices is expected to reach $1.9 billion by 2025. This evolution will create opportunities within the supply chain for existing vendors to play a larger role and for new companies to join the supply chain.

Your value as a supplier is proportional to how long you can stay with the customer journey. Here are some ways to do that:

- Get involved earlier through innovative design and proto support.
- Increase your level of vertical integration through complementary processes, assembly and secondary processes (either in-house or through well-defined/integrated partnerships).
- Explore collaboration opportunities within the OEM's existing supply chain (for example, how can your multi-axis machining company work with its leading injection molder?).
- Explore how you can provide effective (near) real-time support for your OEM customers regionally and internationally.

There will be new vendors in the supply chain that support the evolving product roadmap (for example, wearables). Stay on top of the new entrants. They may prove to be excellent new customers and will benefit from the 'street-smarts' you have accumulated as the more experienced vendor.

Data, connectivity, and analytics

Your OEM medical device customers are adopting a new language around data, connectivity and analytics to support their customers and bring value. Find ways to get informed and involved:

- How can you link your shop to your customers?
- What information/data do they need?
- How can you make it easier for them to get that information, automatically?
- What tools are you using in-house? Machine monitoring? MES/MRP?

If you are already using tools and techniques that your customers understand, you are a big step ahead of your competition. On the surface it seems that automating communication with your customer is 'impersonal'. In reality, it adds significant value to the customer experience and increases agility.

Emerging markets

It's easier to grow in these markets if you are actually in these markets. Independent of the current geo-political climate, a substantial growth opportunity awaits those companies that proactively explore and pursue customers on a global versus regional basis. It doesn't automatically mean you must commit to brick and mortar. Talk to someone who has done it, such as a peer in your current or related industry. A great way to attract attention and buzz at your OEM customer is to make it known you are researching international expansion. A remarkable number of doors will open and opportunities will present themselves.

Pricing

Pricing pressure will continue to intensify. The antidote for your shop is innovation and agility. How well are you keeping up with the latest technology and manufacturing techniques? How effectively are you leveraging your specific expertise to solve problems in a way no one else has thought of? Is purposeful innovation something you encourage, promote and fund in your company? As you get better, are you getting faster and more flexible?

I have been in your shoes. On a good day, medical device customers are very demanding. I know there's no shortage of things to keep you up at night. However, there's also never been a better time to grow your business in this space, domestically and internationally, than right now. I encourage you to challenge your assumptions around the costs and complexity of innovation, change and adapting to your OEM customers' needs. The resources at your disposal to answer your questions and provide the information you need are vastly larger than you think, and so is the up-side opportunity for your business.

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THE ROLE SALES ENGINEERS PLAY

The capital equipment industry makes for a highly niche market. Hence, the marketing strategies employed to tap the relatively smaller market should be impactful. To this end, sales engineers, who are the face of an organization, shoulder a big responsibility of building its brand and propagating it.

Attitude matters

Like most roles, the role of a sales engineer demands a certain kind of attitude. Here is how they should be for them to be of consequence in the industry:

People-oriented: Since it involves dealing directly with customers, one must be an extrovert with a thorough understanding of their needs, fears, and expectations.

Patient: Customers rightfully need time to think, decide, ponder and experiment. Hustling will only shoo them away.

Optimistic: It is not possible to win every time. Failures must be taken in the right spirit - to learn from and keep trying.

Energetic: Going over and beyond the normal call of duty is appreciated at all places, not just in this industry.

Time-conscious: Sales executive must value their time and demonstrate the same with their promptness. Making customers wait is sinful.

Committed: Commitment is the single most important thing in building trust. Don't easily make commitments. Once made, do not break them.

> "Fear of rejection can be crippling. Since sales executives frequently face rejections, they must train themselves to not get personally affected and quickly recover from them.
>
> **T K RAMESH**
> **Managing Director and CEO**
> **Micromatic Machine Tools Pvt Ltd**

Flexible: Sales executives should not be rigid. They must know when to change the pitch to suit customer needs and change plans accordingly.

Transparent: Being transparent is the key to avoiding complications later. Don't hide things or a status from customers. Convey to them clearly what product or service can or cannot be delivered.

Love for field work: Sitting at a desk and working with the phone cannot be a substitute for being in the field. Sales executives must enjoy being where the action is.

Skills required

Capital equipment sales executives must hone their skills for:

Recovering quickly from rejection: Fear of rejection can be crippling. Since sales executives frequently face rejections, they must train themselves to not get personally affected and quickly recover from them.

Being comfortable talking about money: Strangely, this could be a problem even for sales executives. If they avoid talking about money at the correct earliest point in the sales process, it will affect outcomes.

Prospecting: They should prospect consistently to turn suspects into prospects.

Reaching the decision makers: Their ability to get to the decision makers early in the sales process is critical to quickly qualify and close more business, at better margins.

Listening effectively: The key to quality listening is to not keep thinking ahead during a sales call but taking notes so that they best understand the customer and his issues.

Restraining from over selling: Showing desperation to customers can be a major put off for them. If they really need it, they will buy it definitely.

The views expressed by the author are personal and he can be contacted at rameshtkr@gmail.com

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GIVING SHAPE TO IDEAS

Source: Magic Wand Media

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Optimal exploitation of different processes and multiple technologies is to be the way of fabricating metallic objects in future. To this end, IIT Bombay has developed Hybrid Layered Manufacturing, an economical Metal 3D Printing System. An integrated platform for material addition, material subtraction, stress relieving, preheating and inspection, its next two versions are also underway at IIT Bombay and IIT Guwahati. An exclusive spotlight on the cutting-edge in Metal 3D Printing...

Additive Manufacturing (AM), popularly known as 3D Printing (3DP), is an important enabler in the current 3rd Industrial Revolution. It, a divide-and-conquer strategy, helps in compressing the time-to-market through total automation in manufacturing. Its other significant benefits are direct assemblies, non-linear ducts with varying cross sections such as conformal cooling channels, lattice structuring and Functionally Gradient Matrix (FGM).

Fusion of additive and subtractive manufacturing

Hybrid Layered Manufacturing (HLM), developed in IIT Bombay, combines the best features of additive (cladding) and subtractive (machining) processes. HLM proceeds in a layer-by-layer manner, same as the other AM processes. CAD model of the desired component is sliced into thin layers and a toolpath is generated for each layer. The deposition material in each layer, according to the generated toolpath, is done using a Metal Inert Gas (MIG), Tungsten Inert Gas (TIG) or Laser cladding using a 3- or 5-axis kinematics. Combining material addition and subtraction is not the only hybridization in HLM. It has evolved to incorporate hybridization of the cladding processes and kinematics involved. Additionally, HLM include multiple technologies such as preheating, face milling, stress management, and inspection to perform effectively. These

different processes and multiple technologies have been proven on the 3- and 5-axis CNC machines. This is known as Single-Station Multi-Axis HLM (SSMA-HLM). Using SSMA, following case studies were carried out at IIT Bombay:

- A pair of monolithic injection molds was built for producing the egg template of Godrej refrigerator. (See Figure 1a)
- By retrofitting the CNC machine with more than one MIG torch, a composite injection mold was produced with conformal cooling channels to efficiently produce the rear indicator body of a two wheeler. 3-axis HLM's ability to produce triangular conformal channels was used for this purpose. (See Figure 1b)
- The third feature demonstrated by this die is adaptive discrete slicing. An Al propeller was made in two settings. (See Figure 1c)
- A complex geometry with large undercut features, 'Impeller' was realized by tilting the substrate appropriately on a 5-axis CNC machine. (See Figure 1d)
- The same Impeller was realized using the feature-based conformal slicing method. (See Figure 1e)
- A turbine blade was manufactured by depositing the material on both sides of the substrate. The embedded forged substrate act as a backbone of the object. The alternative deposition of layers on both sides of the substrate reduces the residual stresses from the component. (See Figure 1f)
- A tooling element (Diffuser) with conformal cooling channels was realized using H-13 tool steel material that requires an in-situ preheating up to 500°C of the prebuild layer. (See Figure 1g)
- A mounting plate of a component of a spacecraft of mild-steel and aluminum was built depositing material on both sides of the substrate (See Figure 1h). This method is similar to the one used for realizing the turbine blade.

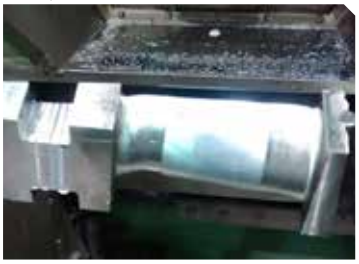
(a) Monolithic injection mold

(b) Composite injection mold

(c) Propeller

(d) Impeller

(e) Impeller by conformal slicing



(f) Turbine blade

(g) Diffuser

(h) Bracket

Source: IIT Bombay

Figure 1: Capabilities of MIG-HLM system

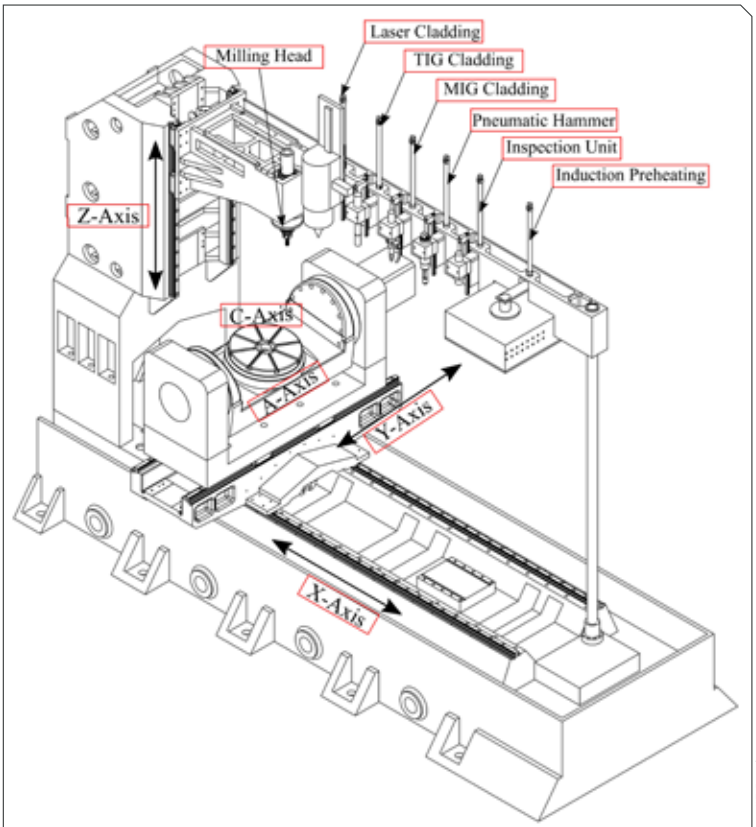
Hybrid Layered Manufacturing (HLM), developed in IIT Bombay, combines the best features of additive (cladding) and subtractive (machining) processes.

Industrial version of HLM

In view of the need for integrating hybrid processes and multiple technologies, we envisage the industrial version of HLM as a Multi-Station Multi-Axis HLM (MSMA-HLM) with 7 stations – MIG/TIG/Laser cladding, face milling, optical inspection and residual stress management through preheating and cold working (Figure 2). Typical sequence of operations to realize any layer is as follows:

(a) The carriage moves to the induction heating system at the right extreme for preheating the previous layer.

(b) It moves to the laser cladding system where the boundary loops of a few slices of fine layer thickness (say 0.5 mm) are deposited in 5-axis mode.



Source: IIT Bombay

Figure 2: Multi-Station Multi-Axis Hybrid Layered Manufacturing (MSMA-HLM) System

The evolution of HLM process to use different processes and multiple technologies brings the need for a flexible manipulator such as Robotic arms for handling the different units.

(c) It moves to the arc cladding system to fill the interior in one thick layer in 2.5-axis mode. This will be done by MIG or TIG head depending on the size of the part and precision.

(d) It moves to the face milling head at the right extreme for flattening the scalloped clad surface to the required height.

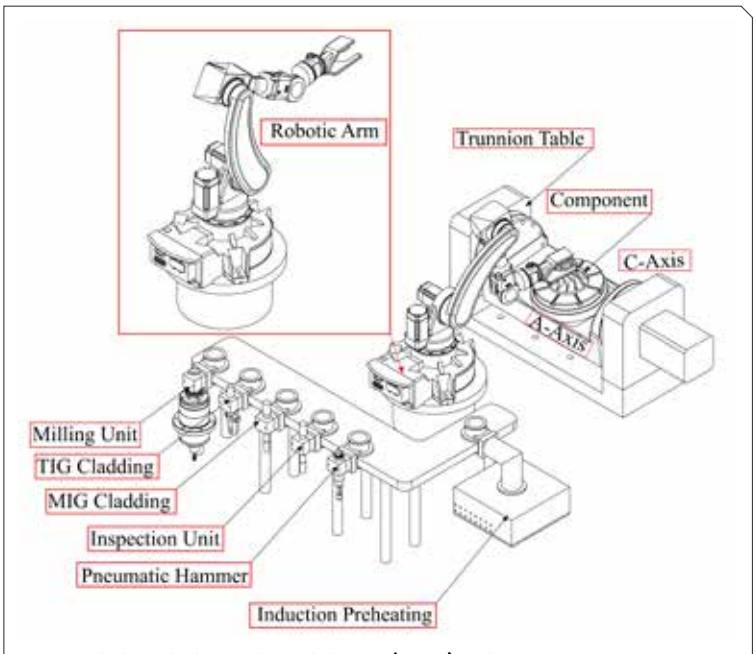
(e) It moves to the station for optical inspection where camera shoots the surface and an image processing software looks for any cracks arising out of a possible process instability such as spatter. If any crack is found larger than the pre-set permissible limit, it goes back to the face milling head where the entire recently-built layer is milled off to rebuild it again right from preheating.

(f) If the layer will pass the inspection, it will move to the hammering station to relieve the residual stresses.

After the deposition of near net shape on this system, an accurate CNC machining center will be used for achieving the dimensional accuracy. This system is being fabricated through an IMPRINT project in IIT Bombay.

Robotic arms in HLM

The evolution of HLM process to use different processes and multiple technologies brings the need for a flexible manipulator for handling the different units. Robotic arms are known for their flexibility of use and equipment handling with a compromise in rigidity. However, in the recent development of the robotic arms, it has been found that they can be used for milling operation as well. Robotic Hybrid Layered Manufacturing (R-HLM) (See Figure 3) system is built around a coupled multi-axis system consisted of a 6-axis robotic arm and a 2-axis trunnion table. The 6-axis robotic arm picks the appropriate unit (cladding, milling, pneumatic hammering, induction preheating or optical inspection head) from an in-line



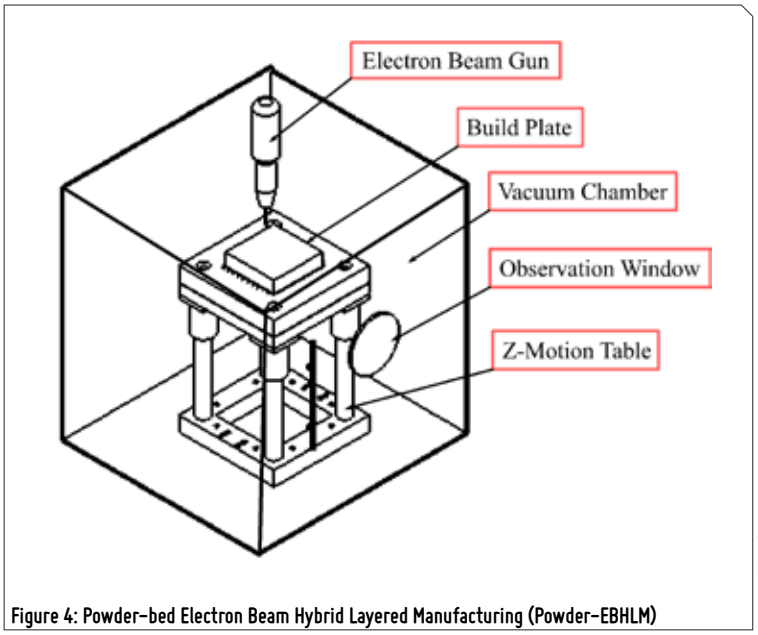
Source: IIT Guwahati

Figure 3: Robotic-Hybrid Layered Manufactruring (R-HLM) System

holder and perform the desirable action (adding the material, removing the material, relieving the residual stresses, preheating the prebuilt layer, or inspecting the layer) on substrate which is held on a 2-axis trunnion table. This project is under process in IIT Guwahati and focuses on understanding the build-up of residual stresses during realization of the component and ways to reduce them by optimal use of in-situ processes.

Powder-bed Electron Beam HLM

Electron Beam (EB) has several advantages such as high scanning speed, plug efficiency, compatibility with several materials and integrity (low porosities and residual stresses) due to vacuum environment which has developed its scope in AM processes. Worldwide only Arcam and Sciaky are the system providers for EB-based AM process for powder-bed and wire deposition technology respectively. IIT Bombay has UAY-2017 project on the indigenous development of powder-bed based electron beam additive manufacturing system. In this project, powder-bed technology gets hybridized with subtractive operations (see Figure 4). Need for vacuum is no longer viewed as a limitation as the benefits are more by contamination-free matrix. High energy efficiency of over 95 percent makes this a sustainable process. Its scanning speed is 1000 m/s which makes preheating the bed possible leading to the least residual stresses and distortions.



Source: IIT Bombay

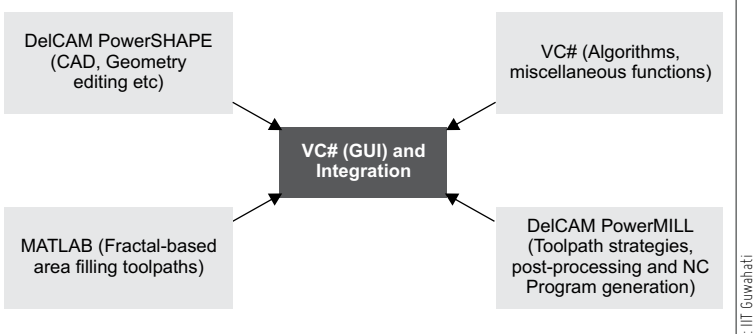
Figure 4: Powder-bed Electron Beam Hybrid Layered Manufacturing (Powder-EBHLM)

Furthermore, this permits stacking multiple parts without any connecting structures. EB will soon replace laser in all metallic applications. Its applications are more attractive in the field of medical, nuclear and aerospace where contamination and part's integrity are the major aspects for the objects. Simultaneously, IIT Bombay has DST-2016 approved project for wire-based system too.

Software for HLM

The software used for HLM process is called as Gati-Nirman. It is a Visual Studio's Windows Forms Application (as shown in Figure 5). It is the integration of three different packages – Visual Studio, DelCAM (Autodesk), and MATLAB. Visual Studio is the programing environment. The time-tested CAD functions of DelCAM's PowerSHAPE and the CAM functions of DelCAM's PowerMILL are appropriately exploited. When the required functions are not available in DelCAM, either MATLAB code or VC# code are developed.

Gati-Nirman is machine independent as it can take benefit from the numerous NC post-processors available with DelCAM. All the build strategies used for the case studies done by HLM are implemented through Gati-Nirman. For example, 5-axis slicing and fractal-based area filling are the unique methods implemented in this software.



Source: IIT Guwahati

Figure 5: Architecture of the software for HLM

The software used for HLM process is called Gati-Nirman. It is the integration of three different packages – Visual Studio, DelCAM (Autodesk), and MATLAB.

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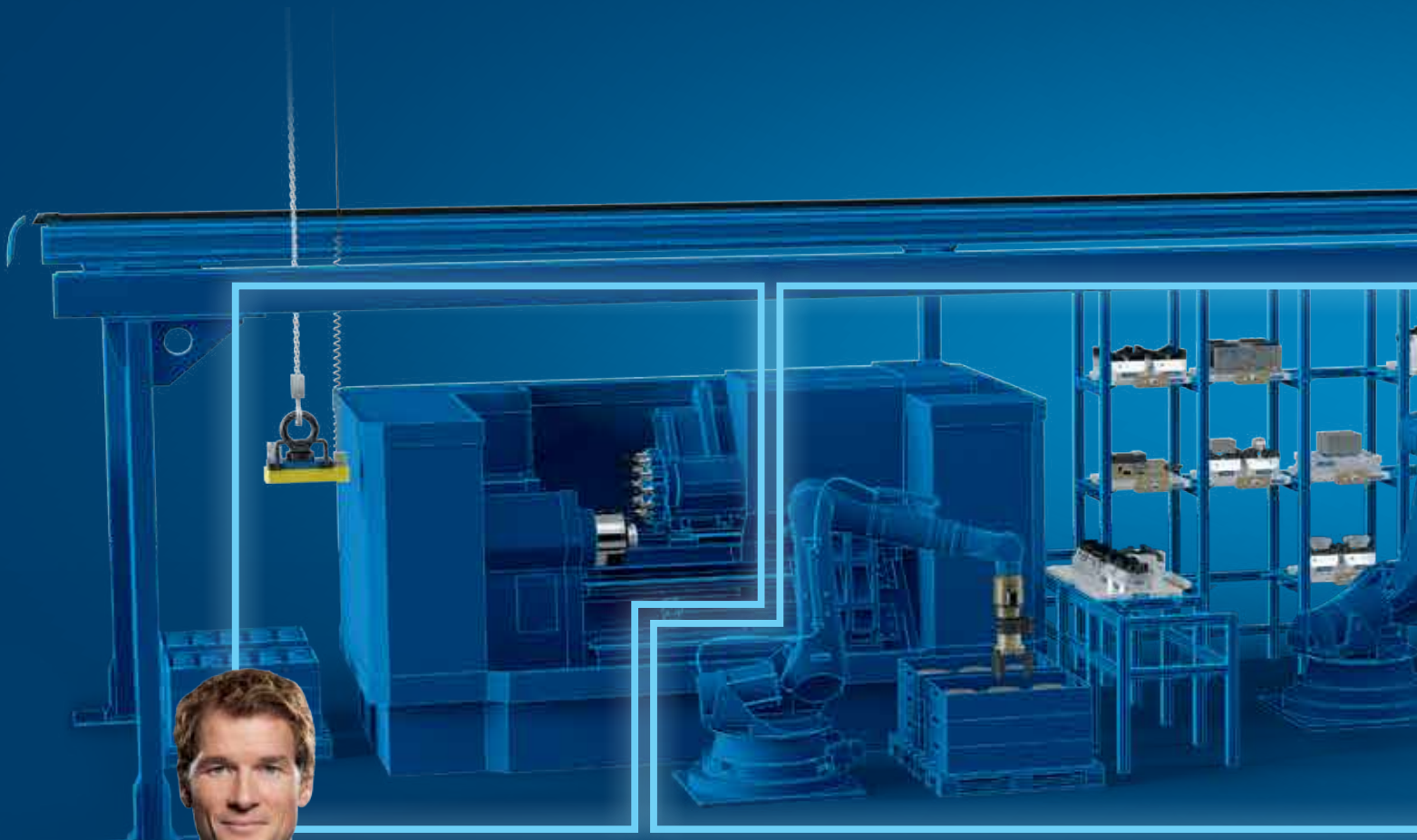

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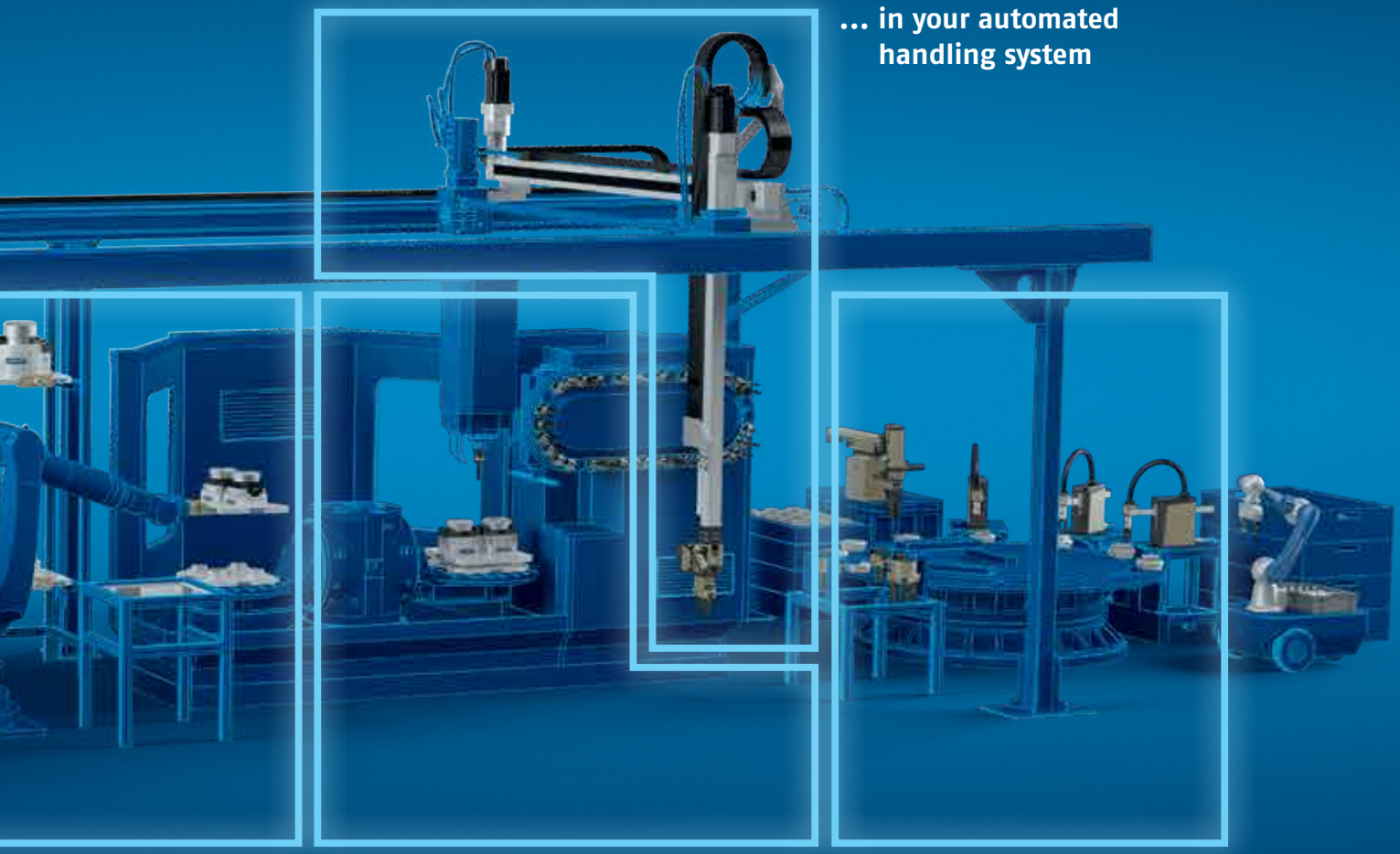

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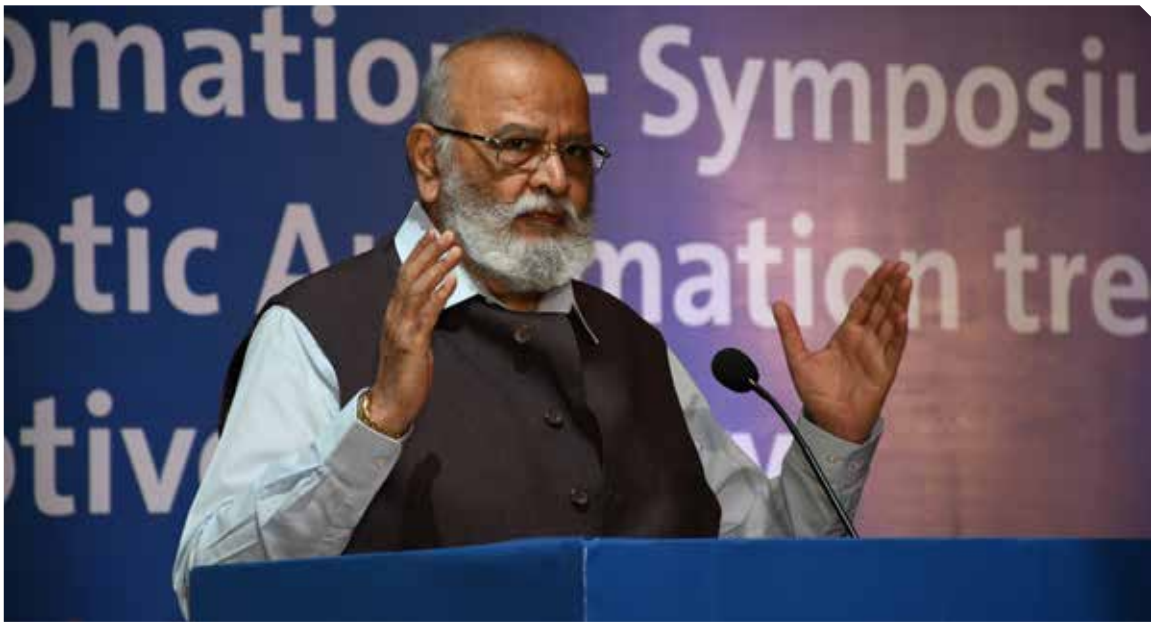
EVOLVING THROUGH CHANGE

With the auto industry undergoing an unprecedented and colossal change, thought leaders recently got together at a symposium organized by VDMA India titled 'Robotomation – for Robotic Automation Trends in the Automotive Industry' to reflect on the industry's evolution, offer their take on the shift towards electric powertrain and shed light on the current and the upcoming robotic automation trends in the industry. An excerpt from the valuable insight presented by Dr Abhay Firodia, Chairman, Force Motors Ltd...



Source: VDMA India

Dr Abhay Firodia, Chairman, Force Motors Ltd

Past, as important as future

Owing my 50 years of working experience in the automobile industry, it would not be out of place if I started with the past before moving on to the future.

It is known that the first electric automobile was displayed in Germany in an industrial fair by Siemens in 1885, which is more than 130 years ago. So, the electric vehicles are not so novel. Although they did not work commercially since the batteries were very heavy and had a very low power density, the basic approach was still known.

The 19th and 20th centuries were dominated by completely different technologies – 19th by steam, and 20th by IC engine for transportation. Long distance travel was greatly facilitated. 20th century besides internal combustion engine also gave rise to telephone, electronics, computers, telematics, etc. These technologies matured over the last 100 years.

From 1885 till the first World War, automobile industry was dominated by Europeans – specifically by inventors like Rudolf Diesel, Gottlieb Daimler and Karl Benz, etc. They created basic innovation.

Between the two wars, America became the center for global economic activity. Americans brought mass production and scale to the automobile industry. Europeans lead in innovation while Americans in manufacturing to scale, to reduce the costs and enlarge the market.

After the 2nd World War and the Korean War, the Japanese and later Koreans innovated with small, beautiful, high-quality vehicles, compact manufacturing processes, and new organizational approaches. Today, we have the Chinese making at a big scale.

From assembly lines manned by humans, now increasing use of

Source: Team MMI

Robots will be seen. Understand that if your automobile industry had about 40,000 robots in 2017, the number is going to increase to 3.4 million by 2025, mere 6 years from now.

As we go forward, Robotics will be a very important element of what is going to happen.

Technologies that can alter the way of life

Besides Robotics, four technologies are expected to dominate the evolving socio-economic scene of the world.

- Electrification, in transportation and in many other applications, including use of renewable resources and solar power, etc.
- Artificial Intelligence, which will make all automated activities highly precise, productive, safe and reduce the costs dramatically.
- Block Chain technology, where packages of important information will be independently stored in a secure manner that can be accessed and utilized without having to capture or store all over again.
- Finally, on the human side, DNA sequencing, which will change the quality of life in an unimagined manner.

Electric vehicles to be a gamechanger

It is estimated that by 2023, which is just four years away, around 26 million electric vehicles are expected to be operating in the world. Also, they will be 30 percent cheaper to operate than ICE vehicles. The reason electric vehicles are not affordable as yet is because batteries are still too expensive. But they will soon be dramatically cheaper. What Henry Ford did to the automobile industry in the early part of the 20th century was that he made the automobile affordable. By mass production he brought the cost down. People thought that he was only mass producing, but he was looking ahead to enlarge his market, which was not possible without reducing the cost of the automobile. Same thing will happen to electric vehicles. Once the battery cost goes down, affordability of electric vehicles is going to increase exponentially, transforming the world. It will not allow older technologies to survive or compete. There will be huge disruptions and the industry and the society will have to learn to cope and adjust to these changes.

Things change to evolve

Let me give you an example of how, with persistent efforts, technology evolution happens in an effective manner. Ten years ago, I was invited to visit a Daimler subsidiary near Stuttgart that makes fuel cell engines. They showed me the first-generation fuel cell engine that they had made in the 80s, which was very large and bulky. Its weight was heavy, and the volume was so big that when installed in a vehicle, there was space only for the driver. There was just no space for any passenger or cargo. Within 25 years, in well-defined steps, they created the third and the fourth generation engines that were nearly the size of a normal automobile IC engine. In this time span, evolution happened to reduce the size of the engine, improve its efficiency, quality, and reliability, making it increasingly workable. This is the convergence of technologies of manufacturing, chemistry, electricity, and automation in production such that the cost comes down. The fuel cell engine will also emerge as an important new technology.

Robotics and cost

Robotics is going to play an important role towards leveraging the rate of production so that costs come down. It does not necessarily mean reduction in employment, but there will be a huge change in the type of employment that will be available. So, when we go forward using all these technologies, the product that will be produced is going to be much more efficient.

With regard to the manufacturing processes of the past, I remember when I started work, 90 percent of the machines in the company were individual machines that had to be operated manually with levers. Whether they were lathes or milling machines, this was automation at its basic level. Then came the era of transfer lines, which was the first generation of mass production where a number of machines were interconnected, and sequential processes were carried out. This happened in the 70s and the 80s after which came CNC machines and the flexible machining centers, where smoothly one machine could perform many things. This was quite a high level of automation and industrialization, and now it's the turn of robotics.

In the 1970s, when we installed the first pick and place robots in our die casting foundry, it was an event for celebration. I had called the Board of Directors who were thrilled to see a mechanical man picking up stuff and spraying the die. That age is gone.

Today's robotization is far more miniaturized, much more capable, and highly productive. This shows that the trend evolving in the industry is that simpler processes are turning integrated and accurate, leading to quality and economy.

It is estimated that by 2023, which is just four years away, around 26 million electric vehicles are expected to be operating in the world. Also, they will be 30 percent cheaper to operate.

GROWING ON A SOLID FOUNDATION

A family-owned and managed business, Electropneumatics & Hydraulics (I) Pvt Ltd has got all its basics right. From leading the path of indigenous manufacturing, through focusing on its high ethical standards to staying committed to its stakeholders and society at large, the company has laid down a firm foundation that attests to its phenomenal growth.

Source: Electropneumatics & Hydraulics (I) Pvt Ltd

Electropneumatics & Hydraulics (I) Pvt Ltd's shopfloors

POONAM PEDNEKAR
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Magic Wand Media Inc
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Established in 1972 by its late founder Chairman, Antony Rasquinha with a team of just five persons powered by a desire to innovate and develop new products and technologies for the Indian industry, Electropneumatics & Hydraulics (I) has come a long way. "The first product rolled out was indigenous development and manufacturing of electrically operated pneumatic valves, a substitute to expensive imported ones," shares Sanjay K Saha, Vice President - Marketing, Electropneumatics & Hydraulics (I), as he recounts the company's initial feats on its remarkable journey.

From this humble beginning, the company gradually climbed the ladder of innovation by introducing many indigenous products such as hydraulic presses, tube bending machines, AC servo drives & motors, PLC/CNC systems, servo mechanical presses, special purpose machines, etc. along with technologies like hydroforming and hot forming. Many of these machines and technologies have been 'first-of-its-kind' in India.

There are five divisions in the company that operates out of a sprawling area of 15 acre:

Fluid Power Division manufactures pneumatic valves, pneumatic / hydraulic cylinders, hydraulic power packs and systems; Machine Manufacturing Division produces metal forming machines, various SPMs and PET stretch blow moulding machines; Component Manufacturing Division is a mass production unit of parts by hydroforming process and specialised forming operations; Drives & Controls Division is company's electronics wing producing AC servo drives/servo motors of industrial and Mil grade, CNC and PLC systems, motion control solutions, etc; Strategic Projects Division executes turnkey projects and several defence projects.

Catering to diverse sectors

Given Electeopneumatics' product range, it's only natural that

the company's presence is spread across many sectors including Railways, Defence, Aerospace, Ship building, Boiler & Power generation, Infrastructure, White goods, Electrical & Electronics, General Engineering, etc. "Of all, the Automotive and Auto Components industries have been the biggest users of our products," informs Saha. However, to prevent over dependency on the two industries, the company has diverted into a newer product line of PET servo stretch blow moulding machines. "For the last few years, we have also been associated in a big way with Defence Research and Development Organisation (DRDO) Labs and other Defence Manufacturing industries in realizing the country's important and critical defence projects like Missile Launchers, Damage Control Simulators, Nuclear Biological Chemical Training Facility, etc.," he adds.

Only a few of the company's products like CNC Tube Benders come under standard category. "Around 70 to 75 percent of our product portfolios are customized solutions. That is how we have carved a niche for ourselves in the industry, implementing cutting-edge technologies to achieve cost-effectiveness and being ahead of the curve," notes Saha.

Playing to its strengths

The culture of R&D and innovation, and a belief in indigenization have been the bedrock of Electropneumatics. Saha shares the strategies that the company implements to stay attuned to its customers' diverse needs. "Our strength lies in the total indigenous designing, manufacturing and testing capabilities in the area of mechanical, hydraulics, pneumatics, electrical, electronics and software, helping us maintain a leadership position," he points out.

Source: Electropneumatics & Hydraulics (I) Pvt Ltd

"Our aim is to provide our customers with the technology that is on par with the latest available anywhere in the world but at a competitive price. We are a one-stop-shop capable of providing individual solutions and also executing large turnkey projects."

Sanjay K Saha
Vice President - Marketing
Electropneumatics & Hydraulics (I) Pvt Ltd

"From the beginning, we have been investing in R&D for the development of new technologies and equipment using our indigenous experience and know-how. Hence, today we are able to offer our customers the latest technology products to meet their demands of productivity and reliability," he adds.

The company is DSIR, Government of India recognized in-house R&D center. It has distinguished itself from the rest with its technological innovations and built a tradition of anticipating demands of the future and being ready with the solutions to meet them.

That explains its impressive clientele including Tata, Bajaj, Mahindra, Hero Motocorp, TVS group, Godrej, L&T, Bharat Forge, JBM, IAI, Supreme Treon, Indian Navy, Goa Shipyard, GRSE, BHEL, RITES, IRCON, etc.

Its international customers comprise Trantor, USA; Samsonite Corporation, USA; Langbow, UK; Zamil Ladders, Saudi Arabia; Bill Forge Mexico; Sri Lankan Railways, Myanmar Navy; Ananda Shipyard, Bangladesh; Taigene Metal Industries Co. Ltd., Taiwan; etc.

Green practices

In line with its commitment to a bigger cause, the company is on board with the green movement and is currently taking initiatives to ensure its reduced environmental footprint. "Sustainable manufacturing practices are being employed in many areas of our daily production processes. The heavy-duty hydraulic presses in the Component Division shop floor employs smart servo pumps with intelligent drive system. This advanced hydraulics system directly contributes to energy efficiency, reduced noise and heat generation, improved efficiency and better shop floor environment," informs Saha.

Similarly, the latest technology servo mechanical presses, a tool for green manufacturing, are also being used by the company for the manufacturing of parts. These manufacturing methods not just control the manufacturing cost, improve the process and the product, but are also safe for the environment.

Responsibility towards the society

'Only a life lived for others is a life worthwhile' has been the guiding principle for Electropneumatics' CSR initiatives. The company has been consistently contributing in the fields of education, health care, skill generation, community empowerment, etc. It has aimed at providing a better life to the people of surrounding villages through several projects including Pius Memorial English Medium School; Rasquinha-Don Bosco Technical Training Centre; Dulcine-Pius Memorial Home for the Aged; Pius Memorial Clinic; Mahila Unnati Vikas Mandal; Lift Irrigation Project and Dulcine-Pius Memorial Park for Children.

For the last few years, Electropneumatics is also associated with Defence Research and Development Organisation (DRDO) Labs and other Defence Manufacturing industries in realizing the country's important and critical defence projects like Missile Launchers, Damage Control Simulators, Nuclear Biological Chemical Training Facility, etc.

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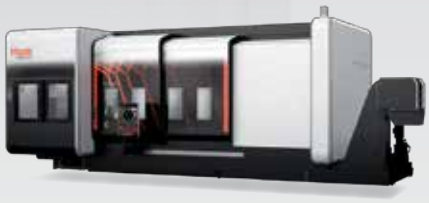

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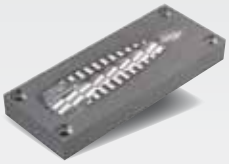

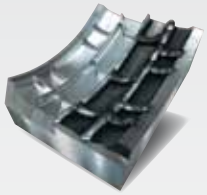

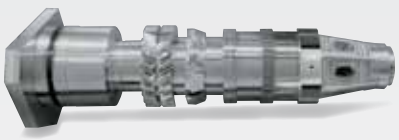

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RUNNING DRY

Continuing to build its reputation for creative solutions, this multi-faceted medical device component manufacturer took its Swiss machining operations to a new level to meet a customer's market demands.

Source: Modern Machine Shop

MMD Medical has built a separate white room with a dedicated HVAC system to keep the dry Swiss machining operations free from other potential contaminants around the manufacturing facility.

CHRIS FELIX
Editor-in-Chief
Production Machining
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In the fast-paced, highly regulated world of Class II and Class III medical device manufacturing, companies are often challenged by the need for a coolant-free machining environment that eliminates the potential for contamination in highly critical devices. One Minnesota-based manufacturer continues to make additional investments to ensure its customers are able to achieve critical business and manufacturing objectives, setting up individual rooms in the facility dedicated to specific customer needs. This approach has helped the company successfully meet market demand for critical, complex medical devices with a significant reduction in costs while increasing speed to market.

MMD Medical was founded in 1973, originally focusing mainly on moldmaking. Through the years, the company has expanded its capabilities to include injection molding, precision machining and assembly. Early in 2018, MMD Medical consolidated these operations into a single 100,000-sq ft facility that showcases, among other features, an almost 2,000-sq ft white room that houses Swiss machining operations that run free of cutting fluids.

Job introduction

A potential customer approached the company with an annual production requirement of 600,000 cannulas, with tight tolerances, to match a variety of surgical procedures. The cannula is a vital component of a device used in hernia repair and other abdominal surgeries. It channels air into an anatomic balloon that creates the precise

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amount of space inside the body to aid the doctor performing the medical procedure.

One of the tricky features of the cannula is a lumen that runs the length of the plastic tube. While that lumen is not machined (it is part of an extrusion process), its small diameter and length create challenges of contamination risk in certain machining environments, particularly those using cutting fluids—getting fluids out of the part is difficult and costly.

The previous supplier cut the extruded tubes to length before running a vertical milling process during which only one side of the tube was machined. Then the tube was manually flipped for machining of the other side. The previous production process proved inefficient and incapable of meeting the customer's demands.

A creative approach

The MMD Medical team saw the chance to prove the company's value and, hence, the opportunity to further deepen the relationship with the customer. The company was able to quickly acquire a Marubeni Citizen-Cincom A20 Swiss-type CNC automatic lathe through Productivity Inc. The company specified that all of the extruded tubes would be delivered in 12-ft lengths and equipped the A20 with a Citizen C-320 automatic magazine-style bar feeder. "Previously, the parts were fixtured a bunch at a time, and all of the features would need to be interpolated," says Tim Schmit, Manager, Precision Machining Operations, MMD Medical. "It was a big win for us to be able to run them automated on a Swiss-type lathe with a 12-ft bar so we wouldn't have to cut them. They just keep producing at a high rate without the manual labor of fixturing."

Source: Modern Machine Shop

MMD Medical currently uses Swiss-type machines for dry machining of the plastic medical components.

"Running a bar feeder dry is not a common practice in the industry," says Darren Bjork, Vice President, MMD Medical. "Our team needed to do some trial and error to understand the effects of running dry to be able to develop an efficient and successful process." Because the parts are plastic and no coolant is used, having the right tooling geometries was vital for having the heat taken away in the chip. The room where the parts are manufactured also has its own HVAC system to further separate it from areas where oils are used. While machining without cutting fluids and using a controlled production environment with rigorous quality control processes allowed the company to eliminate risk of contamination on the device, it did not resolve all of the challenges.

Overcoming other challenges

Being plastic parts, they are highly susceptible to marring, yet as is typical in medical machining, the surface finish is critical. Avoiding scratching is difficult as the material spins at high RPM while running through an automatic bar feeder and through the headstock of a Swiss-type lathe.

Initially, as the parts moved through the bushing, they would get longitudinal scratches down the length, and whip lines would develop where the bars would rub in the bar feeder. To alleviate the problem, the company added spacers in several places, and for any component of the machine that was metal that came in contact with the part, it made replacement components out of other materials that wouldn't mark the part. The company added a custom liner for the auto adjusting bushing and a custom spacer liner in the subspindle.

Schmit says that the most significant custom components the company built were new channel sets for the bar feeder. "Bar feeders are made to be highly lubricated, full of oil," he says. That oil is what keeps the bar running cool and prevents scuffing.

One other adjustment came in cooperation with the machine manufacturer. To keep the machine cleaner, they minimized the oil lube to use only what is needed, rather

While machining without cutting fluids and using a controlled production environment with rigorous quality control processes allowed the company to eliminate risk of contamination on the device, it did not resolve all of the challenges.

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than over-lubing, and MMD Medical maintained a protocol for wiping the machine down on regular intervals.

Favorable result

The first production-ready cannulas were delivered in two months, which was four months ahead of schedule. Program cost was reduced by $150,000 per year, and lead times were reduced by 67 percent. The company's willingness to invest in the right equipment and design and execute the best solution paid off in delivering for the customer. And the company has continued to strengthen the program post-launch by developing a more efficient way to apply a near-microscopic polyurethane film to each tube after machining, eliminating still more steps in the production process and further lowering costs.

The first production-ready cannulas were delivered in two months, four months ahead of schedule. Program cost was reduced by $150,000 per year, and lead times were reduced by 67 percent.

Part two

Because of its success with the cannula, MMD Medical was able to quickly secure additional work with the same customer. The next part is a component for a ligature device, a long, narrow tube that is designed to be inserted into a body during surgery to grab and tie off parts of the body via a lasso—a polypropylene suture—that is strung through the center of the device. The ligating loop is commonly used for appendectomies as well as veterinary applications.

Many of the strategies implemented on the first part carried over to this component as well. It's a fairly simple part, but it also requires careful handling both inside and out of the machine. The material for this part also is delivered in 12-ft lengths of tube that look much like pre-cooked spaghetti. While the bars are somewhat rigid, at this length they sag considerably, so care must be taken even in racking to prevent warping of the material. The parts are also run on a Citizen Swiss machine.

On the back end of each part is a groove that is designed to allow easy breakoff of the last section, or tab, during use (once the lasso is in place). One end of the suture is attached to that tab so it can be pulled through the tube to tighten the suture. The depth of the groove is vital to allow easy, yet not premature breakoff.

One of the challenges of the part was in the original design of the groove, which was difficult to make and allow proper and consistent breakoff. MMD Medical recommended a modification to the shape, from a squared notch to a V notch, which provides a very distinct point at which it breaks. The company still runs regular break force testing of the groove, but it consistently hits within the specified parameters.

Source: Modern Machine Shop

The company has additional ISO Class 7 clean rooms for other machining and assembly operations.

Winning business

The company's business model focuses on select opportunities with key medical device manufacturers, allowing the team to provide maximum value. "We follow the 80/20 principle to allow us to focus on helping our key customers solve their biggest business challenges," Bjork says. "Our goal is to build long-lasting relationships with major medical device manufacturers."

"Everyone is looking for cost savings," he adds. "The advantage that we bring is that we have a team of creative problem solvers that can come up with creative solutions—and the financial strength to support the solutions by investing in the latest technology and equipment."

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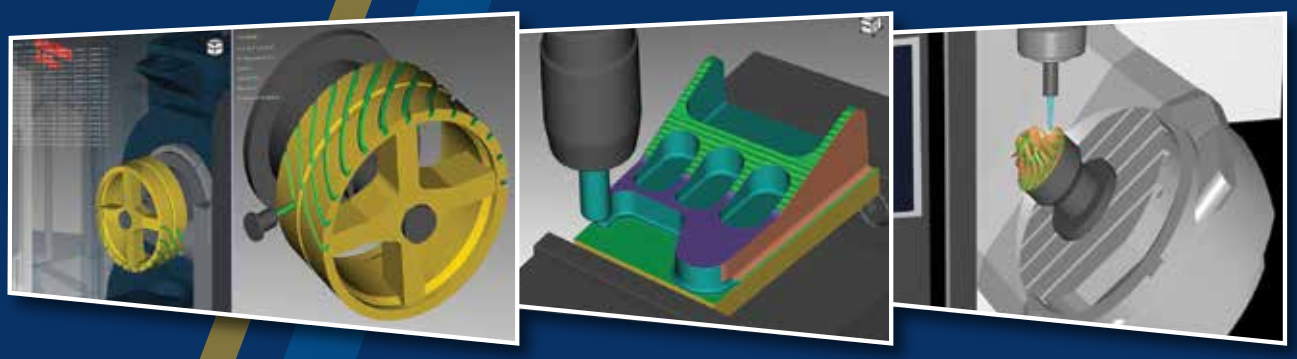

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TOWARDS LASTING PARTNERSHIPS

The Blaser coolant Blasocut 4000 Strong has a sump life of over 20 years now! It all began in 1998 when Tata Motors in Pune was looking for a high-quality metalworking fluid. Blaser Swisslube India reflects on the success story so far and is sure of it lasting for the next 20 years.

Technology Center of Blaser Swisslube in Switzerland

Source: Blaser Swisslube India

Tata is a market leader and pioneer in making commercial vehicles like trucks for ages. In 1998, the company decided to enter the passenger car market with its Indica car. For its car production, the plant in Pune was investing in high-performance technology for aluminum machining. Thus, it was on a lookout for competent partners. Its main requirement was a high-performance material removal and a reliable and robust coolant system.

After thorough research, Tata decided to get into partnership with Blaser Swisslube. This defined the beginning of its subsidiary Blaser Swisslube India in 2001. At the initial stage of the project, Hans Niederhaueser (now Retd. Sales Manager) from Blaser Swisslube Switzerland came to India to personally fill Tata's central system. "I still remember how it all started. I flew to India in May 1998 to fill the central system with 80,000 l of our Blasocut 4000 Strong. I am very happy to see that the emulsion is still stable and running smoothly for 20 years now. By avoiding a huge quantity of coolant disposal for the last 20 years, the contribution to the greener planet is priceless," says Hans.

Sustainable Blasocut Bio-Concept

Blasocut 4000 Strong is a coolant out of the Blasocut line. The Blasocut products have an excellent human and environmental compatibility. The technology has been able to contribute to the robust process of machining, high productivity,

Source: Blaser Swisslube India

Blaser microbiology lab technician at work

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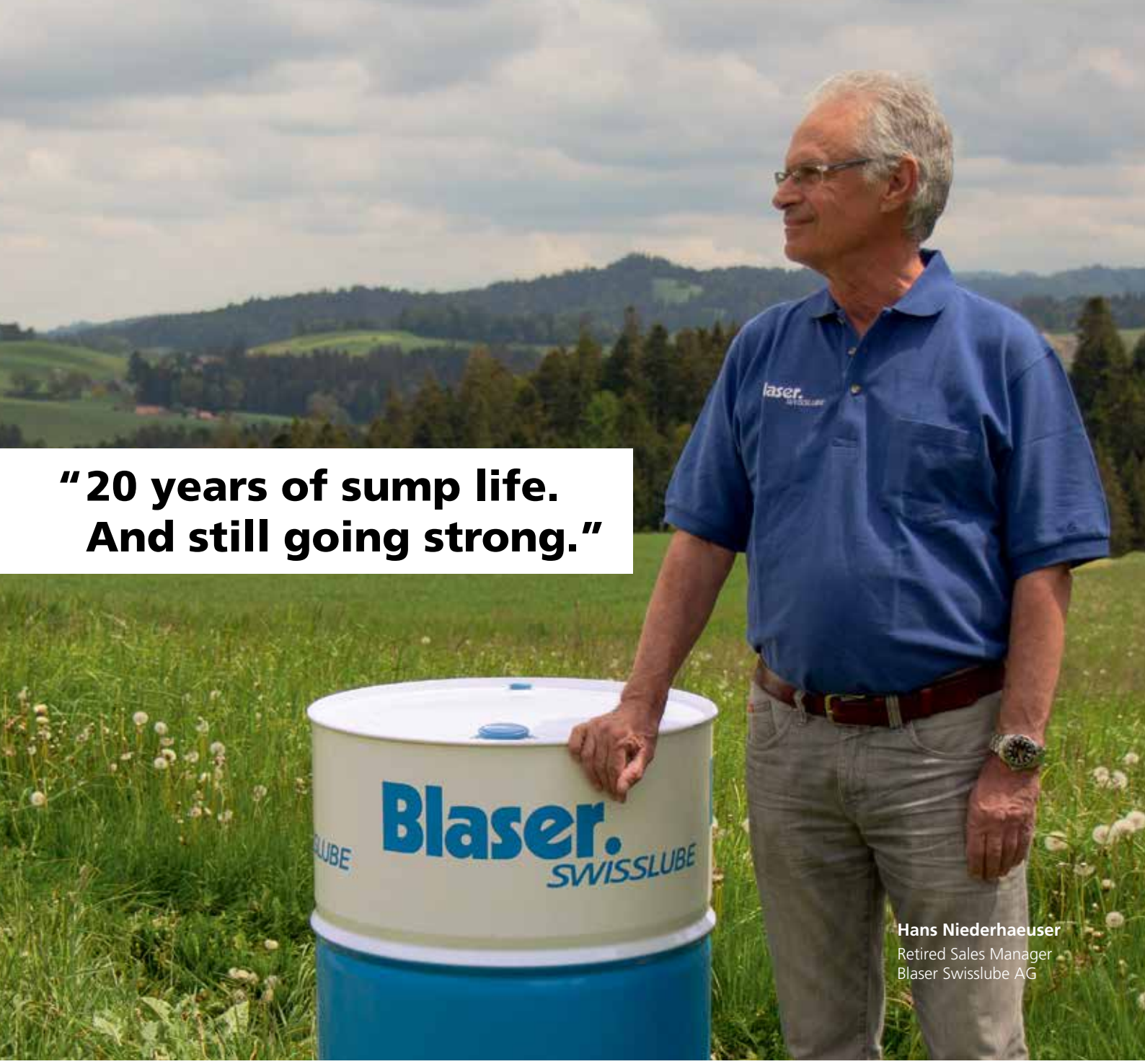

“20 years of sump life. And still going strong.”

Hans Niederhaeuser
Retired Sales Manager
Blaser Swisslube AG

20 years ago, our retired Sales Manager Hans Niederhaeuser personally filled the central system at Tata Motors in Pune with Blasocut 4000 Strong. Thanks to our unique Bio-Concept, this coolant is incredibly stable and gentle to humans and the environment.

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Requirement:

In 1998, Tata Motors in Pune was investing in high-performance technology for aluminum machining for car production. Thus, it was on a lookout for a competent partner that could fulfil its main requirement of a high-performance material removal and a reliable coolant system.

Solution:

Blasocut 4000 Strong, a coolant out of Blaser Swisslube's Blasocut line, which is still stable and running smoothly for 20 years now. The Sustainable Blasocut Bio-Concept technology has been able to contribute to Tata Motors' robust process of machining, high productivity, and better machining quality.

and better machining quality. In today's manufacturing world, it has become a global requirement for all manufacturing industries to contribute towards the environment. There is a high level of awareness about the ill effects brought in by many factors of industrialization. Sustainable technologies like the Blaser Swisslube Bio-Concept work in perfect harmony with nature. With the Blasocut Bio-Concept, emulsions need no tank side addition of bactericides. They stay inherently biologically stable. These emulsions have a unique way of maintaining the long-term bio-stability of metalworking fluid emulsions. The Bio-Concept uses an age-old law of nature whereby bacteria normally colonize the aqueous media immediately. To keep the emulsions stable, ideal conditions are created for the harmless primary bacteria. These bacteria, also present in drinking water, build up a naturally stable biotope where undesirable bacteria have no chance of propagating.

Making customers happy

The Tata Motors' passenger vehicles plant in Pune is one of the most advanced manufacturing facilities in India. The facility has introduced many popular models like Indica, Indigo, Marina, Vista Manza, Zest, Bolt, and Nexon. Speaking on his company's successful association with the automobile giant, Punit Gupta, Managing Director, Blaser Swisslube India, notes, "A happy customer is our main goal. At Tata Motors in Pune, the emulsion Blasocut 4000 Strong is still running great. Our specialists check and monitor the emulsion on a regular basis to control the vital parameters like pH, emulsion concentration and many more. We offer each customer a tailored monitoring plan for their central systems."

"Customers like Tata do not just want a cutting fluid but are also looking for a competent and dependable partner to help organize and optimize their machine processes. With our committed team, we provide this partnership. The partnership with Tata, for instance, contributed to the robust process of machining, high productivity and better machining quality. The collaboration of 20 years is a result of trust and strong commitment from both sides to deliver the best and the safest to the industry and the environment," he adds.

"Our people are always very excited to work with customers in exploring the possibility to exploit the full potential of machines and tools in the manufacturing process. Productivity, economic efficiency, and machining quality are factors that critically depend on the choice and the quality of the metalworking fluid. With us as a partner, one will get the Liquid Tool: the right coolant for their application, correctly used and monitored with on-site support by our specialists," sums up Gupta.

Source: Blaser Swisslube India

Blaser microbiology lab

Source: Blaser Swisslube India

"Customers like Tata do not just want a cutting fluid but are also looking for a competent and dependable partner to help organize and optimize their machine processes. With our committed team, we provide this partnership. The collaboration of 20 years is a result of trust and strong commitment from both sides to deliver the best and safest to the industry and the environment."

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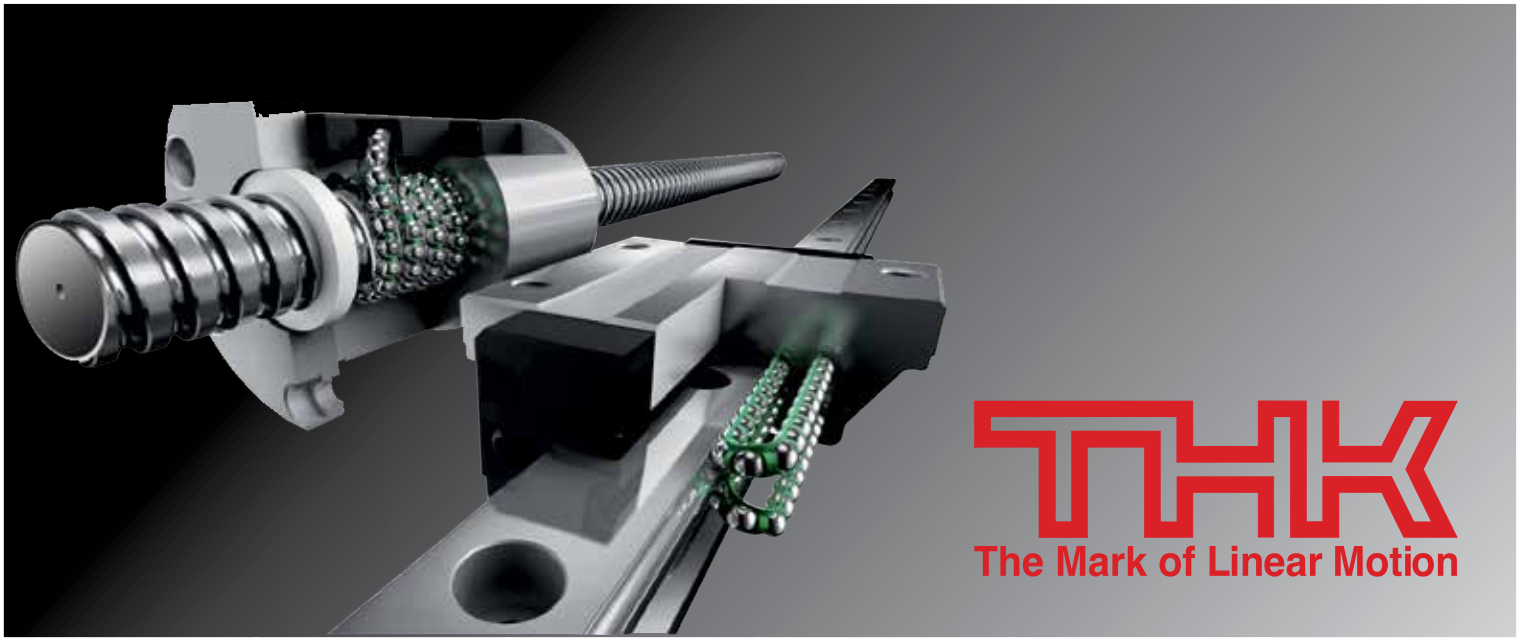


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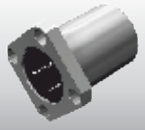
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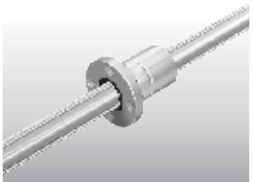
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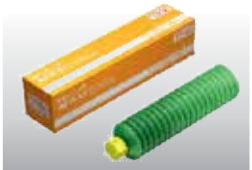
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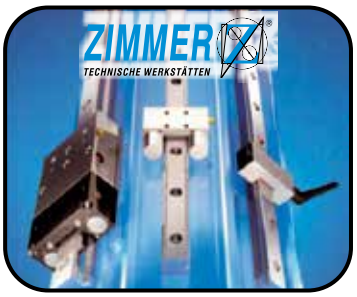

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IT'S TIME TO BUCK UP

Smart manufacturing with its variety of synonyms continue to intimidate big and small manufacturing players alike. However, it's about time they shed their inhibitions and went for automation to level the playing field.

Source: Encon Systems

Although numerous companies have started implementing automation and reaping benefits out of it, there remains a substantial chunk that is still apprehensive.

There are several buzzwords doing rounds in the manufacturing space which are picking up steam by the day. These are Industry 4.0 (I4.0), Industrial Internet of Things (IIoT), Smart factories, Smart automation, Appropriate automation, Digital factories and so on. Although there are numerous companies, that after having understood these technologies and the benefits they entail, have already started to implement them, there is still a large chunk that is struggling to make sense of them and wondering how to take the first step towards them.

Appropriate automation

The foundation for a digitally enabled manufacturing enterprise or I4.0 enterprise or smart factory starts with a very basic implementation of appropriate automation. The journey from appropriate automation to I4.0 has several steps like machine connectivity, data mobilization, data mining and analysis, visibility, feedback, and actions taken based on the informed feedback and so on. The generally asked question is from where in the pyramid, i.e. from the shopfloor to the top floor, should one enter in order to take the first step in the direction of I4.0. The decision, however, is entirely dependent upon the implementing enterprise, based on its present status of automation.

Automation in large companies

For larger enterprises, their sheer scale can be a double-edged sword. On the one hand, it exposes them to the risk of losing competitiveness because implementing changes is slower for them, on the other, it also means that they develop the resources to implement pilot reference projects to gain experience and knowledge needed to steer their organization towards

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keeping their competitive edge. They should first investigate the strategic and competitive advantages of automation and, accordingly, identify operations which are low hanging fruits from an automation perspective – easiest to automate and get the ball rolling. It may be easier to go first for the machine tending operations of load unload on the machines using robots or gantries.

During this process, they realize and learn that they need to first streamline their process for the automation to work effectively.

Once the standalone tasks have been automated, the logical second phase is to do process automation and go on to implement a full line with a combination of robots, SPMs, mechatronic solutions, vision systems etc. robots or LCA as per the requirement. This is the time where they can get substantial learning of the dos and the don'ts of automation, and then expanding further onto other lines becomes relatively easier.

SMEs are still apprehensive

SMEs often straightway jump into calculating ROI and do not have resources like the bigger companies. They also fear losing trained manpower to larger companies. While losing trained manpower is a genuine concern, a far more serious concern is losing the skills which were imparted to their people. It is tantamount to losing their companies' assets.

A common stumbling block for many organizations, both large and small, is making sense of an ROI calculation for any automation project before implementing it. Getting an ROI on any investment is important, but it is often hard to know the ways it might be enhanced by any automation until the automation project has been implemented. The chief reason is that ROI is calculated using direct costs and numbers, whereas it is hard to gauge how productivity, quality, repeatability, process predictability, etc. are enhanced and how much they can collectively contribute to the ROI. Hence, rather than taking a big bang approach and automating a process across the board horizontally, one must start small with a single implementation, which allows for experiencing all the benefits with a smaller investment and a smaller change.

There is a reference of an SME in Gujarat which used to work only during the general shift. The company forayed into automation a couple of years ago by deploying a robot on its machine. Now, it has become so comfortable running the machine with the help of the robot that it even works during the night with all people gone home. This has given a massive boost to its production volumes, not to mention its confidence.

Source: Encon Systems

Automation and manufacturing cost

Many times, there are several other reasons where automation is done not just to reduce the cost of manufacturing or reduce cost per piece, but to also help in creating a competitive and cost advantage in the longer run.

Besides, we are gradually moving from large volume production to small batch size production. If a small batch size model is to be changed frequently, then the sunk cost of the fixturing and things very specific to that may be very high. In such a scenario, it makes sense to have flexible automation with minimal sunk or non-recoverable cost.

The general perception of calculating ROI is the capital cost of automation vs. how much salary will I save. This is where the things generally go wrong. A high cost capital equipment where automation is being implemented is supposed to run during lunch breaks, tea breaks, when people remain absent, when they do their personal things, while on duty, during mass absenteeism on festivals etc.; it is supposed to run all through. It is generally observed that if a cell is automated, the hike in the yield would be somewhere around 12-15 percent. If all these are computed, there is a likelihood of automation ROI to work.

Rather than automating a process across the board horizontally, one must start small with a single implementation, which allows for experiencing all the benefits with a smaller investment and a smaller change.

Conclusion

There are plenty of cases where the productivity has grown several folds with automation implementation with the right strategy. Hence, it would be best if the companies, regardless of their size, automated their plant since it's about time they did that in order to stay ahead of the curve in this manufacturing boom.

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FOR THE COMMON GOAL

Realizing that joining forces is the best solution to bridge the widening gap between them, the Industry and the Academia are increasingly lending each other support. Fronius India's setting up of the Robotic Welding Center in Kerela's Little Flower Engineering Institute is yet another motivation for the industry to follow suit.

Source: Little Flower Engineering Institute

A major industrial region in Kochi, Kalamassery houses companies like Apollo Tyres and HMT, IT/Electronics Parks like KINFRA Hi Tech Park, Startup Village, and Electronics City. Against this industrial backdrop, befitting the setting is Little Flower Engineering Institute (LFEI), an ITI (Industrial Training Institute) that has committed itself to a noble cause. Incepted in 1962 as a small workshop, the Institute has come a long way with its motive to provide guided and expert training to competent students who could not crack entrance exams to engineering or poly-technical courses, and transform them into an employable workforce.

"We realized that our ITI curriculum was insufficient to fetch our students suitable entry into the industry. There was a big gap between our courses and what the industry needed," shared Fr. Joby Aseethuparambil, Director, LFEI. This called for the revamping of the curriculum by introducing top-up courses in consultation with the manufacturing industry. Robotic Welding is one of the top-up courses that also include MRAC with HVAC & R; Fitter with Piping and Structuring Engineering; Electrical with Industrial Electrician; Electronics with Instrumentation; Civil with CAD and Revit; and MMV with TATA on-the-job training.

"These additional courses make our students uniquely employable. They are now a keenly wanted lot by specialist industries," he added.

Fronius India's initiative

In tandem with the Institute's endeavor to equip its students with the skills that can make them industry-ready, Fronius India Pvt Ltd has come forth by setting up a Robotic Welding Center in the Institute's campus.

"Fronius India thinks way ahead with a vision that new skills will be required by our future 'knowledge workers'. Thus, new effective methods to deliver training to them will always be the need of the hour," said V V Kamath, Managing Director, Fronius India.

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The company's objective through Fronius Robotic Welding Center is to train students at LFEI who aspire to join the manufacturing or engineering industry as Robotic Welding Programmers and Welding Technicians.

"As a trained personnel, they can perform the integration of robots into automated systems, create simulations to complete their studies on various applications, test the cycle time to ensure that robots are integrated effectively, and verify concept functionality. Students can also continually research on the latest innovative welding technologies for future joining applications," he added.

"Presently, finding skilled employees has become extremely difficult. It is now almost impossible for the companies to do the job on their own and outsourcing will continue if no step is taken to mend the situation. The setting up of the Center is a conscious decision to become an active participant in developing more skilled personnel in manufacturing from the Academic ecosystem comprising ITIs, Polytechnic Institutes and Technical Universities," explained Kamath.

Fronius India has installed one Robotic Welding system with its Cold Metal transfer welding power source at LFEI. For the students to become Welding Technicians, they are trained to accomplish specific welding applications i.e. MIG/MAG,CMT welding, wire arc additive manufacturing etc., to develop and program new robotic welding processes, study various base materials and fillers utilizing the arc welding process based on the type of weld joint designs, and verify the strength of welded parts through material testing.

Source: Fronius India Pvt Ltd

"Finding skilled employees has become extremely difficult. Outsourcing will continue if the situation is not mended. The setting up of the Center is a conscious decision to become an active participant in developing more skilled personnel from the academic ecosystem comprising ITIs, polytechnic institutes and technical universities."

V V Kamath
Managing Director
Fronius India Pvt Ltd

Collaboration is key

LFEI has been closely working with the industry to understand its requirements and accordingly groom its students. "To this end, we are into collaboration with corporates including TATA Motors, Yamaha Motors, Godrej Home Appliances, Fronius India, Yaskawa to name a few. We aim at getting our trainees ready to compete in the industrial environment. The syllabus of all the concerned courses is set up in consultation with the industrial experts. After the training, the trainees are then absorbed by the companies," informed Fr. Aseethuparambil.

Source: Little Flower Engineering Institute

"It is time for our education system to rethink about the curriculum and its purpose. Today, we need individuals who are skilled in industrial automation, and in our institute, we focus on skilling them in this special area in order to transform them into workforce of world standard."

Fr. Joby Aseethuparambil
Director
Little Flower Engineering Institute (LFEI)

Similarly, Fronius India is also consistently working with various IITs, NITs, Government and Private Engineering Institutes. "We understand the fact that manufacturing cannot be solely taught in the classroom. Academic curriculum has not kept pace with the growing complexity of the industry. Research outcomes of educational institutions are typically presented to the scientific community without any participation from the industry. Hence, a common platform is needed for both the entities to understand each other's requirements and work towards fulfilling them to reach the common goal," noted Kamath.

For the students to become skilled welding technicians, Fronius India's Center trains them for specific welding applications including MIG/MAG,CMT welding, wire arc additive manufacturing etc., and for developing and programming new robotic welding processes.

Source: Little Flower Engineering Institute

Fronius India's Robotic Welding Center at LFEI campus.

BUCKLING DOWN TO BUCKLE UP

The VDMA Robotics + Automation Association of German Mechanical Engineering Industry Association (VDMA) organized 'Robotomation – Symposium for Robotic Automation Trends in Automotive Industry' on June 14, 2019 at The Hyatt Regency, Pune. Highlights...

1st VDMA Robotics + Automation Innovation Awards for the Automotive Industry

Winners: Pavan Malshe, Devojyoti Banerjee, and Bhagavan Salunkhe from International Automotive Components Pvt Ltd

Runners-up: Aanand Ganesh, B Krishnaraj, V Mohan, Alok Kumar from TVS – Sundaram Clayton Ltd

Source: VDMA India

(L to R): Patrick Schwarzkopf, Managing Director, VDMA Robotics + Automation & Member of the Executive Board of the International Federation of Robotics; Rajesh Nath, Managing Director, VDMA India; Dr Abhay Firodia, Chairman, Force Motors Ltd; and Dr Juergen Morhard, the Consul General of Federal Republic of Germany, Mumbai.

The prestigious event that had its focus on the global robotics and automation trends for the Indian automotive industry brought together more than 235 players from the Indian industry. Speaking on the importance of robotics to the Indian industry, Rajesh Nath, Managing Director, VDMA India, said, "Robot sales in India is expected to reach 6,000 units in 2020 and 7,500 in 2021 with a staggering CAGR of 19 percent. This is almost double the sales in 2017 which is 3,412 units. While auto OEMs are prime drivers of robots in India, their suppliers (tier 1, 2, 3, 4) are also investing in advanced robotic technology to maintain their competitive edge and scale new heights."

Seconding him, Patrick Schwarzkopf, Managing Director, VDMA Robotics + Automation & Member of the Executive Board of the International Federation of Robotics, noted, "India has made great progress in harnessing the benefits of robotics and automation technologies for its manufacturing sector. In 2018, the country increased its installations of industrial robots by 39 percent."

Also present were Dr Juergen Morhard, the Consul General of Federal Republic of Germany, Mumbai, and Dr Abhay Firodia, Chairman, Force Motors Ltd who was the Chief Guest.

Varied insights

The symposium also addressed on the joint initiative of VDMA and OPC Foundation's Unified Architecture (OPC UA) on Industry. Well-known VDMA members namely Baumer, Durr, Festo, Kuka Robotics, Schunk, Siemens and Zimmer GmbH presented application-oriented technology presentations.

The topics included 'Integrated Robotic solutions for machining'; 'Enhancing Automation in collaboration with Robots'; 'Flexibility in Robotic automation with Tool Changers'; 'Latest technologies and Innovative Solutions for Automotive Paint Applications'; 'Technology trends in Engine Shop & Electrical Vehicles'; 'Manufacturing excellence through robotic automation'; and 'Efficient Sensor Solutions in Automotive-related Production Environments'.

Panel discussions on 'Efficient Handling Solutions for Automotive Industry' and 'Collaborative Technology for Automotive Manufacturing' were moderated by Dr Ranjit Date, President & Joint Managing Director, PARI; and Sudhir Gurtoo, Managing Director & CEO, Leadec India, respectively.

Awards for the deserving

VDMA Robotics + Automation division acknowledged deserving candidates who have been serving the Indian automotive industry. The awards were in recognition of their commitment for being efficient and effective, inculcating time, cost, quality and scalability possibilities in their organizations.

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SIMPLY UNMISSABLE!

Organized by the VDW (German Machine Tool Builders' Association), the 22nd edition of EMO Hannover will be held from September 16 – 21, 2019. Revolving around the theme of 'Smart technologies driving tomorrow's production!', the metalworking event is a treasure-trove of the latest manufacturing processes, advanced trends in automation, energy efficiency, occupational safety, new materials and much more.

Dr Wilfried Schäfer, Managing Director, VDW, addressing the global press during the EMO Hannover 2019 Preview

Source: VDW

To facilitate navigation through the maze of events during the world's leading metalworking trade fair, VDW hosted the EMO Hannover 2019 Preview for select international media on July 3 – 4, 2019 in Hannover. Around 80 journalists from 30 countries were invited to get an insight on the much-awaited manufacturing show.

Raising the curtain on the occasion, Dr Wilfried Schäfer, Executive Director, VDW, emphasized that EMO Hannover is and continues to be a mecca of technological and product innovations. In the 2017 edition, almost 72 per cent of exhibitors showcased innovations developed chiefly for the event. Following suit, this year's show is slated to house more than 2,100 exhibitors from 47 countries making the show the largest and most comprehensive exhibition on industrial production.

Sneak peak

Thirty eight companies from 9 countries exclusively participated in the Preview to give a snapshot of their displays at EMO Hannover 2019 including Agathon, Albrecht Präzision: Alpha Laser, AMF Andreas Maier, Anderson, Castrol Lubricants, Chiron Group, DMG Mori, Doosan Machine Tools, Ecoroll, EMAG, Erasteel, FFG Europe & Americas, Fischer SpindleGroup, Gefertec, Hainbuch, Heller Maschinenfabrik, Igus, Kapp Niles, Leistritz, Liebherr-Verzahntechnik, LMT Tool Systems, Matec GmbH, Monforts CNC Werkzeugmaschinentechnik, PCI-SCEMM, Porta Solutions S.P.A, pro-micron, Schaeffler, Alfred H. Schütte, Siemens, Soraluce, Stark Spannsysteme, Toshulin, TRUMPF, United Grinding Group Management, Vollmer Werke Maschinenfabrik, and Werkzeugmaschinenfabrik Waldrich Coburgand Xebec Technology. The precise 120 seconds timed presentations by each company piqued interest of the audience to visit the respective booths at the event in September.

Glimpses on displays

Chiron Group gave an overview of its range of debut machining centers from CHIRON, STAMA and SCHERER, and new software and automation solutions that will be showcased at EMO. The DZ 25 P five axis designed for productive machining of large components in the automotive industry and aviation will mark its world premiere at

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Source: Magic Wand Media

Dr Anselm Blocher from German Research Center for Artificial Intelligence spoke on Industry 4.0: Hurdles and opportunities in actual production


Source: Magic Wand Media

(L to R): Rainer Schopp, Head, Marketing, Chiron Werke GmbH & Co. KG along with Murali Sudaram from MMI magazine during the EMO Hannover Preview


Source: VDW

Dr.-Ing. Benjamin Bergmann, Head of Department Machines and Controls, IFW – Institute of Production Engineering and Machine Tools, Leibniz University Hannover addressing the international press

EMO. Also, the company has combined its new FZ 16 S five axis with VariocellPallet pallet automation for the first time. The new automation solution is aimed at machining small batch sizes and complex workpieces autonomously.

Global lubricant company Castrol announced the launch of SmartControl, a new system that provides automatic, in-machine real-time monitoring and management of metalworking fluids at EMO.

IFW on Autonomous Production

As part of the EMO Hannover 2019 Preview, the Institute of Production Engineering and Machine Tools (IFW) of Leibniz Universität Hannover demonstrated technologies for autonomous production systems. We were privileged to witness the below breakthrough research technologies at the IFW premises: Artificial intelligence for process monitoring; Digitization and automation of the repair process of turbine blades; Feeling Machine Tool and Digital Twin for Autonomous Production; Augmented reality for quality control and Intelligent grinding process.

Smart Technologies for Intelligent Factory

New Industry 4.0 concepts are emerging in all areas: for machines, components, controls, measuring systems and material flows. "We are convinced that EMO Hannover 2019 will be a hotspot for new offerings and solutions for the smart factory," highlighted Schäfer.

umati - a common language for Industry 4.0

VDW, along with eight German machine tool manufacturers and major control suppliers, had launched umati (universal machine tool interface) in 2017. A joint working group was set up for OPC UA at the end of 2018. The interface standard for machine tools based on OPC UA, with all its functionalities, will be presented at EMO Hannover 2019. This provides neutral and open connection of machines to higher-level IT systems.

Additive Manufacturing

Nine companies will be presenting their products and services in Hall 9. The special show complements the offerings of the major manufacturers of 3D printing equipment such as Renishaw, Realizer, SLM, Stratasys and TRUMPF, who also have their independent booths at EMO Hannover. More than 70 companies will be showcasing their generative manufacturing machines, systems, materials, accessories, software and scanners and related services.

Encouraging Start-ups & Innovations

The coveted EMO Hannover 2019 is all set to serve as an ideal stage for production start-ups to promote cooperation and bring interested parties together under the Young Tech Enterprises platform. Investors, start-up sponsors and potential partners are invited to participate as exhibitors – in addition to the start-ups themselves. The special Digital Innovations in Production prize will be awarded at the fair as part of the Young Tech Enterprises @ EMO Hannover 2019. The prize is awarded to innovative business ideas which are based on modern information and communication technologies.

EMO City!

The trade visitors at EMO come from all major sectors of industry such as machinery and plant manufacturers, the automotive industry and its component suppliers, the aerospace sector, precision mechanics and optics, shipbuilding, medical technology, tool and die manufacture, steel and lightweight construction. Hence, rightly summed up Dr Schäfer, "EMO Hannover is the undisputed innovation platform for metalworking machines, solutions and service." Seconding his thoughts, Dr Jochen Köckler, Chairman of the Managing Board, Deutsche Messe AG, proudly stressed that EMO Show always turns Hannover into EMO city!


Source: VDW

International Press at the Institute of Production Engineering and Machine Tools, Leibniz Universität Hannover

According to estimates by the international market research institute International Data Corporation, 30 billion private and industrial endpoints could be networked worldwide by 2020.

REACHING OUT TO DISTANT LANDS

In its endeavor to address the manufacturing requirements of the OEMs of various industry sectors in the neighboring Tier II and Tier III cities, Delhi Machine Tool Expo (DMTX) is making a comeback in its third edition on August 08–11, 2019 at India Expo Centre & Mart, Greater Noida. Here's what to look forward to....

Source: IMTMA

(L-R): P Ramadas, President, IMTMA; V Anbu, Director General & CEO, IMTMA; Rattan Kapur, Past President, ACMA; and PG Jadeja, Past President, IMTMA at the opening ceremony of DMTX 2017.

Organized by Indian Machine Tool Manufacturers' Association (IMTMA), DMTX has come to be recognized as a one-stop destination to catch sight and seek state-of-art manufacturing technologies and solutions by the SMEs and large industries of the northern region of the country.

Focus this year

The upcoming edition of the trade fair is to feature special pavilions on Metrology Expo (metrology, testing instrument and equipment), Weld Expo (welding, cutting and joining), Additive Manufacturing Expo (3D printing), and Factory of the Future (Industry 4.0).

The displayed machines and accessories are meant to cater to the needs of key user industries such as aerospace, defence, railways, automotive, medical engineering, construction, information technology, and electronics, etc. The show offers yet another opportunity for the manufacturing industry of the region to seek solutions to enhance its productivity and quality, and demonstrate the same to the small and medium enterprises.

Stating his views on DMTX 2019, P Ramadas, President, IMTMA, said, "We are glad to organize the third edition of the expo as the past two editions of the show evoked an encouraging response from the machine tool industry. Manufacturers who participated in the previous shows were able to expand their range and I firmly believe that this edition of the show will help them to build on to their earlier success and reach out to the regional industries."

Citing the objective behind the expo, V Anbu, Director General & CEO, IMTMA, said, "IMTMA is organizing the show to enable India's regional industrial units to keep pace with the changing technologies. Shows like DMTX will play an enabling role in addressing the numerous requirements of OEMs and component manufacturers in Tier II and Tier III cities. We expect a good turnout and I am confident that the expo will continue to evolve and grow bigger in future editions.

North India potential

Himanshu P Shaparia, Vice President – Sales, Jyoti CNC Automation Ltd, plans to make the most from the company's presence at DMTX 2019 show.

"Considering the technological intensification and innovation required to cater to the North Indian market, we see tremendous

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potential in our products. Automation and complete solutions are going to be the future call of the industry. Jyoti has the required product basket ranging from 2-axis to 5-axis machines, and the capability in terms of technology and infrastructure to execute such projects," he added.

"Our primary focus is to showcase the state-of-the-art technologies, enabling our customers to transform their business by enhancing their manufacturing capabilities essential in today's competitive business scenario. Connecting with the SMEs and corporates will enhance our visibility and help us increase our market share in this region," explained Shaparia.

For Electropneumatics & Hydraulics (I) Pvt Ltd too, the North Indian market is crucial since it contributes a substantial share to its business volume. The presence of major OEMs like Maruti, Honda, HMSI, Hero MotoCorp, JCB, Escorts, etc. and a host of Tier I and Tier II suppliers makes the region of great value to the company. "The huge NCR region is a big user of Mechanical Presses. Therefore, at DMTX 2019, we will be exhibiting our CNC Tube Bending Machine and Servo Mechanical Press. "We will present a live demonstration of our Servo Mechanical Press, which is a superior technology machine over conventional Mechanical Presses and is also available at an affordable price," informed Sanjay K Saha, Vice President – Marketing, Electropneumatics & Hydraulics (I) Pvt Ltd.

Source: Jyoti CNC Automation Ltd

"The industrial scenario in North is vibrant with it being an important hub for major industry segments such as Automobile, Auto components, Die and mould, Heavy engineering, etc. We see the market as one of our prime areas of business that holds great potential for our future growth."

Himanshu P Shaparia
Vice President – Sales
Jyoti CNC Automation Ltd

Source: Micromatic Machine Tools Pvt Ltd

"DMTX has been a perfect platform for us to display our new products and interact with our existing and new customers. Likewise, the first-time buyers of CNC Machines will get hugely benefitted at DMTX owing the variety offered to them all under one roof."

Ravi Rana
General Manager – Principal Development & Quality Systems
Micromatic Machine Tools Pvt Ltd

Source: Electropneumatics & Hydraulics (I) Pvt Ltd

"Regional shows like DMTX facilitate reaching those potential users in small cities of North India who may not make it to bigger shows happening far from them. The show is an apt platform to present innovations in our products to them and explore business opportunities."

Sanjay K Saha
Vice President – Marketing
Electropneumatics & Hydraulics (I) Pvt Ltd

Source: Hurco India Pvt Ltd

"Due to the Government's focus on road and rail infrastructure development, a boom in the automotive and construction equipment business is expected, increasing the demand for new tools/moulds and prototypes further and making North India a potential market for Hurco India. DMTX 2019 will help us connect with our potential associates."

Mayank Tripathi
Area Manager Sales, North India
Hurco India Pvt Ltd

On the same page

Micromatic Machine Tools Pvt Ltd will be displaying its latest technology machines at the expo. "DMTX has been a perfect platform for us to display our new products and interact with our existing and new customers. First time buyers of CNC Machines will get hugely benefitted at DMTX owing the variety offered to them all under one roof," shared Ravi Rana, General Manager – Principal Development & Quality Systems, Micromatic Machine Tools.

Rana further added, "North India has been an important market for us as 25 percent of our business is generated by this part of the country. Being an automobile hub, several OEMs and their vendors have manufacturing units here. We expect delegates from OEMs and their vendors to visit our stall at the trade fair and be updated with our new offerings."

Playing to its strengths, Hurco India Pvt Ltd will be displaying its newest 5-axis machine model VMX42HSRTi that can be used like a 5-axis simultaneous, 3+2-axis machine, and 3-axis.

DMTX 2019, like its predecessors, is slated to pull in delegates and visitors not just from Delhi and NCR, but also from the Tier II and Tier III cities such as Jagadhri, Sangrur, Rudrapur, Chandigarh, Ludhiana, Jalandhar, Manesar, Faridabad, Panipat, and also from the neighboring states of Rajasthan, Uttar Pradesh, Himachal Pradesh, Uttarakhand, and others.

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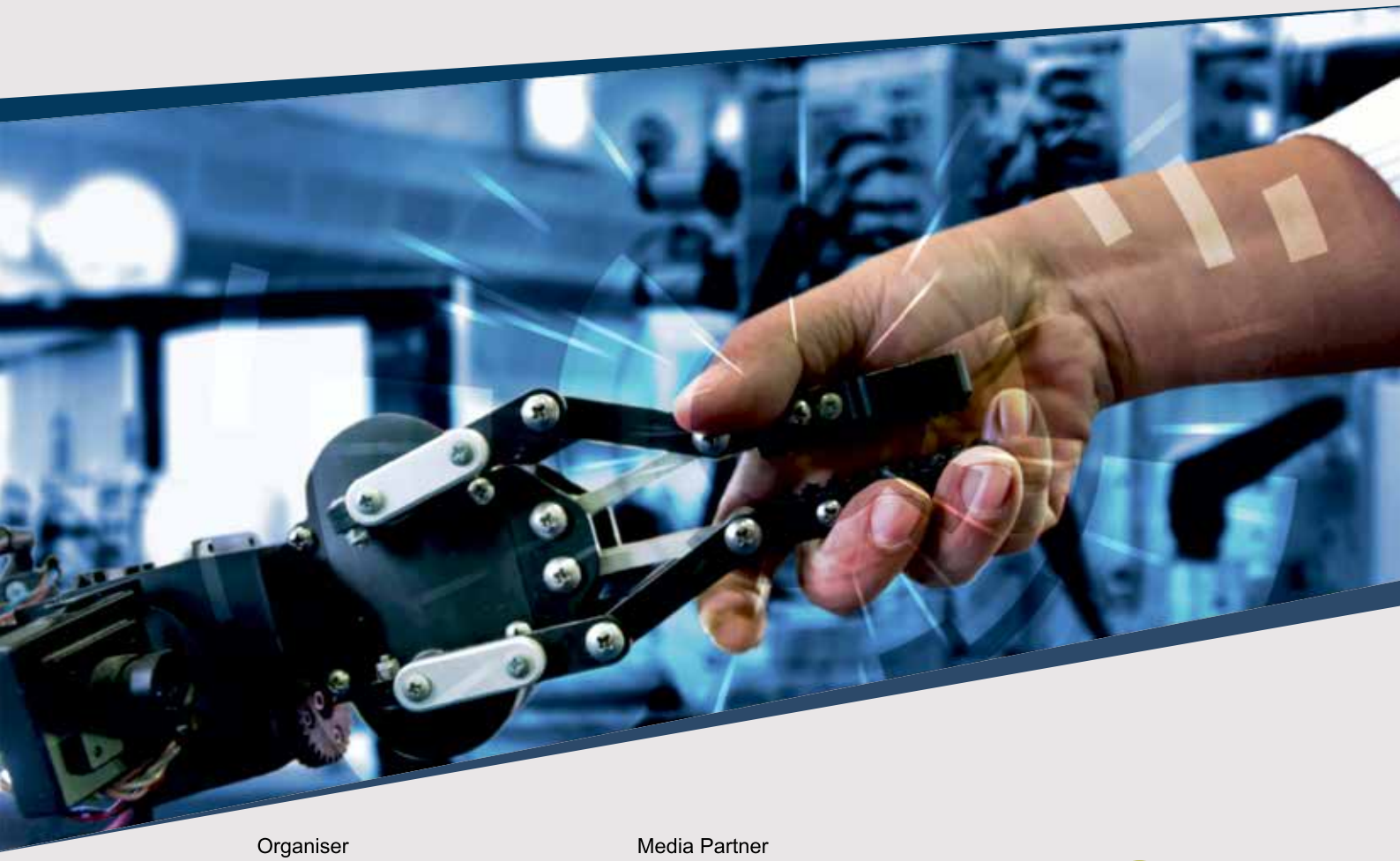

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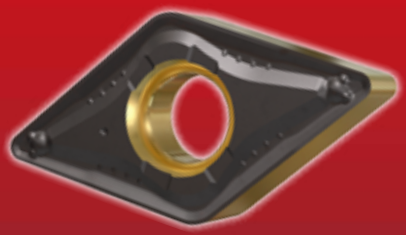

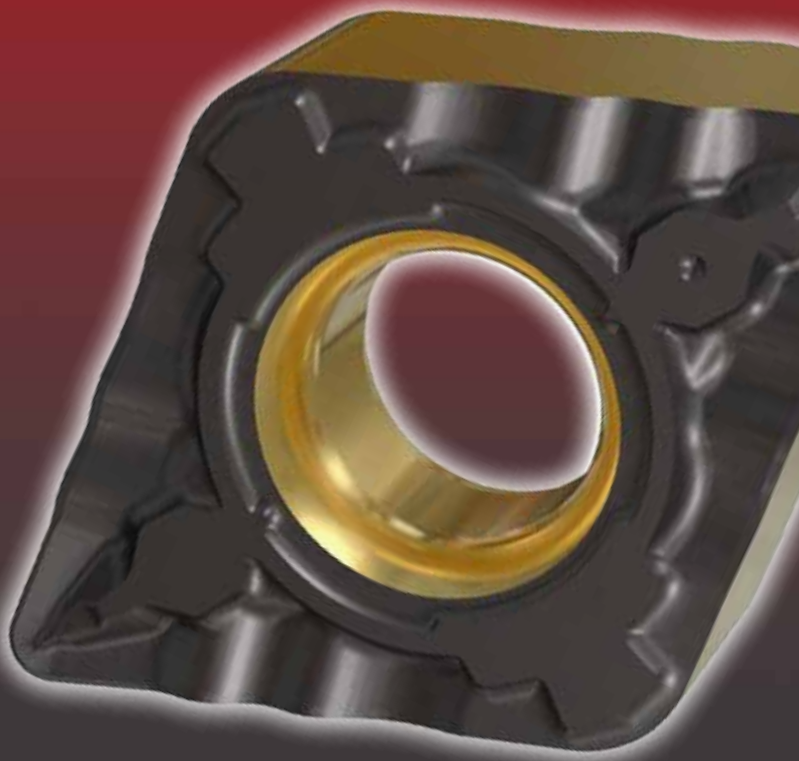

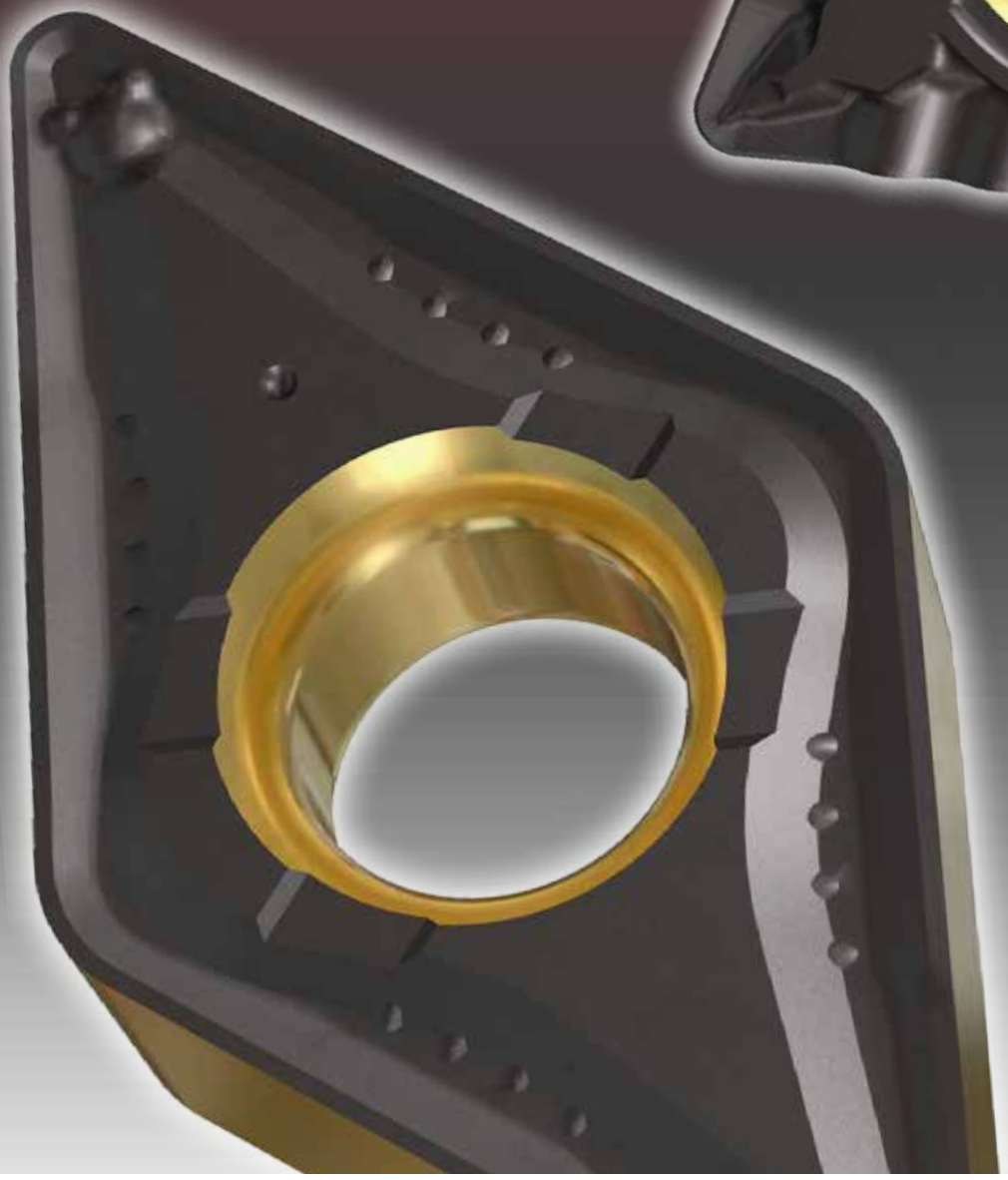

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