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THE MACHINIST

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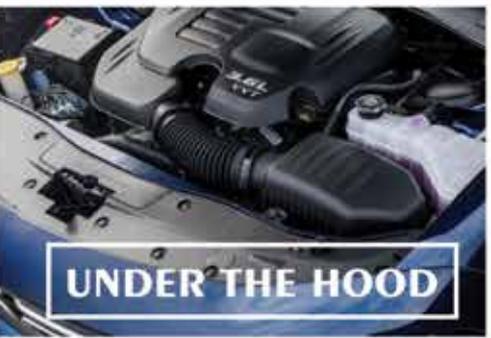
Market Analysis
What the Mega
Package means

A Deming Journey
Vertical and
Horizontal Excellence

Supply Chain
Footprints for
Sustainability

Ahead of the curve

Voltbek CEO Jayant Balan explains how he plans to acquire more than 10% market share by 2025



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—noun

is a hypothetical particle that always moves faster than light. Conceptualized by a team of scientists which includes Indian scientists Mr. V.K. Deshpande and Mr. E.C.G. Sudarshan in 1962.



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WORLD WAR C

The first half of the twentieth century saw two devastating global events in the First World War and the Second World War. These two wars not only changed the international geopolitical maps but also changed our planet in a way that was not known before. While the human race has made huge scientific and technological progress over the decades, it has also lived in the shadows of a Third World War since then. Fortunately, it has not happened (as yet).

"THE MIGHTY C HAS CHANGED THE WORLD COMPLETELY IN EVERY SENSE AND IT CONTINUES TO DO SO. AND WE ARE STILL FIGHTING IT AT THE GLOBAL SCALE. WE ARE STILL AT WAR!"

The outbreak of the COVID19 pandemic has, however, definitely created a global scenario that is no less than a World War. Some experts might even call it worse than a global military war. The reason being, not a single nation on the earth has been able to stay untouched from the pangs of the Mighty C – the Corona Virus! In fact, nations that boast of being the most developed countries in the world have been the worst hit. The Mighty C has changed the world completely in every sense and it continues to do so. And we are still fighting it at the global scale. We are still at War! And while the blame game is quite on, we are all in it together. That's the reason I am prompted to call it 'World War C'. It is difficult to predict how long we will have to wage this war. But one thing is for sure, winning this war is critical. Our very survival is at stake!

Niranjan M

Editor & Chief Community Officer

THE ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
MACHINIST

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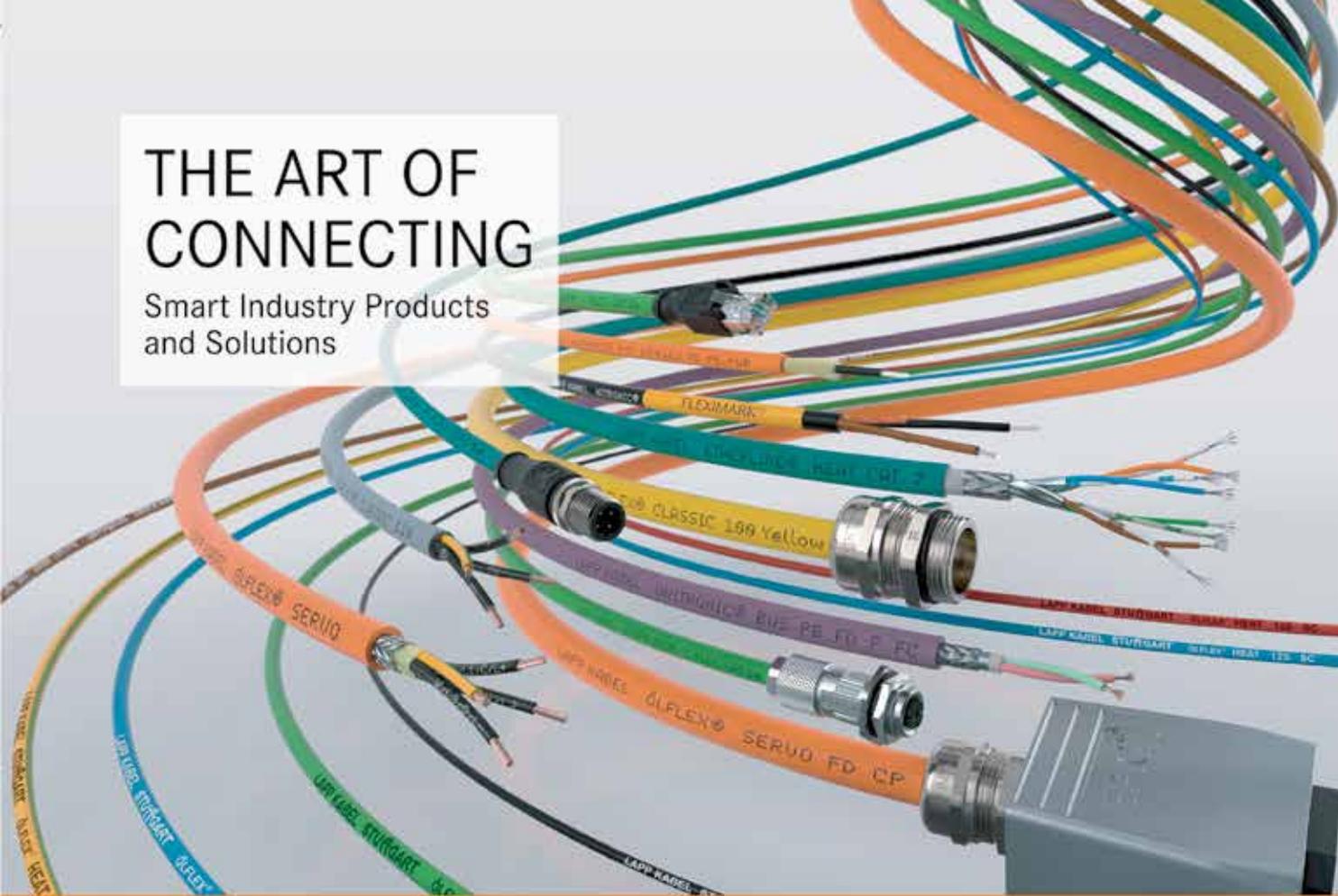


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Bombardier wins contract for Delhi–Meerut RRTS

BOMBARDIER TRANSPORTATION has received a Letter of Award from India's National Capital Region Transport Corporation (NCRTC) to build and deliver regional commuter and intracity transit trains with comprehensive maintenance services for the Delhi-Ghaziabad-Meerut semi-high-speed rail corridor under Phase 1 of the Regional Rapid Transit System (RRTS). The project scope involves supplying 30 regional commuter trainsets of six cars each and 10 intracity mass transit trainsets of three cars each, together with 15 years of rolling stock maintenance. The Letter of Award is valued at approximately INR 2577 crore (314 million euro, \$340



million US) and the customer has a provision to exercise an option of additional 90 cars and two years of maintenance.

Vinay Kumar Singh, Managing Director at NCRTC said, "Finalisation of

the Rolling Stock bid process is an important milestone in the implementation of India's first Regional Rapid Transit System (RRTS) project. Our partnership with Bombardier Transportation to supply 100 per cent locally manufactured train sets for the entire Delhi-Ghaziabad-Meerut RRTS with over 83 per cent local content will be a shot in the arm for the Make in India initiative of the Government of India. We are confident that together we will deliver this transformational project in time to fulfil the aspirations of the residents of the National Capital Region contributing to improvement in their quality of life."

BEML to supply dump trucks to Coal India



BEML LIMITED has bagged an order from Coal India Limited for supply of seven 150-T and eight 205E-T dump trucks under trial cum sale along with eight years spare parts contract. These dumpers will be deployed at Coal India subsidiaries viz SECL's Gevra Project and NCL's Amlohri & Nigahi Projects respectively. The total value of the order is Rs.398 crore.

Indigenously designed and developed by BEML, these dump trucks are being manufactured at its Mysore complex. These products will address the growing demand for higher capacity equipment in the mining industry and will enhance its production substantially.

These trucks have eco-friendly emissions certificate engines with electronic fuel management system to deliver maximum power. Its wide body design-higher value metric capacity and low body weight ensures high stability and productivity. A state-of-the-art AC drive system has been engineered to provide exceptional road performance with reduced maintenance.

Escorts Ltd. standalone profit at Rs. 485.5 cr. in FY2019-20

ESCORTS LIMITED reported Standalone profit of Rs. 485.5 crore in year ended March 31, 2020 as against a profit of Rs. 484.9 crore in the previous fiscal and consolidated profit of Rs. 471.7 crore in year ended March 31, 2020 as against a profit of Rs. 477.9 crore in the previous fiscal. Profit for quarter ended March 2020 was up by 15.7 percent at Rs.

140.4 crore as against Rs. 121.4 crore in the corresponding quarter last year. Speaking on the results, Chairman Nikhil Nanda said "The recent epidemic has changed the business narrative and its time that our priority remains valuing life and securing business to support our community. Escorts, amidst the global crisis, is committed to safety & wellbeing of all our employees, partners and stakeholders. We are aligned to government advisories and will ensure taking all the precautions and preventions at our facilities. There is a serious impact on the industry and respective business operations and it will take some time to regain normalcy. This quarter reflects partial impact but we are preparing ourselves to set new norms through reinventing, innovating and digitising our ways to engage and connect stakeholders for the business operations ahead even as the uncertainty of affairs still exist."



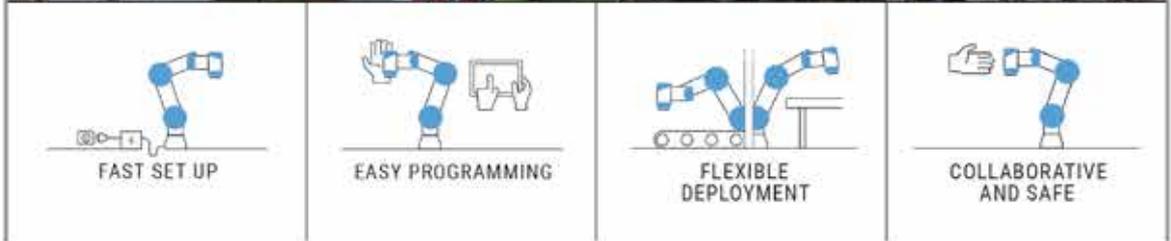
Mega package to boost space & atomic capabilities

UNION MINISTER DR JITENDRA SINGH has said that the 20 Lakh Crore economic package announced by PM Narendra Modi in the wake of COVID pandemic, will also promote affordable cancer treatment using medical Isotopes. The Minister also envisages to establish an exclusive reactor in PPP mode, under the aegis of the Department of Atomic Energy. Dr Jitendra Singh, who is also MoS In-Charge Department of Atomic Energy and Department of Space, said that the new economic reforms offer a unique opportunity to India's Space and Atomic capabilities to realize their full potential. He said that the economic package has put across reforms for accommodating private sector in space programmes.



UNIVERSAL ROBOTS

DRIVE MANUFACTURING EXCELLENCE WITH COLLABORATIVE ROBOTS



Father-son duo made it their mission to turn Jharkhand-based SME New Engineering Works into a world-class manufacturer. To match their growing production demand, they scouted for the perfect technology to meet their needs in their limited operational space and discovered UR's collaborative robots. They deployed 6 UR10 cobots within 18 months, with each fitting perfectly between 2 CNC machines, and an 8th cobot for spraying anti-rust oil on components.

Thanks to the implementation of cobots, the SME grew by 40% and can now manufacture 24x7. Workers were upskilled to do more valuable work, while cobots handled the dull and repetitive tasks they once had.



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Siemens Limited Q2 revenue at Rs. 2,738 crore

SIEMENS LIMITED reported a revenue at Rs. 2,738 crore, 20.9% decline as compared to the corresponding quarter of the previous year, with a Profit after Tax at Rs. 172 crore, a 38.6% decline, for the second quarter of Financial Year 2020 as compared to the corresponding quarter of the previous year. The Company's Order Backlog stands at Rs. 12,547 crore.

The decline in Revenues across the businesses is primarily due to deferred offtake by customers and slow-down in short-cycle business related to COVID-19 as well as continued weaker



demand in large infrastructure projects.

Sunil Mathur, Managing Director and Chief Executive Officer, Siemens Limited, said, "With the slowdown in

the economy being accelerated and accentuated by the sudden impact of the Covid-19 crisis, Capex spending reduced dramatically in the current quarter. A gradual slowdown in the operations of our customers and supply chain was already visible from February. With the announcement of the lockdown, all our factories, project sites and offices were shut since the last week of March, resulting in a steep drop in revenue for the quarter. Currently six of our factories have reopened with limited operations and a further two are expected to be opened this week."

Grundfos India's facility is now LEED Platinum



GRUNDFOS INDIA has announced that its India facility in Chennai, comprising of both its country headquarters and the factory building, has been accredited with LEED Platinum Certification by the U.S. Green Building Council (USGBC). This is the highest level of rating offered by Leadership in Energy and Environmental Design (LEED) for green buildings and is a global benchmark for environmentally-responsible designs and sustainable construction practices. The company received an overall score of 84 points for its facility, which spreads across 1,48,758 square feet.

"Achieving the LEED Platinum certification for our factory underscores our efforts to meet effective corporate green strategies. This now means that our entire facility, both the office and factory are Platinum rated. Sustainability is an integral part of our ethos and business model, and we believe our buildings should embody the values that we believe in" said Saravanan Panneer Selvam, General Manager, Grundfos India.

The Grundfos India facility has underground water tanks with the capacity of 3,50,000 litres to harvest rainwater that helps collect 53% (approx.) of precipitation. In addition to this, all of waste water from the factory is being recycled and is made available for landscaping and gardening purposes, making it a zero liquid discharge (ZLD) facility. The building also has provision to collect and condense water from Air Conditioners for reuse.

Tata Steel Q4 sales volumes affected by Covid19

AS THE NOVEL CORONAVIRUS (COVID-19) outbreak continues to spread across the world, many countries have been taking actions to restrict movement of people and industrial activities.

The Government of India announced a nationwide lockdown with effect from 25th Mar 2020 to combat the spread of the COVID-19 virus. As per notifications from the Central and State Governments of India, Steel and Mining, being essential services and continuous process industries, are exempt from the lockdown measures subject to certain guidelines. However, the lockdown has led to logistic issues and lower demand driven by the shutdown of customer operations in automotive, construction and other segments since last few days of March 2020. While this affected 4QFY20 sales volumes in India, however, production volume grew 6%YoY to 4.74 mn tons. Tata Steel India also achieved an 8%YoY production growth for the full year FY20, along with the best ever annual sales. This was supported by ramp up of Tata Steel BSL and acquisition of Usha Martin Steel business by Tata Steel Long products; Tata Steel BSL also recorded its best ever annual performance.

Tata Steel India witnessed highest ever annual sales in Branded Products and Retail segment with an increase of 8% over FY19. The company was successful in maintaining volumes for Industrial Products & Projects segment with a strong increase in sales in Oil & Gas and Industrial Pipe segment. It also sustained its focus on Automotive & Special products segment and increased share of high-end sales in the segment volume from 19.5% in FY19 to 25% in FY20.

Renew Power wins 400 MW RTC bid conducted by SECI

RENEW POWER was declared winner of India's first e-Reverse Auction for 400 MW RE (Renewable Energy) Project with round the clock supply. Renew Power won the bid on a first year tariff of Rs.2.90/kWh with a three percent annual escalation for the first 15 years of the 25-year term of the Power Purchase Agreement. The bidding was conducted by Solar Energy Corporation of India (SECI) a Central PSU under MNRE.

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AUGUST 26-28, 2020

Coat India 2020
New Delhi, India
<http://www.coatindia.in/>

OCTOBER 5-9, 2020

SIMTOS
Seoul, South Korea
www.simtos.org

OCTOBER 6-8, 2020

Bus World India
Bengaluru
india.busworld.org

OCTOBER 8-10, 2020

India Chem 2020
Mumbai
www.indiachem.in

OCTOBER 20-22, 2020

Transport India 2020
New Delhi
<http://www.transportindiaexpo.com/>

NOVEMBER 23-25, 2020

Wire & Cable India 2020
Mumbai, India
<https://www.wire-india.com/>

DECEMBER 3-5, 2020

Alucast 2020
Chennai, India
<http://www.alucastexpo.com/home>

DECEMBER 17-19, 2020

IMEX 2020
New Delhi, India
<https://imexonline.com/Home>

JANUARY 21-27, 2021

IMTEX 2021
Bengaluru, India
<https://www.imtex.in/imtex2021/>

APRIL 12-16, 2021

Hannover Messe
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<https://www.hannovermesse.de/en/>

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REVISED DATES YET TO BE ANNOUNCED

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Dr. Peter Wittig joins Schaeffler



Schaeffler has recruited Dr. Peter Wittig to head its newly created unit Global Affairs. After retiring from active service in the German Foreign Office this year, Dr. Wittig will join the Schaeffler Group on May 1st, 2020. His place of employment is Berlin. "We are very pleased that we have been able to recruit Dr. Wittig, an internationally very experienced diplomat, for the Schaeffler Group. He will advise and support the Executive Board of Schaeffler AG in adapting the Schaeffler Group to the emerging changes," said Georg F.W. Schaeffler, family shareholder and Chairman of the Supervisory Board of Schaeffler AG. Klaus Rosenfeld, CEO of Schaeffler AG, added: "The coming years will become very challenging for us as an automotive and industrial supplier with global reach. In this environment the understanding of political developments and global risks is becoming increasingly important. With Dr. Wittig, an outstanding

expert in this field is joining us."

In his new role, Dr. Peter Wittig reports directly to Klaus Rosenfeld. The new unit Global Affairs will include, in addition to political communication and the coordination of associations, a newly created function "Global Risks", which will be dedicated to the analysis of global risks and macroeconomic developments. The third pillar of this unit will focus on the public funding of technology, innovation and research. While the functional responsibility for these areas will remain with the respective members of the Executive Board, the newly created unit will take responsibility for the coordination of the activities for all four regions of Schaeffler Group.

SPX Flow appoints J.P. Phillips



SPX Flow has announced the appointment of J.P. Phillips as Americas Key Account Director - Strategic Partnerships. J.P. has held the position of District Sales Manager - Food & Beverage at SPX Flow for the past five years. Previously, he worked at AMPCO Pumps as well as the Food Equipment and Engineering Company, which is now Cummins Wagner. Ava Drayton, VP, America Key Account and System Sales at SPX Flow, said: "J.P. has proven success in his previous roles and is a welcome addition to our Key Account Management Team. We place a lot of value on long-term, sustainable relationships with our key customers and having the correct level of skills, resources and business acumen to support them is a critical part of our business."

J.P. resides in Jupiter, Florida and will be based out of the SPX Flow office in Charlotte North Carolina. He will provide strategic direction and leadership in the development and maintenance of long-term relationships and will help ensure a culture of customer-focused innovation and profitable growth using disciplined practices and processes. As part of SPX Flow's drive for continuous improvement and to share best practices, J.P. will be working with both global and regional colleagues.

Dr Satya Gupta appointed as the Chairman of IESA for 2020 -2021

India Electronics and Semiconductor Association (IESA), the industry body representing the Indian Electronic System Design & Manufacturing (ESDM) industry has appointed Dr. Satya Gupta, founder and CEO of Seedeys Innovation, as the IESA Chairman for the year 2020-21. Rajeev Khushu, Director Corporate Affairs, Texas Instruments (I) Pvt. Ltd. will be the Vice Chairman of IESA. Speaking on the occasion, Dr. Satya Gupta said, "I am honoured to be appointed as IESA Chairman. I am working with the new Executive Council and will strive to make India as the most preferred destination for Innovative Intelligent Electronics & Semiconductor Products, globally competitive manufacturing, industry-friendly and fiscally attractive policies and Best in the world talent. During the current challenging times, it has become amply clear that "Self Reliance for Electronics Products and Components" is a must and has to be addressed on most urgent basis by industry, Government and Research community working together. IESA is working on multiple initiatives towards this goal, one of which is 1K-10K-100K program which aims to create 1K Electronics & Fabless Start-ups, 10K IPs and 100 K Crore of Business Value. IESA envisages a vibrant and inclusive ESDM eco-system with participation from every state of India and developing products & technologies which will address national and global challenges."



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DRDO develops UV disinfection tower

Defence Research and Development Organisation (DRDO) has developed an Ultra Violet (UV) Disinfection Tower for rapid and chemical free disinfection of high infection prone areas. The equipment named UV blaster is a UV based area sanitiser designed and developed by Laser Science & Technology Centre (LASTEC), the Delhi based premier laboratory of DRDO with the help of M/s New Age Instruments and Materials Private Limited, Gurugram. The UV Blaster is useful for high tech surfaces like electronic equipment, computers and other gadgets in laboratories and offices that are not suitable for disinfection with chemical methods. The product is also effective for

areas with large flow of people such as airports, shopping malls, metros, hotels, factories, offices, etc. The UV based area sanitiser may be used by remote operation through laptop/mobile phone using wifi link. The equipment has six lamps each with 43 watts of UV-C power at 254 nm wavelength for 360 degree illumination. For a room of about 12 x 12 feet dimension, the disinfection time is about 10 minutes and 30 minutes for 400 square feet area by positioning the equipment at different places within the room. This sanitiser switches off on accidental opening of room or human intervention. One more salient safety feature of the product is the key to arm operation.



Ashok Leyland engineers make Covid19 ventilators

Ashok Leyland has announced a slew of initiatives in the Ventilator Making and Distribution efforts. The Company was approached by the Government of India and the Government of Tamil Nadu to work with and support Ventilator Makers and help them improve supply chain and output capacity. In response, the Company took a holistic approach to address the entire gamut of requirements in Covid-19 Patient Breathing Assistance, rather than working with just one party and one product. This included first mile, mid-range and high end ICU ventilators required for patients at different stages of disease progression. This approach ensures maximum availability of ventilation at optimum costs.

After discussing with various clinical experts and intensivists, the company identified the gap that there was no ready solution available for relevant and robust first mile ventilation. Working to fill this gap, a team of 50 Ashok Leyland Engineers have been working since end-March and have now readied a simple yet intelligent ventilator, at low cost but with all the essential features to aid First Mile ventilation including the necessary sensors and controllers for volume and pressure monitoring, and safeguards. The ventilator development is now complete. Testing, certification and clinical trials will conclude in the next few weeks, with mass manufacture of this system, starting in May, 2020.



Disinfection technology transferred for commercialization



CSIR-Central Scientific Instruments Organisation (CSIR-CSIO), Chandigarh, has designed and developed an innovative technology for effective disinfection and sanitization to fight with corona pandemic. CSIR-CSIO has transferred this technology to a Nagpur-based company, Rite Water Solutions Pvt. Ltd., for commercialization and large-scale production. This technology has been found very efficient and effective to stop the spread of coronavirus and pathogens, say CSIR-CSIO scientists. Electrostatic Disinfection Machine is based on the electrostatic principle. It produces uniform and fine spray droplets of disinfectants in the size range of 10-20 micrometre to kill microorganisms and viruses. Due to the small size of droplets, the surface area of spray droplets increases thereby enhancing the interaction with harmful microorganisms and coronavirus. The machine uses very less disinfection material as compared to conventional methods, which helps to save natural resources with negligible increase of chemical waste in the environment.

“Charged droplets emitted from the disinfection machine can cover the directly exposed and obscured surfaces uniformly with increased efficiency and efficacy and the disinfectant reaches to any hidden areas of the target, where there is a maximum possibility to find the viruses. Therefore, it kills or inhibits the growth of pathogens very effectively”, said by Dr. Manoj K. Patel, Senior Scientist and Innovator of the technology.

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Low-cost mechanical ventilator Ruhdaar developed

A team of engineering students from IIT Bombay, NIT Srinagar and Islamic University of Science & Technology (IUST), Awantipora, Pulwama, Jammu and Kashmir is one such group of creative individuals who have come forward to solve the problem of ventilator requirement. The team has come up with a low-cost ventilator using locally available materials. Here is



how the Ruhdaar ventilator, as the team has named it, took birth. The project head Zulqarnain, a first-year student of Industrial Design Centre, IIT Bombay, had gone to his hometown Kashmir, when the institute closed due to the pandemic. On getting to know the ground situation as the pandemic progressed, he understood that there were only 97 ventilators in the Kashmir

Valley. He sensed that the need was more and that the concern about shortage of ventilators had become a big worry for many people.

So, Zulqarnain teamed up with his friends P. S Shoib, Asif Shah and Shakar Nehvi from IUST, Awantipora and Majid Koul from NIT Srinagar. Taking assistance from the Design Innovation Centre (DIC) at IUST,

the team has been able to design a low-cost ventilator using locally available materials. While their initial aim was to replicate a tried and tested design, as they began to work on it, they developed their own design of the ventilator. Zulqarnain says “the prototype costed the team around Rs. 10,000 and that the cost will be much lower, when we go for mass production”.

HCARD robot to assist Covid19 healthcare warriors



Healthcare workers at hospitals are risking COVID-19 infection while taking care of those infected by it 24/7. Perhaps the level of risk may get reduced hereafter with the help of a new friend, HCARD. The robotic device HCARD, in short for Hospital Care Assistive Robotic Device, can help frontline healthcare workers in maintaining physical distance from those infected by coronavirus.

HCARD is developed by Durgapur-based CSIR lab, Central Mechanical Engineering Research Institute. The device is equipped with various state-of-the-art technologies and works both in automatic as well as manual modes of navigation.

This robot can be controlled and monitored by a nursing booth with a control station having such features as navigation, drawer activation for providing medicines and food to patients, sample collection and audio-visual communication. Prof. (Dr.) Harish Hirani, Director, CSIR-CMERI stated that “This Hospital Care Assistive Robotic Device could be effective for frontline healthcare officials dealing with COVID-19 patients in delivering services while maintaining mandatory physical distancing”. The cost of this device is less than Rs 5 lakh and the weight is less than 80 kilograms, added Prof. Hirani.

CSIR-CMERI is working on war footing to minimize the impact of COVID-19 through technological interventions. As spelled out by WHO, personal protective equipment (PPE) is very important in preventing transmission of coronavirus in the society, thus the Institute has channelized its resources optimally to develop PPE and community-level safety equipment for helping the public at large and healthcare institutions.

DEP develops personal protection equipment

With Covid-19, the entire globe has come to a standstill, affecting lives and businesses of thousands. Amidst this, Detroit Engineered Products (DEP) has switched to virtual workforce and is continuing to lend its services and support to its customers. In order to directly contribute directly, DEP team members have developed products to support the medical industry and combat Covid-19. The team has joined hands with the local manufacturing suppliers and has developed personal protection medical devices. These include Aerosol Blocker and Protective Face Shield. “The

current times are certainly tough for businesses but more for humanity. This is when we can show solidarity by coming forward and pooling our skills, in support of each other against the spread of Covid-19. Designing these medical devices is DEP’s contribution to

the medical fraternity who are in the frontline, battling to save lives. These are the first few devices in the series of more which we plan to release,” said Radha Krishnan, Founder and President, Detroit Engineered Products.



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Toyota expands production of medical face shields

Toyota Motor Corporation (Toyota) and Toyota Group companies are engaged in full-scale production of medical face shields in Japan, with Toyota largely expanding its production capacity from 500 to 600 units per week by approximately 20 times to start production of 40,000 units per month (approximately 2,000 units per day) from April 27. Toyota plans to further expand in-house production to approximately 70,000 pieces per month (approximately 3,600 pieces per day).



from mid-May.

Toyota Group companies now producing medical face shields include Toyota Motor East Japan, Inc., which provided 3,000 units it produced to Miyagi Prefecture on April 20, and Toyoda Gosei Co., Ltd., Daihatsu Motor Co., Ltd. (Daihatsu) *1, and

Hino Motors, Ltd. (Hino), which have all started trial production, with Daihatsu and Hino now providing medical face shields to medical facilities in their immediate areas. Additionally, Toyota Industries Corporation plans to produce 10,000 units per month (approximately 500 units per day) from April 29, and Toyota Auto Body Co., Ltd. is furthering considerations toward starting production of medical face shields

The Toyota Group has positioned this initiative for supporting the around-the-clock efforts of the frontlines of the medical sector, which are working hard to diagnose and treat patients for COVID-19, as part of Toyota's Kokoro Hakobu Project.

JLR scales up production of NHS-approved face visors



Jaguar Land Rover is scaling up production of its protective face visors in a continued effort to support the fight against Coronavirus. New tooling, developed by WHS Plastics, will produce a further 14 000 visors each week for key workers across the UK. Earlier this month, the carmaker announced the manufacture of 3D-printed face visors at its Advanced Product Creation Centre in Gaydon, home to one of the most advanced 3D-printing facilities in Europe. Visors have been produced and shipped to NHS Trusts across the UK, including the Great Western Hospitals NHS Foundation Trust and South Warwickshire NHS Foundation Trust. Now, using injection mould tooling supplied by WHS Plastics of Sutton Coldfield, the operation will produce in excess of 2 000 per day – with one polypropylene headband generated every 30 secs. Each face visor has been designed to be reusable and can be easily dismantled and cleaned before being used again, safeguarding NHS trusts against future shortages. Paul Nicholson, Group Managing Director for WHS Plastics Ltd, said: "In manufacturing, we are uniquely placed to support our essential services, to help deliver critical equipment to those on the frontline here in the Midlands. It's a small effort, but by working with Jaguar Land Rover we can help turn the tide."

AIIMS Delhi to deploy robots by Milagrow in Covid19 ward

Milagrow has announced its efforts with AIIMS, Delhi to help contain the spread of the pandemic amongst doctors and healthcare workers. Under this effort its advanced AI-powered robots – Milagrow iMap 9 and Humanoid ELF – will be tested in the advanced COVID-19 ward at AIIMS, Delhi. Manufactured in India, the Milagrow iMap 9 is a floor disinfecting robot that can navigate and sanitize the floors without any human intervention. It can destroy COVID spores on floor surfaces using sodium hypochlorite solution, as recommended by ICMR. The robot moves around autonomously without falling, avoiding obstruction while planning its own path, guided by LIDAR and advanced SLAM technology. Milagrow's patented Real Time Terrain Recognition Technology (RT2RT) scans at 3600, 6 times per second to make a floor map in real time with an accuracy of upto 8mm over a 16m distance. This enables the iMap 9 to perform successfully in the first attempt, whereas other robots can take twice or thrice the time. Additionally, the robot can do zoning, virtual blocking of avoidable areas and sequential cleaning of zones based on specific needs.



The Milagrow Humanoid ELF enables doctors to monitor and interact with contagious COVID-19 patients remotely with no person-to-person contact, thereby significantly reducing the transmission risk. Bored patients in isolation wards can also interact with their relatives from time to time through this robot.

Webinar

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**Theme: Indian Automotive
– Geared up for restart?**

Reviving the automotive industry is critical for the health of the overall national economy. But restarting the automotive industry has several challenges during the ongoing Covid 19 pandemic. The Machinist magazine is organising a webinar to understand these challenges and to seek possible solutions through a panel discussion involving industry leaders with authority, experience and expertise.

Points of discussion



Supply chain
readiness



Work force availability
& management



Cash flow
management



Equipment & machinery
maintenance



What lies
ahead?

**Panel Members - Total of
six including a moderator**

Senior representatives of auto OEMs, auto component suppliers, machine suppliers and other key components of the ecosystem.

CONFIRMED SPEAKERS



Vishal Agarwal
President, Yudo Hot Runner India Pvt. Ltd

MODERATOR



Niranjan Mudholkar
Editor, The Machinist

*Tentative format – Depends on the availability of panellists and the platform

For delegate registration

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By Niranjana Mudholkar

AHEAD OF THE CURVE

We aim to acquire more than 10 percent market share by 2025 and are confident that we are on the path of sustainable growth, says **Jayant Balan**, CEO, Voltbek Home Appliances Private Limited.



“The consumer durable industry in India is one of the most competitive spaces compared to similar industry globally where each key product category has more than 10 brands operating in the market. This makes the market extremely cluttered with few strong players cornering over 75 percent of the market size.”

How has the Covid19 outbreak impacted Voltas Beko and the overall consumer durables industry in India?

Due to the Covid-19 outbreak, the consumer durables industry in India like other industries is also faced with

severe setbacks caused by shortage in the supply chain as well as reduced footfall in the marketplace. The industry depends on variety of components that are manufactured in China which now either have restricted entry or stuck in transit hence these becoming costlier by 25 -30 percent.

Voltas has always been ahead of the curve and has tried to become self-reliant by opening the first factory for Voltas Beko in Sanand, Gujarat in January 2020. This facility uses world-class technology to manufacture a wide range of home appliances on Indian soil.

While we have not faced any major supply chain issues, the sales of consumer durables across the industry have taken a hit owing to the lockdown. However, during this period, more and more consumers have been taking care of household chores without support staff at home. We are anticipating that consumers will in the future be more self-reliant and invest in automated, technologically superior, comfort products to ease their lives. We are quite confident that there will be a surge in demand for appliances like dishwashers and washing machines once the lockdown is lifted.

What's your analysis of the consumer durables industry in India?

The consumer durable industry in India is one of the most competitive spaces compared to similar industry globally where each key product category has more than 10 brands operating in the market. This makes the market extremely cluttered with few strong players cornering over 75 percent of the market size. With a consumer penetration for refrigerators at 28 percent to 30 percent and for washing machines at 12 percent to 14 percent and newer categories like Dishwashers yet to create a category, there is a huge opportunity across rural and Urban India.

We anticipate significant growth for the consumer durables industry from rural markets as more and more people opt for branded white goods. The government's emphasis on rural electrification will also increase demand for durables like refrigerators. Rising disposable incomes and easy access to credit will also give people the ability to purchase appliances like microwaves and



Levent Çakıroğlu, CEO, Koç Holding AS and Noel Tata, Chairman, Voltas

washing machines.

While the Indian market has some well-entrenched multinational companies that have been in operation for a long period of time, we see a lot of opportunities of growth. Some of the biggest drivers of growth of consumer durables industry are the fact the India is one of the fastest growing economy, Change in consumption pattern owing to large population base, Growing infrastructure and increasing accessibility to electricity/power.

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Our Sanand facility will reach its annual production capacity of 2.5 million units by 2025 and will primarily cater to the needs of the Indian market, leveraging Voltas' brand and distribution strength. However, going forward we might also explore export opportunities.

While Voltas is well known brand in India for decades, Voltas Beko is a relatively new player. How's been the journey so far for Voltas Beko?

Within two years of its launch, Voltas Beko has already established itself as one of the fastest growing consumer durables brand and is aiming to become the market leader across select product segments. We have sold close to half million SKUs in the very first year. A lot of this was driven by the refrigerator and washing machine sales where in new products were offered into the market keeping the need of the India consumer in mind.

The brand has also done exceptionally well in the dishwashers category and is poised to be the market leader in this segment by FY21. Our newly inaugurated Voltas Beko factory in Sanand, Gujarat is helping us increase our product portfolio and market share by offering innovative products specifically designed for the Indian consumers

How satisfied are you with the existing portfolio of Voltas Beko India? Will you look at any expansion or diversification in the near future?

Currently, Voltas Beko has a wide range of appliances like refrigerators, washing machines, dishwashers and microwave-ovens. We will be expanding our product portfolio across all segments. Amongst other product categories, we have recently forayed into the direct cool refrigerators category – which claims 80 percent of the refrigerator market by volume.

Tell us about your manufacturing capacities and capabilities in India.

We recently opened our first manufacturing facility in India. Spread over 60 acres in Sanand, an industrial hub near Ahmedabad, Gujarat. The factory manufactures Home Appliances that include refrigerators and washing machines. Backed by an investment of \$180 million (INR 1000+ crore), Voltbek's Sanand factory is one of the first white goods appliances unit in the State of Gujarat that will create an OEM base for home appliances in the region, along with local employment opportunities.

With this new facility, we aim to increase our product portfolio and develop new innovative products specifically designed for Indian consumers. Voltas Beko is also producing Direct Cool Refrigerators which are ~ 80 percent of the refrigerator market by volume. The facility will reach its annual production capacity of 2.5 million units by 2025 and will primarily cater to the needs of the Indian market, leveraging Voltas' brand and distribution strength. However, going forward we might also explore export opportunities.

You operate in a very competitive industry and also operate in a market where customers are both demanding as well as price sensitive. How are you managing costs at the shopfloor level to ensure good quality at competitive prices?

Our advantage is that we understand the needs of the Indian consumer and we have the technology to deliver products that our consumers require. Our state-of-the-art manufacturing facility in Sanand, Gujarat leverages Arçelik's global expertise in manufacturing and product development and Voltas's strong brand presence, and country wide sales and distribution network. This enables us to broaden our consumer reach by providing affordable, accessible and technologically advanced consumer durables.

Tell us about your existing distribution network and retail presence in India. Do you see the e-commerce



Voltas Beko Factory

segment becoming increasingly more relevant in the time to come?

We aim to be the market leaders across product categories in the next few years. In sync with this objective, Voltas Beko is aligning its business and marketing strategy to cater to the rising demand for consumer durables in metros as well as Tier 2&3 markets. In less than two years, VoltBek has already achieved 10-11 percent

in particular are dealing with recycling of plastic components in the larger interest of the environment?

As the market leaders, we aim to set industry benchmarks in everything we do. Environmental pollution due to e-waste is an alarming issue and we take it very seriously. We have made efforts to ensure we are not wasting any plastic, as it is highly recyclable. Presently, of all the plastic that would have otherwise been wasted, we are using 100 percent of it all, in order to gain the maximum mileage out of the resources available.

We have also set some goals for ourselves to ensure proper management of resources. We aim to incorporate recycled plastic use in products at 20 percent by 2025 and 40 percent by 2030. With regards to Bio plastic use in products, we aim to reach 2.5 percent by 2025 and 5 percent by 2030. Overall, the industry is at a very nascent stage with this concept and we are definitely leading the way for other white good manufacturers follow this path of sustainable recycling.

What are your expectations from the government with regards to the policies for your industry?

We, at Voltas, have always been committed to integrating energy efficiency in all our offerings. In the Room Air Conditioner category, we have been a pioneer in energy efficient product innovations. We have always worked towards introducing products and technologies that would lead to more energy savings and at an affordable price to our consumers. The same applies for Voltas Beko.

However, India has always been a price-sensitive market and looking at the trends, only two and three-Star rated products have experienced high demand. With the society now becoming sensitive towards climate change, we hope people look beyond the price point and opt for products that are more energy efficient. The government can lower the GST for energy efficient products to reduce costs and encourage people to invest in 4-Star and 5-Star rated products that are better for the environment.

What kind of market share and position are you envisaging for Voltas Beko in the Indian consumer durables market in the next two years?

We aim to acquire more than 10 percent market share by 2025 and are confident that we are on the path of sustainable growth. Our goal is to become a leading player across product categories and achieve double digit market share in the Indian white goods market over the next decade. We believe that our new factory will help us deliver this ambitious goal and make a significant contribution to Indian economy. 🇮🇳

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However, India has always been a price-sensitive market and looking at the trends, only two and three-Star rated products have experienced high demand. With the society now becoming sensitive towards climate change, we hope people look beyond the price point and opt for products that are more energy efficient.

retail reach. We are also focusing on expanding the footprint through more exclusive brand outlets (EBOs) across tier 2&3 cities remains, and the brands Voltas and Voltas Beko are now available at 200+ EBOs in the country.

In the post-lockdown period, we anticipate there will be a heavy increase in consumer durables being purchased through e-commerce and we are well-prepared for such a development. Presently online contributes close to five percent of the overall sales volume which is more or less in line with the industry for MHA, going forward the impact of the pandemic we would see consumers experiencing and buying products differently.

Due to their relevant properties, plastics are suited for various applications in the white goods industry. Tell us how the industry in general and Voltas Beko

By Shyam Motwani

THRUST ON 'MAKE IN INDIA'

Manufacturers in India are looking at business continuity through a new lens and focusing on establishing their own domestic supply chains.

The 'Make in India' initiative laid the groundwork for manufacturing in India, but the COVID-19 crisis has actually propelled companies to start taking serious steps towards the actualisation of this movement. For any country to become an attractive investment destination, it should offer capabilities to sustain itself without relying on global players, and the 'Make in India' initiative was aimed at positioning India as a country which can be both a manufacturing and consumption hub. However, manufacturing capabilities are a core element of this subset. The global pandemic has made us realise the importance of self-sufficiency as global supply chains collapsed much before the disease made an inroad into the country. Manufacturers in India are looking at business continuity through a new lens and focusing on establishing their own domestic supply chains.

The global recession has made India Inc. rethink manufacturing strategies and devise ways that can make the country's manufacturing self-reliant and at the same time cost effective. The current situation has been an eye-opening moment for us. While our endeavor has always been to 'Make in India,' it is time we look at manufacturing at a holistic level wherein 100% of the product is manufactured in India and not just the final output with raw materials sourced from across the world. Efforts should be taken to make our country an integrated hub, as many products that are made in India, heavily rely on imported raw materials. Domestic manufacturers should make an attempt to gradually shift their supply chains to India, reducing dependence consistently. This can be achieved by expanding their own production capacity in India, or by seeking trusted partners who can supply raw materials within the region.

With the many challenges posed by the ongoing situation, it is an opportunity for manufacturers to lev-



erage technology for upgrading their existing setups. The future of manufacturing in India should be smart factories. This includes much spoken about technologies like internet of things, cyber physical systems, artificial intelligence, big data and cloud computing, which will find their application now more than ever. All of this effectively combined with the conventional manufacturing processes and best practices will give rise to smart factories under the framework of Industry 4.0. During a crisis such as the current coronavirus pandemic, a smart factory can be run and accessed remotely with minimal human intervention at the site. Equipping the manpower with the necessary skills and knowledge is also essential to provide them a stable employment and requisite livelihood benefits.

Some of the other measures that will go a long way in making us self-sufficient and become a holistic manufacturing hub are:

- Investing in technology and intensive R&D can help in developing skills that we presently may lack or may have in low proportion.
- Positioning India as an important market in terms of demand, so that we see FDI coming in the market.
- Not only generating great talent, but retaining them in the country through lucrative career opportunities.

India has the capability to play a critical role in the global supply chains by leveraging its geographical location as well. If we can internally strengthen on four fronts: cost- economical labour, quality- high skilled workforce, adoption of technology- implementation of smart manufacturing and supply chain- robust infrastructure, India can emerge as the global hub for manufacturing in the future. 



"The global recession has made India Inc. rethink manufacturing strategies and devise ways that can make the country's manufacturing self-reliant and at the same time cost effective."

The author is Executive Vice President and Business Head, Godrej Locks

Tata Motors restarts Pantnagar & Sanand Plants

Tata Motors has announced a calibrated restart of manufacturing operations for both Commercial and Passenger Vehicles from its plants located at Pantnagar (Uttarakhand) beginning last week and from Sanand (Gujarat). Tata Motors plants in Lucknow (Uttar Pradesh), Dharwad (Karnataka), Jamshedpur (Jharkhand) and Pune (only for Ambulance Vehicle manufacturing) are in final stage of readiness and expect to begin production over the next few days. This commencement of operations follows receipt of all necessary approvals from relevant Government authorities. Guenter Butschek, CEO & MD, Tata Motors said, "Our utmost priority is the safety and wellbeing of our employees, customers and ecosystem partners. Therefore, we restart operations with limited, essential staff in each plant, adhering to all mandated



safety norms while efficiently meeting operational requirements. The support and cooperation extended by local authorities, state and central Government, our Union partners and our dedicated workforce have been instrumental for a smooth restart. We will scale operations in a graded manner as the entire enabling ecosystem of suppliers, vendors, dealers and customers comes up to speed."

BMW Group India restarts Chennai plant



BMW Group India started operations at Plant Chennai on May 7, 2020 in accordance with guidelines issued by local authorities. Local production at the plant will be started with less than 50% of the regular workforce. All other employees will continue to work from home. Plant will resume its operations in a single shift. Depending on the pandemic situation and government advisories, deployment of staff will be adjusted steadily.

BMW Plant Chennai has implemented several precautionary measures to create a safe working environment including remodelling of plant layout to ensure strict social distancing, individual protective gear for all employees, daily health check-ups, staggered lunch schedules, pre-packed meals and highest level of sanitization measures.

Ashok Leyland restarts operations at all plants

Ashok Leyland has announced the resumption of plant operations. In a statement issued to the media, Vipin Sondhi, Managing Director & CEO, Ashok Leyland Limited, said: "With the relaxation of the lockdown, we have resumed operations in all our plants across the Country, after obtaining necessary approvals from the relevant authorities. In accordance with the stated guidelines as given by the Ministry of Home Affairs (MHA) and the relevant local authorities, we shall be ensuring all the necessary health and safety protocols in our facilities, for all stakeholders."



The Company will gradually ramp up production across facilities after taking into consideration the Work in Progress (WIP) that were on hold at the time of announcement of lock-down, the supply chain readiness after opening and most importantly the preparedness of the ancillary units to supply the critical components, for sustained production of vehicles.

TVS Motor Company resumes manufacturing in India

TVS Motor Company has commenced its operations in India across all factories in Hosur, Mysuru and Nalagarh. The safety of employees and community is of paramount importance to TVS Motor Company, it said in a statement. A comprehensive preparedness manual has been designed for employees to ensure complete adherence to necessary safety guidelines to help min-

imise the spread of the virus. At all its manufacturing facilities, the company has undertaken exhaustive measures to ensure safe workplace for employees with appropriate social distancing and highest standards of hygiene. Work from Home option also continues for certain category of people, in adherence to respective state government guidelines.



Piaggio Vehicles resumes operations at Baramati plant

Piaggio Vehicles Pvt Ltd (PVPL) has restarted manufacturing at its Baramati plants after receiving a permission from the government. The plants are operational with all safety standards as per the government directions. Speaking on the development, Diego Graffi, MD & CEO of Piaggio Vehicles Pvt. Ltd. said, "At PVPL our number one priority is the health and safety of our stakeholders, from our employees, to our customers to our dealers and suppliers. We are taking all the necessary precautions which are required for the safety and well-being of our employees at the factories." The company plans to ramp up gradually with a minimum workforce of essential employees to start with and then gradually move to full capacity. Committed to the welfare and the safety of its employees, PVPL has initiated various new health, safety and sanitization measures over the last few weeks over and above the already existing ones. The company has done the mass sanitization of all the three Baramati plants and has also done various renovations to ensure social distancing norms are strictly followed during operations. PVPL is also tracking the health of its employees on a daily basis as per the safety guidelines given by the government.

Greaves Cotton launches Engine of Growth initiative

Greaves Cotton has geared up with a host of initiatives under its new program called "Engine Of Growth". The engine mentioned here is metaphorical, indicating progress, protecting lives, providing livelihoods, supporting communities & ultimately driving prosperity supporting economic wellbeing of millions. Commenting on the initiative company's spokesperson, said "We believe in the power of relationships. While we all try to navigate this pandemic crisis, we reinforce our commitment to reinvigorate the economy with intensified support to the core sectors. Under the 'Engine of Growth' program, we will actively reach out to various customers at bottom-of-the-pyramid, who have been affected the most today and do whatever it takes in order to ensure growth and productivity for them."

Bharat Forge to start Baramati plant

Bharat Forge Limited is gearing up to commence partial operations at its Baramati plant as per the guidelines stipulated by the Ministry of Home Affairs of the Government of India after obtaining permission from the local district authority (MIDC, Baramati). Bharat Forge is commencing operations in a graded manner with the Baramati facility reopening and it expects production to

Hyundai rolls out 200 cars on 1st day of restart

Hyundai Motor India Ltd. has rolled-out 200 cars on first day of production restart at its Plant at Sriperumbudur, Chennai. The company commenced production operations on May 08, 2020, ensuring 100 percent social distancing compliance in accordance with standard operating procedure. Hyundai is adhering to all



the guidelines set by the State and Central Government and also practicing 360-degree safety – Care at workplace & Care at all times within the factory premises. In line with the Government's objectives of reviving the economy and Hyundai's Global Vision of Progress for Humanity, the commencement of manufacturing operations is aimed at boosting economic activities and striving to bring back normalcy.

Jindal Stainless (Hisar) resumes partial operations

Pursuant to the government's directive that sanctions resumption of manufacturing operations, Jindal Stainless (Hisar) Limited (JSHL) has restarted partial operations in a phased manner at its Hisar plant in Haryana. The Company has implemented all necessary guidelines set by the central government and local authorities to ensure



safety and well-being of all the employees and other stakeholders involved in the manufacturing operations. All personnel will follow social distancing and prescribed safety guidelines enforced by the Company. Based on a periodic review of market conditions, the Company will further its manufacturing in a phased manner.

commence soon, post completion of mandatory safety check and training of personnel on Physical distancing, health & hygiene. The Company is taking all recommended precautions and preventive measures to ensure safety and well-being of its employees at all times. "We will closely monitor the situation and take necessary steps as may be required from time to time," it said in a statement.

By Prasad C Basappa

TRANSFORMING IN-VEHICLE EXPERIENCES

Cars are transforming from just physical products to devices with various service offers for drivers and passengers. Technology has entered the car to make in-vehicle experiences more comfortable, infotaining, and connected.

Personalised experiences are the new norm. From shopping online recommendations to shared holiday experiences, Personalisation has entered all areas of our lives. The same applies, of course, to in-vehicle experiences. Today, cars are more than mere modes of transportation. As we begin to travel longer distances or spend more time behind the wheel due to traffic, we need a smart vehicle to help us navigate.

Cars are transforming from just physical products to devices with various service offers for drivers and passengers. Technology has entered the car to make in-vehicle experiences more comfortable, infotaining, and connected.

The in-car Human-Machine Interface (HMI) is a combination of intelligent information management, design excellence and fascinating user experiences. The amount of time one spends inside a vehicle demands next-generation Human-Machine Interfaces that make the drive more comfortable and safer.

The following HMI technologies will change the in-vehicle experiences for the better:

HEAD-UP DISPLAY

There are various distractions within a vehicle while driving. Taking one's eyes off the road for even a second



could result in an accident. With Head-Up Displays (HuD), the driver can see relevant information directly in the line of sight, which keeps the driver focused on the critical task of driving. Head-up Displays help in minimising potential distractions, thus enhancing the safety of all occupants of the vehicle. It is a breakthrough approach towards human-machine interface, which enables a conversation between the driver and the vehicle without any dialogue.

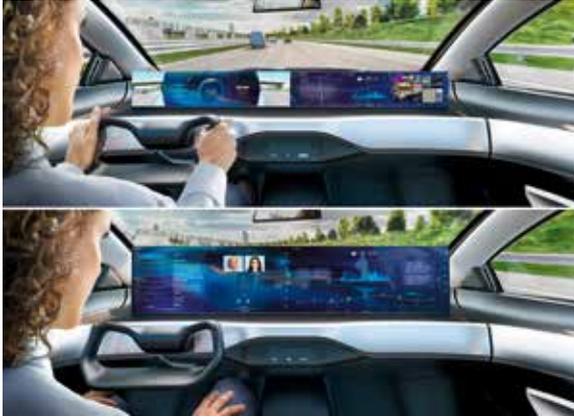
In the case of a windscreen HuD, drivers see a virtual image as a 'floating' display over the hood in a virtual 'distance' of about two meters.

NATURAL 3D DISPLAYS

The new Natural 3D Lightfield display is an evolutionary step in the design of human-machine interaction of vehicles and brings out a new measure of safety and comfort by generating an unprecedented 3D experience without special eyewear or head-tracker cameras. With this innovative technology, information can be safely conferred to the driver in real-time, which allows the interaction between the driver and the vehicle to become more intuitive and comfortable. Also, it enables the passengers to share the 3D experience with the driver. The 3D-image produced by the Lightfield dis-



Autonomous shuttle buses or robo-taxis currently being tested along predetermined routes will pave the way for tomorrow's driverless vehicles, which will smoothly navigate complex, mixed traffic scenarios.



play consists of a total of eight perspectives of the same object that vary subtly according to the point-of-view. The display uses parallax barriers, slanted slats that divide the image for the viewer. As if looking at real objects, two different, slightly offset views reach the right and left eye, resulting in a three-dimensional image.

COCKPIT HIGH PERFORMANCE COMPUTER

The Cockpit High Performance Computer (HPC) is another step towards an HMI that smoothly integrates cockpit functions like clusters, cameras, and infotainment.

The Cockpit HPC is the basis for Continental's 3D display being used in the Hyundai Genesis GV80. It marks a further milestone in the transformation of modern E/E architecture. The intention is to move away from numerous individual control units to few high-performance computers. In the next generation of Continental's Cockpit HPC, all displays are integrated into a single unit. The driver will be able to distribute content across multiple displays, for example, by means of gesture control, dragging navigation maps from the front passenger's display onto their own screen and arranging exactly where they want to place them. In automated driving mode, the displays merge across the entire width of the cockpit and offer all the services and apps that are otherwise only available on the front passenger's side.

SPEAKERLESS 3D IMMERSIVE AUDIO SYSTEM

The Speakerless audio system Ac2ated Sound enhances the vehicle interior with its immersive sound quality. The technology replaces conventional loudspeaker technology with actuators that create sound by vibrating certain surfaces in the vehicle to produce sound. The speakerless audio system is a revolutionary system, where 3D sound reproduction surrounds the passengers

in a detailed and vivid soundscape to maximise their in-car audio experience. This system not only reduces the weight and space by up to 90 percent compared to the conventional audio system, but also assists in enhancing the audio quality significantly. It could be an ideal system for electric vehicles as well, where saving space and weight are top priorities. With this system, many components become unnecessary due to vibrating surfaces in the vehicle just as speaker diaphragms. Actuators cause components, such as the A-pillar trim, door trim, roof lining and rear shelf, to vibrate, so that they emit sound in different frequency ranges.

SMART VOICE ASSISTANT

Cars are becoming smart communicators. Keeping the future generations of semi-automated and fully autonomous cars, smart voice assistance could be the key for safe interaction with the vehicle. This enhances human-machine communication without causing distractions.

With the Smart Voice Assistant and its natural dialogue design, conversation between the human and the vehicle becomes more relatable. The technology is a smart and adaptive driver assistance system, which is designed to understand multiple questions in a single sentence and has the capacity to detect logical connections, making it a reliable and safe driving partner.

HOLISTIC HMI FOR AUTONOMOUS DRIVING

Vehicles are becoming intelligent and easily automated and will soon change the way we drive. Autonomous shuttle buses or robo-taxis currently being tested along predetermined routes will pave the way for tomorrow's driverless vehicles, which will smoothly navigate complex, mixed traffic scenarios. But before they become a regular feature on urban roads, robo-taxis must gain wide-ranging user acceptance and trust. A holistic solution for human-machine interaction, specifically designed for autonomous vehicles, not only ensures comfort and easy accessibility but plays a critical role in ensuring safety as well. The revolutionary intelligent technology combines seamless human-machine cooperation inside and outside the vehicle. Holistic HMI for Autonomous Driving has the potential to lead a safer traffic environment, combined with easy accessibility and comfort for both passengers and pedestrians. 

The author is Head of Human Machine Interface business unit, Continental Automotive India

By Niranjana Mudholkar

VERTICAL AND HORIZONTAL EXCELLENCE

Elgi Equipments won the 2019 Deming Prize for excellence in Total Quality Management (TQM). **Dr. Jairam Varadaraj**, its Managing Director, briefly explains the thought process and the efforts behind this achievement.

First of all, congratulations on winning the 2019 Deming Prize for excellence in Total Quality Management (TQM). When did the TQM journey at ELGi start and what inspired you to undertake the same?

ELGi has an ambitious aspiration; and to achieve this, we recognized that the company needed to adopt a management philosophy that builds vertical excellence in each operating function and customer-centric horizontal excellence across the business, operations and support functions. We strongly believe in endeavoring to accomplish ordinary tasks in an extraordinary manner, and turning extraordinary ambitions into ordinary tasks; TQM has significantly enabled this vision. Our TQM journey began in 2008 and gained momentum in 2014 with the implementation of ELGi's TQM system – the EBS (ELGi Business System), as a means to achieve ELGi's goal of becoming the world's second largest air compressor manufacturer by 2027. It also helped establish a strong emphasis on customer-centricity and human resource development initiatives.

Today, we're proud to be the first global, industrial air compressor manufacturer, to win the prestigious Deming award in over 60 years. And while the Deming prize is a milestone in our journey, I commend our employees for their continual support and focus on building excellence in TQM, across the organisation.

Winning an award of such stature cannot be possible without the active involvement of all employees. Tell us how they have contributed to this success?

Yes, it's been an exciting journey for all our employees and a challenging one as well. Taking a step back, the key foundations of the ELGi Business System are business processes, measurement based management and alignment of individual goals with company goals.

The objective of our business processes is to bring reliable, repeatable, effective and efficient outcomes, while measurement based management, ensures that the performance of each individual in the organisation is defined in the form of objectives and control points, which are then measured and reviewed. The third dimension of



EBS is to help the alignment of individual goals with the company's goals and aspirations. This helps every individual employee to understand the importance of their roles and responsibilities in addressing the customer's requirements and other stakeholders' expectations.

A key factor in taking 'Make in India' to its desired results would be a strong focus on quality and manufacturing excellence while being cost competitive. Tell us about ELGi's focus on these aspects.

Manufacturing at ELGi is a persistent and creative undertaking to achieve best-in-class performance, reliability and sustainability standards. And we strongly believe that a self-managed lean workforce, built on solid culture of continuous improvement (Kaizen) will produce best-in-class compressors.

Across the world, customers incur significant ownership costs, considerable maintenance requirements and relatively poor reliability. At ELGi we've questioned this, connected the dots and developed technology specifically applied to solving an existing need in a new way.



“We strongly believe in endeavoring to accomplish ordinary tasks in an extraordinary manner, and turning extraordinary ambitions into ordinary tasks; TQM has significantly enabled this vision.”

And our 400+ product range bears testament to this; for example, the lubricated screw (ELGi Global (EG) series and Encapsulated (EN) Series) and oil free screw air compressors are highly reliable, energy efficient and operate at low energy costs. Our Oil free (OF) series and ‘Always Better’ (AB) series of oil free screw compressors are class zero certified by TUV in accordance with the ISO 8573 standards and the (HRS) heat recovery systems help companies recover approximately 96 percent of the waste heat generated during the compression process which can then be re-utilized for heating of air and water.

We’ve also innovated to address the compressed air needs of companies who have historically suffered the constraints of high cost, poor reliability, and low efficiency in order to have oil free air. The ELGi AB ‘Always Better’ series, a disruption in oil free compressed air technology, offers every customer across the globe, a no-compromise, oil free solution at approximately 8 – 10 percent reduced lifecycle cost when compared with prevailing oil free technology. Finally, our compressed air experts across the world offer specialized services to help customers identify potential areas of energy savings and provide them with solutions guaranteeing the optimum use of compressed air.

Do you see the Prize impacting business directly?

Yes. While the Deming Prize is testament to our focus on quality and building excellence in TQM – our commitment to TQM has, over the years, had re-enforced our commitment to customer centricity. Every ELGi product bears testament to our hallmarks of reliability and performance, while meeting or exceeding industry-specific demands such as energy-efficiency, cost-efficiency, ruggedness, zero oil tolerance or air delivery precision.

And how do we achieve this?

Every ELGi screw air compressor is built with a proprietary high precision airend; our in-house built, rotor grinding machines are best-in-class and ensure rotor

finishing with very close tolerances.

Our vertically integrated processes have greatly enhanced our manufacturing capabilities, helping maintain high-quality standards and provide scope for design innovation and flexibility, while our foundry facilitates design flexibility and high quality castings.

With our in-house developed FEA, CFD, NVH & Industrial design capability, we ensure continuous innovation. Furthermore, our in-house machine building expertise helps in meeting exacting standards of precision manufacturing including our proprietary airends.

We’re investing in training and equipping our air experts with the skills required to ensure 48-hour turnaround times for air restoration, across the globe. Over 600+ service technicians in India alone have undergone extensive training resulting in 96 percent accuracy in grievance resolution and 9/10 satisfied customers the world over.

Our sophisticated planning algorithms enable us to produce and deliver globally without seeking market forecasts, while our IT Enabled procurement and planning system ensures minimal lead time. Together with the delivery management system and flow line, implementation of TQM principles, the Warehouse Management system and e-kanban, we ensure high availability of our air compressors and shortened lead times.

How much do you spend on R&D in terms of percentage of your sales?

Air compressor technology has evolved over the years, from air billows to advanced compressor product innovation, to reach breakthrough levels of performance and efficiency. Since its inception, ELGi has adopted innovation as a key differentiator, keeping pace with global compressor technology trends and evolving customer needs. Global climate change, as an example, is an alarming reality and we are striving to make a difference by ensuring organisations reduce both energy dependence and emissions, resulting in minimal impact to the environment.

Today, our global technology center, focuses on building compressed air solutions that help organisations lower energy consumption and operating costs, while achieving their productivity goals. With a strong team comprising of about 200 employees, our technology breakthroughs aim to transform the conventional boundaries of compressor technology with a relentless focus on increasing performance and energy efficiency. Our investment in R&D in India is about 2-3 percent of our global sales revenue. 

TRANSFORMING PRODUCT DEVELOPMENT

A global plastics processing player reported enhancement in electrical drawing quality, reduction in errors and increase in productivity.



A global plastics processing player with presence in Italy and India, Windsor Machines owes its reputation to more than five decades of continuous improvement. From injection moulding machines and pipe extrusion lines to blown film lines, the range of products developed by Windsor Machines straddle every conceivable use case. The strategy and vision of achieving technological excellence has been firmly backed by a commitment to maintain superiority through innovative products.

The convergence of technological prowess with innovation has helped create machines with capacities from 350 to 2000 tons that are at work in diverse sectors. Benchmark defining products and multiple patents add to the expanding portfolio of solutions that

emerge from the advanced development centres. Some of the products include integrated PET Preform system, ram type hydraulic machines, toggle machines, KL series two-platen machines, and patented jaw clamping system among others.

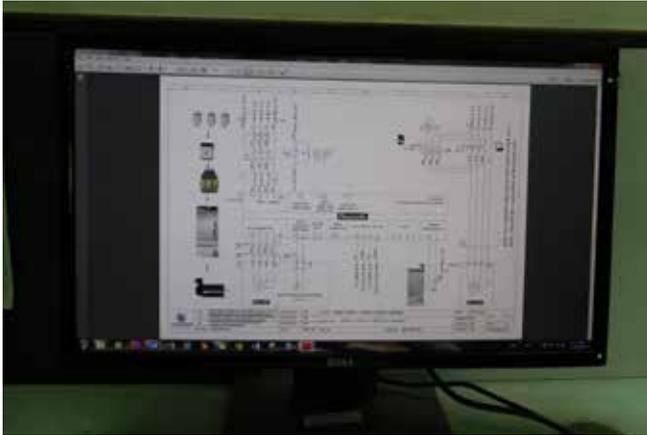
ELECTRICAL DRAWING & DESIGN WITH EPLAN SOFTWARE BRINGS COMPLEX CONCEPTS TO LIFE

Prior to deploying EPLAN, conceptualisation was laborious and prone to errors. By virtue of the extensive range of products, standardisation and voluminous data sets were routine challenges that beset the product development process. Integrating and configuring value engineering requirements was an uphill process, having to contend with the lack of standardisation. Process optimisation was hampered by delays attributed to manual data sets that slowed down engineering workflows.

The need to extend the value proposition was felt in a market that was upended by digitalisation. Troubleshooting, integration of components in an easy to retrieve library, storage of scalable schematics, and tagging were areas that needed to be addressed on priority. Automation works best only when implemented enterprise-wide and this was one area that needed to move to the next level for creating an overarching and seamless product development workflow.

“Windsor design team is very happy with the EPLAN software, as it has reduced the required many days to prepare any new circuit as well as extremely low chance of manual error. Moreover, we got positive feedback from assembly team, testing team, and service team about EPLAN drawing for its easy understanding, quality, visual identifications etc.”

Design Team, Windsor Machines



matic engineering, and simplified cross reference identification in electrical circuits. This feature is presently unavailable in commercially available electrical CAD software, highlighting the futuristic and advanced nature of the solution. The solution also triggers error messages on time, helping teams to fix errors during various stages. The finer aspects of development, including calculation of cable length, mounting plate detail with cut-out & holes, are handled automatically, slashing the time required in processes.



“The reduction in time taken for preparing circuits combined with the elimination of errors has helped Windsor Machines to boost productivity and enhance quality.”

TRANSITION TO COMPREHENSIVE EPLAN ELECTRICAL DRAWING SOLUTION

The advantages of EPLAN over traditional CAD solutions include the ability to automatically connect, restore or break lines, tag devices, carry out numbering of wires, and the automated generation of reports/BOMs. The integration/compiling of a massive library in the EPLAN Data Portal offers instantaneous access to a huge repository of components that are integral to standard products. The advanced functionalities on the portal enable the storage of a large number of scalable schematics, in addition to the ease with which various formats such as PDF, DWG, and XML files can be generated through simple conversion options. Querying for components and parts are on the next level with aided/intelligent parts selection and management.

The host of features include support for pre-sche-

Substantial increase in productivity, ease of understanding and quality

- Productivity has increased by almost 200%.
- The number of electrical drawings has leapt from 18 to 35 per month.
- Near total elimination of errors.
- Quality has undergone a transformation – errors have been slashed from 24 per month to one every month.

SEAMLESS MIGRATION TO EPLAN: INDUCTION, TRAINING AND SUPPORT

The migration to EPLAN was worked out to the last detail, overcoming all adoption challenges. A comprehensive training session addressed the gap in skill sets and demonstrated the various methodologies for efficient generation of data. Standardisation, procedures and technical details in processes were explained to the team, down to the last detail. The shift from old CAD platform to EPLAN also involved the matching of specific requirements of Windsor Machines with various modules in EPLAN for desired outcomes. Configuration, creation of sample electrical circuits, tool demonstration, and generation of reports were showcased to participants.

On conclusion of in-depth training, a dedicated team handled all queries of team members. The interactive, self-service portal addressed most issues while the dedicated team handled other adoption challenges.

STANDOUT BENEFITS THAT ACCRUED FROM EPLAN ADOPTION

Among the numerous benefits from the migration to EPLAN, standout benefits include features that have transformed various processes. Automatic report generation, BOMs, access to library of components, storage of schematics, conversion to various formats, ease of troubleshooting and cross reference identification in electrical circuits have engendered process optimisation at Windsor Machines. The reduction in time taken for preparing circuits combined with the elimination of errors has helped Windsor Machines to boost productivity and enhance quality. The simplification of processes has reduced complexities and manual intervention, helping Windsor Machines to bring innovative concepts to life in the shortest possible time. 

Source: EPLAN

By Niranjana Mudholkar

WHAT THE MEGA PACKAGE MEANS

The Machinist welcomes the fact that the mega economic package details shared by the finance minister clearly show the focus is comprehensively on the MSMEs who have been adversely hit by the Covid-19 outbreak.



Housing Finance Companies (HFCs), Micro Finance Sector and Power Sector were also unfolded. Other than this, the tax relief to business, relief from contractual commitments to contractors in public procurement and compliance relief to real estate sector were also covered.

POWERING THE ENGINE

The Indian MSME sector is the second largest in the world (after China). The contribution of the MSMEs to the Indian economy

On May 13, 2020, India's Finance Minister Nirmala Sitharaman has announced relief measures for businesses, especially MSMEs to support Indian Economy's fight against COVID-19. This is in line with the Prime Minister's promise of a mega economic package worth Rs.20 lakh crore, which is equivalent of ten percent of the country's GDP. The PM's call for a self-reliant India has been very well articulated in the FM's relief measures that comprehensively address the five pillars of self-reliance – Economy, Infrastructure, System, Vibrant Demography and Demand.

“Essentially, the goal is to build a self-reliant India that is why the Economic Package is called Aatma Nirbhar Bharat Abhiyaan (Sel-reliant India movement),” the FM said. Sitharaman highlighted that the announced measures focus on ‘Getting back to work’ i.e., enabling employees and employers, businesses, especially Micro Small and Medium Enterprises, to get back to production and workers back to gainful employment. Efforts to strengthen Non-Banking Finance Institutions (NBFCs),

has always been remarkable; many times, it is referred to as the engine of growth for the Indian economy. Unfortunately, Indian MSMEs have been hit very hard by the Covid-19 pandemic and the mega economic package by the Government of India definitely clears the way for liquidity infusion, thereby giving them the necessary handholding. Today, most MSMEs are in dire straits and waiting to revive their businesses; this mega package will surely provide them with the required stimulus. For example, the Rs. three lakh crore Emergency Working Capital Facility for Businesses, including MSMEs will provide a huge relief to them. According to the package, additional working capital finance of 20 percent of the outstanding credit as on 29 February 2020,



“Essentially, the goal is to build a self-reliant India that is why the Economic Package is called Aatma Nirbhar Bharat Abhiyaan (Sel-reliant India movement).”

India's Finance Minister
Nirmala Sitharaman

in the form of a Term Loan at a concessional rate of interest will be provided. This will be available to units with upto Rs. 25 crore outstanding and turnover of up to Rs 100 crore whose accounts are standard. The units will not have to provide any guarantee or collateral of their own. The amount will be 100 percent guaranteed by the Government of India providing a total liquidity of Rs. 3.0 lakh crore to more than 45 lakh MSMEs.

WELCOMED BY THE INDUSTRY

Venu Srinivasan, Chairman, TVS Motor Company has welcomed the mega package calling it comprehensive and highly progressive.



“The massive fiscal stimulus will help improve the impacted financial system and the positive business perception will stimulate demand. These measures will kick-start financial activity and help rebuild the economy during the pandemic.”

Venu Srinivasan, Chairman, TVS Motor Company

The bold steps taken by the government of India in order to provide assistance to the MSMEs is highly commendable, said Anand Srinivasan, MD, Covestro India. “It is a visionary package and will help the industry to regain and revive and we are looking forward to more such announcements over the next few days. The decision of redefining the definition of MSMEs is more inclusive and will distribute benefits to many,” he added.

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Highlights of the mega package

- ✓ **Rs 3 lakh crore** Emergency Working Capital Facility for Businesses, including MSMEs
- ✓ **Rs 20,000 crore** Subordinate Debt for Stressed MSMEs
- ✓ **Rs 50,000 crore** equity infusion through MSME Fund of Funds
- ✓ New Definition of MSME and other Measures for MSME
- ✓ No Global tenders for Government tenders of upto **Rs 200 crore**
- ✓ Extending the Employees Provident Fund Support for business and organised workers for another **3 months** for salary months of June, July and August 2020
- ✓ EPF Contribution to be reduced for Employers and Employees for **3 months** to **10%** from **12%** for all establishments covered by EPFO for next 3 months
- ✓ **Rs. 30,000 crore** Special Liquidity Scheme for NBFC/HFC/MFIs
- ✓ **Rs. 45,000 crore** Partial credit guarantee Scheme 2.0 for Liabilities of NBFCs/MFIs
- ✓ **Rs 90,000 crore** Liquidity Injection for DISCOMs
- ✓ Relief to Contractors given by extension of up to **six months** for completion of contractual obligations, including in respect of EPC and concession agreements
- ✓ Relief to Real Estate Projects the registration and completion date for all registered projects will be extended up to **six months**.
- ✓ Tax relief to business as pending income tax refunds to charitable trusts and non-corporate businesses and professions to be issued immediately
- ✓ Reduction in Rates of ‘Tax Deduction at Source’ and ‘Tax Collected at Source’ by **25%** for the remaining period of FY 20-21
- ✓ Due Dates for various tax related compliances extended.



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next few days. The decision of redefining the definition of MSMEs is more inclusive and will distribute benefits to many.”

Anand Srinivasan, MD, Covestro India



"The measures announced by the Finance Minister will go a long way in lifting the sentiments and morale of the MSMEs. The package has been extremely well thought, both from a sustenance and liquidity point of view."

Mehernosh Tata, the Head of Edelweiss SME Lending

Mehernosh Tata, the Head of Edelweiss SME Lending believes the measures announced by the Finance Minister will go a long way in lifting the sentiments and morale of the MSMEs. "The package has been extremely well thought, both from a sustenance and liquidity point of view. The announcement of payment of receivables within 45 days to all MSMEs, by the Government of India and CPSEs, will provide requisite liquidity in the hands of entrepreneurs. Restricting tenders less than Rs. 200 crore only to Indian entities, provides a great opportunity for MSMEs to get incremental work orders, especially when demand may slump in the near future," he explained.

Naveen Soni, Senior Vice President, Sales & Services, Toyota Kirloskar Motor has welcomed the message for India to be self-reliant and the need to introduce strong reforms, which will further strengthen the Indian auto industry. "The stimulus package is comparable with the measures taken globally and will definitely boost morale of the stressed sectors and industries, especially the MSMEs. Furthermore, the reclassification of the MSME sector, based on investment and turn over will open up various enterprises to remain as MSMEs, aiding cash flow with collateral free loans. The Government is taking measures to boost the supply side of the economy and we now await their support to boost the demand side where government spending can boost a faster revival of the economy," he noted.



"The stimulus package is comparable with the measures taken globally and will definitely boost morale of the stressed sectors

and industries, especially the MSMEs."

Naveen Soni, Senior VP, Sales & Services, Toyota Kirloskar Motor

ON THE CLOSING NOTE

The Machinist welcomes the fact that the mega economic package details shared by the finance minister clearly show the focus is comprehensively on the MSMEs who have been adversely hit by the Covid-19 outbreak. The package also shows the government's positive intent to both support the country's small businesses and also to provide them with an opportunity to avail these relief measures to survive, sustain and grow.

It is indeed remarkable that the Indian Government is endeavouring towards reviving the economy in order to make it self-reliant and self-resilient.

By availing this mega economic package new stimulus and the likely reforms, Indian industry will be able to overcome the bottlenecks related to liquidity, supply chain, demand, labour related issues. The package will revive the country's economy in an effective manner. It is quite likely that the Indian industry will have to function alongside the Covid-19 pandemic for a fairly long time, but this mega package will go a long way in resuming business operations while safeguarding the health and safety of all stakeholders. It will certainly support in helping the key components of the economy and also enable in building demand in Lockdown 4.0. 

PACKAGE WILL ENERGISE THE INDIGENOUS INDUSTRY: GADKARI

Union Minister for MSMEs and Road Transport & Highways Nitin Gadkari has welcomed the relief package for MSME sector announced by the Finance Minister. Gadkari said, this package will energise the local indigenous industry with new life. Gadkari said the turnover of the village industry has been around Rs. 88 thousand crore, which we aspire to take forward to Rs. 5 lakh crore in next two years. He said, the stimulus package announced today, will help achieve this target in a big way. The Khadi sector

will play a big role in this as it is entering into exports also. The Minister was very upbeat over the change of definition of the MSME sector. Raising of investment limit in this sector to Rs 100 crore will give great boost to the industry, which will now get easy finance from banks. The sector was demanding this revision for long, he said. The Fund of Funds, which has a corpus of Rs 10 thousand crore, will benefit over 25 lakh MSMEs under stress. Similarly, easing of global tendering norm is a remarkable step, he said.

CONVERTING CRISIS INTO OPPORTUNITIES

Indian Machine Tool Manufacturers' Association (IMTMA), the apex body of the machine tool industry in India, has been working closely with the Centre and state governments to mitigate the difficulties faced by the industry.

Extraordinary times perhaps pave way for new opportunities that one needs to explore from different angles and the outbreak of coronavirus and subsequent lockdown may have given an opportunity to restart afresh. The novel coronavirus (Covid-19) pandemic and lockdown has hit every industry sectors really hard including the machine tool industry.

In this scenario, it is important for industries to remain connected with customers, vendors and peers through various communication channels. Indian Machine Tool Manufacturers' Association (IMTMA), the apex body of the machine tool industry in India, has been working closely with the Centre and state governments to mitigate the difficulties faced by the industry. IMTMA has been strenuously trying to keep the industry morale and confidence level high by spearheading policy advocacy in a focused manner with the government and other stakeholders.

The Association has requested the Government to fast track support for MSMEs, refunding of income tax and goods and services tax within April to improve the cash flow, waive-off interest on working capital loans for a period of 12 months, granting a 9-12 months moratorium before resuming repayment which will help reducing the operating cost of the industry.

Throwing more light on the initiatives taken up during the Covid-19 lockdown period, Indradev Babu, IMTMA President said that IMTMA has sought weighted deduction from income tax on expenditures incurred to combat Covid-19. Speaking further he said that the government must desist declaring firms with clean records as "non-performing assets" if their accounts suffer financial distress post-February 2020. It



"The government must desist declaring firms with clean records as "non-performing assets" if their accounts suffer financial distress post-February 2020. It has also been mooted that on all government purchases no penalties or interest be levied for any delay in deliveries."

Indradev Babu, President, IMTMA

has also been mooted that on all government purchases no penalties or interest be levied for any delay in deliveries. IMTMA has also vouched for clearing outstanding payments and dues on supply of goods and services to government entities, non-cancellation / deferment of purchase orders placed by government entities and accommodate increase in input costs of imports arising from rupee depreciation.

Explaining further V. Anbu, Director General & CEO, IMTMA said that the Association has been simultaneously been engaging its member companies as well as exhibition industry stakeholders to keep them abreast by reporting on the various government initiatives, creating a help desk for various stakeholders, publishing the best practices followed by different companies, and putting up a resources page which provides an insight into the health and economic responses to the pandemic. All these information are compiled into newsletters which are shared with member companies and exhibition industry stakeholders.

Additionally, IMTMA has also been conducting webinars with its member companies on topics such as:

- Looking beyond domestic markets and aggressively focusing on exports.



"The Association has been simultaneously been engaging its member companies as well as exhibition industry stakeholders to keep them abreast by reporting on the various government ini-

tiatives, creating a help desk for various stakeholders, publishing the best practices followed by different companies, and putting up a resources page which provides an insight into the health and economic responses to the pandemic."

V. Anbu, Director General & CEO, IMTMA

- b. Deliberating on the various relief and stimulus measures provided by the Government of India for income tax, GST, company law, banking and finance, etc.
- c. Achieving breakthrough results in machine tools and accessories manufacturing through six sigma approach.
- d. How to design, engineer and build high performance machine tools.
- e. Maintaining business continuity during the lockdown.
- f. Understanding Force Majeure clause in the context

Covid-19 and beyond.

- g. Special session for MSME member companies to apprise them on the various stimulus measures offered by the government.

As an advisory service, IMTMA has prepared a general guideline, 'Protocol for resumption of activities' which will help member companies to work out a plan to suit their individual organisations. IMTMA has also advised members to build an element of assurance, within the plan, of strict adherence to safety norms as required for prevention of the pandemic disease, specifically social distancing, screening and sanitization.

A new normal awaits all of us as industries get back to work with social distancing and temperature screening to keep infections at bay. Organizations are still doing R&D to find a vaccine until then businesses have to take precautions to safeguard themselves and keep the show running.

It is also an opportune time for the machine tool industry to move forward with the three Rs: resolve, rebound and reimagine. The industry must explore opportunities in manufacturing equipment for sectors such as healthcare, telecommunications, aerospace, electronics, and other sunrise sectors. Machine tool industry needs to work more closely with these sectors in post-Covid era than ever before by ramping up their R&D and serving efficiently and in a customer-centric manner, which will give rich dividends. 

FIRST TRANCHE TO BENEFIT MACHINE TOOL INDUSTRY: IMTMA

The first tranche of economic package to counter the coronavirus pandemic, announced by the Finance Minister of India, reaffirms the country's commitment to macro-economic stability, prudent fiscal management and uplifting indigenous manufacturing, said the IMTMA in a media statement. The growth tonic for MSMEs such as collateral free automatic loan for upto Rs.3 lakh crore, covering borrowers with up to Rs.25 crore outstanding and Rs. 100 crore turnover, will enable them to meet operational expenses. The loans come with a 4 year tenor with moratorium of 12 months on principal repayment. The interest to be capped at 100 percent credit guarantee covers to banks and NBFCs on principal and interest can be availed till October 31, 2020 and will enable 45 lakh units to resume business activities and safeguard jobs, the statement

said. It is also heartening to note that approximately 2 lakh MSMEs are likely to benefit from the Rs.20,000 crore subordinate debt for stressed MSMEs. Other measures such as Rs. 50,000 crore equity infusion for MSMEs through Fund of Funds with corpus of Rs.10,000 crore, revision of investment limit upwards, elimination of distinction between manufacturing and service sector, disallowing of global tenders upto Rs. 200 crore will help MSMEs increase their business. Tax reductions by 25 percent of the existing rates for tax deducted at source and tax collected at source will release liquidity of Rs.50,000 crore which is expected to boost consumption, it added.

Interestingly, the government will provide EPF support for business and workers for 3 more months providing liquidity relief of Rs.2,500 crore to 3.67 lakh establishments and 72.22 lakh employees.

LIFESAVER

A Rajkot based global machine tools major has built an in-house ventilator to fight Covid 19 and is donating the first 1000 devices to the Government of India

During this unprecedented time the entire Nation is preparing itself to fight against the threat of the novel Coronavirus (Covid 19) pandemic. The Government of India has been very proactive to take the stock of situation to conquer this challenge and to ensure the medical preparedness. The first and the foremost challenge foreseen by the Government of Gujarat was the shortage of the lifesaving ventilator during this challenging time. The role of ventilator has become very crucial to treat this disease, which directly attacks the respiratory system of the human body. The Govt. has expressed this worry during one of the local body meeting to face this crisis proactively.

This challenge to design, develop, test and deploy required quantity of ventilators was well accepted with the courage by Parakramsinh Jadeja, CMD, Jyoti CNC Automation Ltd., Rajkot. The same task was immediately briefed to the R&T team of Jyoti and in parallel all the necessary resources were scouted by Team Jyoti. In this journey the experience of Rajendrasinh Parmar (RHP Medicals) came as blessings.



“This challenge to design, develop, test and deploy required quantity of ventilators was well accepted. The same task was immediately briefed to the R&T team of Jyoti and in parallel all the necessary resources were scouted by Team Jyoti.”

Parakramsinh Jadeja, CMD, Jyoti CNC Automation Ltd.

A team of more than 150 professionals from Jyoti CNC and 26 other allied companies have worked round the clock to accomplish this mission of designing and developing the first prototype within the stipulated time frame. The design was charted out and the critical components were produced at the manufacturing facilities at Jyoti, and at some other end to fasten the process of preparing the prototype of this ventilator



Prototype of the Dhaman-1 ventilator

which was later on named as “Dhaman-1” (Dhaman is the Gujarati word which represent as the blower that pumps the air.)

The first prototype was tested and rested locally and finally was presented to the EQDC (Electronics and Quality Dept. Center, Gandhinagar). Everything went on smooth and the device was successfully tested as well as certified by the EQDC on the same day.

The next day this indigenously developed ventilator was tested on a patient at the civil hospital, Ahmedabad in the presence of Vijaybhai Rupani, Chief Minister, Gujarat, and Nitinbhai Patel, Dy. Chief Minister, Gujarat.

It is interesting to note that this completely “Made In India” device was manufactured with the minimal cost of approximately Rs. one lakh only against the very highly priced (at least six times higher) imported devices. As a tiny contribution in this testing time for the nation, Jyoti CNC has committed to donate the first 1000 devices to the Government of India. Team Jyoti has thrived hard to accomplish this pilot task of manufacturing first 1000 devices within the timeline of just 10 days.

The project has yet again complemented the mission of Jyoti CNC Automation Ltd. - “Propelling Technology, Prospering Life” diligently. 

By Dr. Pranjal Kumar Phukan

FOOTPRINTS FOR SUSTAINABILITY

Sustainability cannot be reduced to carbon emissions. The strong current focus on carbon emissions may be an opportunity for other environmental indicators to be developed and adopted, in the sense that platforms and accumulated experience related to carbon foot printing can be beneficial.

Climate change is a key issue in sustainability, as it may lead to dangerous increases in temperature and sea level, flooding, droughts, etc. Scientists all over the world are providing information supporting the fact that the climate is changing and that this change is partly due to human activities through the release of greenhouse gases (GHGs). “Carbon” is often used as shorthand for GHGs, as carbon dioxide is the main GHG released by human activities. As a consequence, the activity of measuring GHG emissions is often referred to as carbon foot printing.

A carbon footprint may concern an organisation, a value chain, or a product as per Carbon Trust 2014. The organisational carbon footprint accounts for emissions from all activities across an organisation (including building energy use, industrial processes, and the company’s vehicles). The value chain carbon footprint includes also emissions outside the organisation’s own operations (i.e., emissions from both suppliers and consumers, including product use and end-of-life emissions). Finally, the product carbon footprint includes emissions over the whole life cycle of a given unit of product or service, from the extraction of raw materials and manufacturing to its use and final reuse, recycling, or disposal.



According to the Intergovernmental Panel on Climate Change (IPCC), climate change refers to any change in climate over time due to natural variability or as a result of human activity. The scientific community has collected substantial evidence that the climate is changing, as a result of the increased concentration of GHGs in the atmosphere, which is due in part to human activity. The main greenhouse gases are water vapour, carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfurhexafluoride. Some of these GHGs are naturally present in the atmosphere and are responsible for the greenhouse effect, a natural phenomenon responsible for warming the atmosphere and allowing life on Earth. However, in recent times, GHG emissions have increased, among others, due to industrialization and changes in agriculture and land use. Carbon dioxide, for example, is emitted by the combustion of fossil fuels such as coal, oil, and gas. Methane mainly comes from agriculture, livestock, and landfills. Nitrous oxide is found in large quantities in nitrogen fertilizer and chemical processes. These human made GHGs known as “anthropogenic GHGs” intensify the greenhouse effect.

In order to measure the climate impact of GHG emissions, the life-cycle assessment (LCA) communi-



The organisational carbon footprint accounts for emissions from all activities across an organisation (including building energy use, industrial processes, and the company’s vehicles).



Indeed, companies, non-governmental organisations, and governments need to take into account that the other sustainability aspects might have different characteristics than carbon emissions.

ty has developed an impact category called the global warming potential (GWP). GWP is the recommended metric to compare future climate impacts of emissions (IPCC 2007). It refers to the heat trapped in the atmosphere by a given amount of GHG over a given time period, relative to that trapped by an equivalent amount of CO₂ during the same period.

Using the GWP enables us to aggregate GHG emissions into a single metric commonly expressed in carbon dioxide equivalent (CO₂ e) or in carbon equivalent. These two metrics should not be confused: 3 million tons of carbon equivalents are equal to 11 million tons of CO₂ e. The conversion between carbon equiv-



The value chain carbon footprint includes also emissions outside the organisation's own operations (i.e., emissions from both suppliers and consumers, including product use and end-of-life emissions).

alent and CO₂ e is related to the ratio of the atomic mass of a carbon dioxide molecule to the atomic mass of a carbon atom, i.e., 44/12.

This has immediate implications for carbon foot printing and reporting as the carbon footprints for different companies and especially at different points in time may be based on different GWPs. An analogy in financial accounting is the effect of currency exchange rates: financial statements are published in a single currency, using whatever collection of exchange rates is appropriate at that time, but changes in reported financial metrics may result in part from changes in exchange rates rather than in actual performance. Despite these shortcomings, using the GWP to aggregate different GHGs into a single metric expressed in CO₂ e is the

most common approach to carbon foot printing.

MOTIVATIONS FOR CARBON FOOT PRINTING

Carbon foot printing has become more widely used than other environmental footprints, such as the ecological footprint, land footprint, water footprint, etc. The main reasons for this can be linked to legislation around carbon emissions, public awareness of climate change risks, and investors' expectations for carbon emission reporting. Consequently, some companies ask their suppliers and subcontractors to provide data on their emissions. For instance, DHL requires all its carriers to enter data on vehicles used, distance travelled, fuel efficiency, etc. not only to calculate total carbon emissions but also to screen the carriers for environmental performance. Reducing carbon emissions can also lead to lower costs. For instance, a survey of the Consumer Electronics Association (CEA) found that companies measuring their carbon footprint were able to reduce their electricity consumption by 5–25 % per million dollars of revenue.

As a result, many governments are taking steps to reduce carbon emissions through regional or national policies including the introduction of emission trading programs. Under a trading system, permits are required for a given company to be allowed to emit GHGs, and the number of available permits in the market (regional, national, or international) is limited. Other companies report their emissions in order to be prepared for future regional, national or international climate policies (Carbon Trust 2014). Moreover, global companies doing business in China and South Korea such as Alstom, Bayer, and Canadian Tire Corporation are closely monitoring emerging Chinese emission trading systems that will soon put a price on carbon (CDP 2014a).

Investors also require that the long-term risks related to environmental externalities are managed in order to protect their long-term investments. For instance, the CDP Investor Initiatives, backed in 2015 by more than 822 institutional investors representing over US\$95 trillion in assets, provide investors with a global source of annual information to support long-term objective analysis, including evidence and insight into companies' carbon footprint and strategies for managing climate change.

The CDP's Carbon Action initiative (backed by 190 investors) asks companies in heavy emitting indus-

Below table shows the GWP of some GHGs over 100-year and 20-year periods, respectively

Gas	Atmospheric lifetime	100-year GWP	20-year GWP
CH ₄ (methane)	12.4	28	84
HFC-134a (hydrofluorocarbon – 134a)	13.4	1,300	3,710
CFC-11 (trichlorofluoromethane)	45	4,660	6,900
N ₂ O (nitrous oxide)	121	265	264
CF ₄ (tetrafluoromethane)	50,000	6,630	4,880

Source: IPCC 2013b, Table 8.7

tries to take actions on carbon emission reduction every year, by setting emission targets and making reductions while generating return on investment (CDP 2014b).

SUPPLY CHAIN CARBON FOOT PRINTING

The supply chain carbon footprint corresponds to Scope 1, 2, and 3 emissions. Accounting for Scope 3 emissions, and therefore the value chain carbon footprint, need not involve a full-blown inventory of all products and operations, which would generally be infeasible. Usually it is most valuable to focus on the major GHG generating activities. The structure of Scope 3 emissions varies from one industry sector to another, and consequently, it is difficult to provide generic guidance on which Scope 3 emissions to include in an inventory.

However, some general steps can be articulated as per WRI and WBCSD 2011a are as below:

- **Describe the value chain.** It is important, for the sake of transparency, to provide a general description of the value chain and the associated carbon emission sources.
- **Determine which Scope 3 categories are relevant.** Only some types of upstream or downstream emission categories might be relevant to the reporting company. They may be relevant, for example, because they are large (or believed to be large) relative to the company's Scope 1 and Scope 2 emissions, they contribute to the company's carbon risk exposure, they are deemed critical by key stakeholders (e.g., feedback from customers, suppliers, investors, or civil society), etc.
- **Identify partners along the value chain,** e.g., customers or users, product designers, manufacturers, energy providers, etc. This is important when trying to identify sources, obtain relevant data, and calculate emissions.
- **Quantify Scope 3 emissions.** While data availability and reliability may influence which Scope 3 activities are included in the inventory, it is accepted that data accuracy may be lower. It may be more important to understand the relative magnitude of and possible changes to Scope 3 activities. Emission estimates are acceptable as long as there

is transparency with regard to the estimation approach, and the data used for the analysis are adequate to support the objectives of the inventory. Verification of Scope 3 emissions will often be difficult and may only be considered if data is of reliable quality.

AUTOMOBILE INDUSTRY

Based on the GHG Protocol, direct (in-house) and limited indirect carbon emission boundaries were considered, while downstream stages of distribution, consumers, disposal, and recycling were excluded. The first step is to identify the key suppliers' carbon footprint. HMC (Hyundai Motor Company) set up guidelines and provided measurement manuals to key suppliers. Based on this, each supplier conducted Scope 1 and 2 emission measurement and reporting, using a direct measurement methodology. The scope of the guidelines prepared by HMC includes raw material suppliers, manufacturers, and distributors. In the second step, a carbon process map was established to identify each component and part at each stage of the simplified supply chain. This process helped HMC and its suppliers to calculate the carbon footprint of each component and part. The carbon process map also helped HMC and its suppliers to identify components and parts with high carbon burdens.

Finally, in the third step, HMC and its suppliers calculated the products' carbon footprint by adding the carbon emissions of the supply chain stages. Regarding the front bumper product, for example, it was found that through the simplified supply chain, the raw material stage accounts for 18% of the carbon emissions, the manufacturing stage accounts for 70%, and the distribution accounts around 12%.

EMISSION ALLOCATION IN SUPPLY CHAINS

When allocation is inevitable, companies should select the allocation approach that

- Best reflects the causal relationship between the production of the outputs and the resulting emissions,
- Results in the most accurate and credible emission estimates,
- Best supports effective decision-making and GHG reduction activities, and
- Otherwise adheres to the principles of relevance, accuracy, completeness, consistency, and transparency.



The product carbon footprint includes emissions over the whole life cycle of a given unit of product or service, from the extraction of raw materials and manufacturing to its use and final reuse, recycling, or disposal.

It is preferable to use a physical relationship between the multiple inputs/outputs and the quantity of emissions generated, through allocation factors such as mass, volume, energy, chemical, number of units, or others (e.g., protein content of food coproducts or floor space occupied by products); otherwise the remaining options are to use economic factors (by value) or other relationships. This is because physical factors are expected to best reflect the causal relationship between the production of the outputs and the resulting emissions. Clearly, different allocation methods are prone to yielding significantly different results.

$$\text{Allocated facility emissions} = \frac{\text{Mass of Products Purchased}}{\text{Total Mass of Products Produced}} \times \text{Total Emissions}$$

By way of for collecting and allocating GHG emissions from suppliers, two basic approaches are suggested:

- Supplier allocation. Individual suppliers report pre-allocated emission data to the reporting company and disclose the allocation metric used.
- Reporting company allocation. The reporting company allocates supplier emissions by obtaining two types of data from individual suppliers:
 - a. Total supplier GHG emission data (e.g., at the facility or business unit level) and
 - b. The reporting company's share of the supplier's total production, based on either physical factors (e.g., units of production, mass, volume, or other metrics) or economic factors (e.g., revenue, spend).

Many GHG emissions are the result of joint processes by multiple parties in a supply chain. A typical product goes through numerous manufacturing and transportation stages operated by a number of companies in a supply chain. Although joint production can occur anywhere, it is likely to be particularly common in indirect goods and services, which do not become part of the final product or service. Consequently, further reductions in emissions in addition to those of a firm's own operations can be achieved by joint effort of multiple parties in a supply chain through collaboration, coordination, or information sharing.

This brings in also additional cost-saving oppor-

tunities. The CDP 2015 supply chain report notes that companies that engage with one or more of their suppliers, consumers, or other partners are more than twice as likely to see a financial return from their emission reduction investments and almost twice as likely to reduce emissions, as those who do not engage with their value chain.

Nevertheless, when a number of firms jointly affect total emissions, they face a critical and nontrivial challenge in measuring their share of the responsibility for emissions (or that of the emission reductions): How should the emissions be allocated to the various value chains, organisations, final products, or services? The CDP 2011 supply chain report found that 86 % of respondents have a collaborative process in place to jointly reduce carbon footprints with suppliers (up from 49 % the year before), but suppliers face difficulties in allocating their emissions to their multiple customers (CDP 2011).

CONCLUSION

However, sustainability cannot be reduced to carbon emissions. For example, water scarcity, its quality, and the regulations affecting it are a growing business problem (The Economist 2014). Other environmental dimensions of sustainability as well as social impacts should not be overlooked because of too much focus on carbon emissions.

The strong current focus on carbon emissions may be an opportunity for other environmental indicators to be developed and adopted, in the sense that platforms and accumulated experience related to carbon foot printing can be beneficial. One important observation here is that the capability developed through carbon foot printing may not necessarily be directly transposed to other sustainability aspects.

Indeed, companies, non-governmental organisations, and governments need to take into account that the other sustainability aspects might have different characteristics than carbon emissions. For example, location and timing play a major role in water foot printing, but not in carbon foot printing. Moreover, extending the capabilities which are being built up for carbon foot printing to other dimensions of sustainability shall presents an exciting opportunity but one that should be approached thoughtfully. 

The author is a Supply Chain Management expert based in Assam.

By Niranjana Mudholkar

CREATING UNIQUE SOCIAL MODELS

Toyota being a manufacturing company, addresses the fundamental issue in its core value of Monozukuri, which refers to sustainable growth in harmony with nature, says **Vikram Gulati**, Country Head & Senior VP, External Affairs, Public Relations, Corporate Social Responsibility & Corporate Governance, Toyota Kirloskar Motor (TKM)

What is the fundamental principle that guides TKM's CSR activities?

At Toyota, CSR is seen more as a voluntary activity, although there is a legal requirement for CSR, we at Toyota view this as a responsibility coupled with an opportunity contribute to the society. The CSR program at TKM was set up right after the initiation of its manufacturing plant back in 1997-98. It was neither an after-thought, nor did it begin after the government



"We follow the 'Toyota Way' system even for our CSR activities and the hall mark of this approach has always been to undertake root cause analysis and then adopt suitable strategies and interventions that address the core issues."



policy was enacted. Toyota being a manufacturing company, addresses the fundamental issue in its core value of Monozukuri, which refers to sustainable growth in harmony with nature. All our activities are conducted with this as a fundamental principle with CSR being an integral part of Toyota's DNA in conducting the business. We believe in the philosophy of 'Grow together' and thus, focus on the community around our manufacturing plant, executing sustainable CSR with optimal resource and high impact approach.

We follow the 'Toyota Way' system even for our CSR activities and the hall mark of this approach has always been to undertake root cause analysis and then adopt suitable strategies and interventions that address the core issues in a manner that can help bring about sustenance to whatever we do. For this we define the outcomes and process of the project with stipulated timelines along with a clear exit strategy along with the sustenance plan. The stakeholders are engaged right from the planning stage so that the processes are well understood by them and their continual involvement ensures greater ownership of the interventions. Thus, while addressing various societal issues it is our endeavour to ensure that we can bring about a behavioural change and that the community takes the ownership of the social assets created for them as well as adopting good processes.



Toyota Kirloskar Motor TKM employees participated in the ICARE initiative to build educational kits for school children

Do you think it is important for corporates to pursue CSR activities with the same enthusiasm as they pursue their business goals? Why?

Corporate social responsibility (CSR) has become one of the standard business practices of our time. The aim is to achieve a positive impact on society, while maximising the creation of shared value. Social responsibility and ethical practices are vital for the success of any business. These days, consumers or customers seek products from the business that operate ethically, employees and shareholders look forward to associate with socially responsible companies. So, social responsibility



So, social responsibility does not differentiate from making business profits as it's a pivotal and integral part of any business that intends to become a sustainable one, in the long run.

does not differentiate from making business profits as it's a pivotal and integral part of any business that intends to become a sustainable one, in the long run.

Share brief information about two ongoing remarkable CSR projects being undertaken by the organisation.

Our voluntary CSR initiatives are focused on the commitment of the company and its employees to do good to the society and stakeholders in a scalable and sustainable manner. We have been implementing the activities under five thematic areas like Education, Environment, Health & Hygiene, Road safety and Skill development. These thematic areas are aligned based on the need of the communities, national priorities and Sustainable Development Goals. Our CSR focus has been consistent, working to adopt outcome and impact-oriented approach in our projects to bring in:

- Behavior change to have deeper social impact
- Child to Community approach [wider outreach]
- Expand our CSR footprints across the social value chain

- Provide Holistic social solutions through collaboration & stakeholder engagement

Through varied CSR projects, we have touched more than 14,00,000 lives. Two of our notable CSR initiatives are as follows:

Sustainability - The ABCD (A Behavioural Change Demonstration) Programme

TKM initiated the ABCD project with a focus to bring about a behavioural change. Project ABCD not only aims at achieving 100 percent school sanitation by increasing awareness, it also promotes dignity and privacy for the girl child by upgrading existing unhygienic school toilets to usable condition as well as to promote learning and retention among school children, teachers as well as the community members

TKM has constructed more than 890 units of sanitation facilities in 293 government schools across India. Project ABCD has covered 58719 school children and 3,89,747 community members creating awareness on the importance of sanitation and basic hygiene, which has resulted in 1004 schools being Open Defecation Free. As a result of this initiative a total 13,548 household toilets have been constructed since last four years. All children of 1004 schools under Project ABCD have 99 percent sanitation facilities at home. With these efforts, more than 92 villages have declared as 100 percent sanitation for school children in Ramanagara district.

TKM's girl child sanitation initiatives have effectively contributed in reduction of girl child school missing hours to zero in Ramanagara district. This unique project has been commended for its key contribution by the Karnataka State's Education Board and most recently a case study on the project was accepted for publication by Ivy Publishing which then made its way to Harvard Business Review case collection

Innovation - Toyota Hackathon – Code for Safer India:

First-of-its-kind to implement coding on road safety for school children. Under this unique initiative, Toyota invites and incubates innovative ideas of students from grades 9th - 12th to drive the road safety mission with an ultimate goal of achieving "Zero Fatality".

The event revolves on three dimensional themes – Driver Behaviour, Better Enforcement and Infrastructure aligning with Toyota's global commitment to offer innovative Safety solutions

Key focus is given to motivate and unleash the hidden talents, provides a platform for young minds towards "India Road Safety Mission" and become responsible safety ambassadors by developing effective digital road safety solutions.



School children being educated about the importance of hygiene and sanitation - Project ABCD

We recently concluded the third edition of the hackathon in Delhi, while the Bangalore chapter took place in November, last year witnessing participation from over 600 teams.

The solutions presented by the participants will effectively help further strengthen the goal of achieving zero traffic fatality. It is through these initiatives that Toyota is committed to achieve a safer, more sustainable and mobile world for everyone.



We differentiate ourselves with the creation of unique social models using the Toyota Way principles. This enables us to set and standardise the process of implementation and be a role model for other corporates to follow.

Attracting and retaining talented people has always been a big challenge for the manufacturing industry. Similarly, training and skill upgradation are very important in today's competitive environment. What are you doing on this front?

Market requirements and corporates needs must be aligned to one's individual skill for better prospects and hence, training and skill upgradation is very essential. Over the years, Toyota has undertaken several holistic skill initiatives for the development of skilled manpower that ensures a secure and steady flow of qualified human resources not only for the company but also for the industry.

Toyota's Gurukul (Skill Development Centre): Focuses on developing the skills of new entrants to the organisation. There are three levels of training – Fundamental Skill, Element Work and Standardized Work training. Micro-level training helps the employees to develop skills to manufacture world-class cars. Additionally, all members are periodically trained on Toyota way practices and Toyota Business practices to ensure the learning principles adopted and adapted well for

everyone's understanding.

Toyota Technical Training Institute (TTTI):

Launched in 2007, TTTI inculcates world-class skills training to youth from the economically weaker sections of the society in rural Karnataka and provides a comprehensive three-year program that focuses on their holistic development with knowledge, skill, body and attitude. Besides, students are given practical training by applying the world renowned 'Toyota Production Systems' to the various manufacturing processes at the Toyota plant in Bidadi. Since its inception, the institute has trained 573 students who have been inducted at Toyota Kirloskar Motor and other Toyota Group companies.

In recognition of the highest levels of quality of education & training that is imparted, TTTI has been selected as one of the training institutes, under Japan India Manufacturing [JIM] skill transfer promotion program. Under this, Toyota Kirloskar Motor will be one of the Indo-Japanese companies that will help enhance the manufacturing base of India and contribute to Make-In-India and Skill India, through imparting training over the next 10 years with Japanese-style manufacturing skills and practices.

Toyota Technical Education Program (T-TEP):

Launched in India in 2006, the Toyota Technical Education Program (T-TEP) is a part of the company's Corporate Social Responsibility (CSR) activities in line with the skill enhancement projects. T-TEPs are established as a result of partnerships with industrial and technical training institutes across India to impart automotive trainings – General Repair, Automotive Body Repair and Automotive Paint Repair, thus, developing a highly-skilled technical workforce with bright career opportunities in the industry. Aligned with Government of India's 'Skill India Mission', under Toyota Technical Education Program, Toyota has associated with 49 ITI/Diploma institutes across 17 states in India benefitting 8000 students till date. Additionally, Toyota is also making dealers capable in providing short term skill-oriented training program utilizing 13 Dealer Centralized Training Centre [DCTC] across India benefitting over 2000 number of students across India

How do you monitor, assess and measure the impact of your CSR activities?

At TKM, we have adopted the following tools to measure the impact of our programmes:

SMART indicators: All projects KPI's have been SMART (Specific, Measurable, Accurate, Realistic & Time Bound): Focusing on KPI's which are process oriented (Output and result oriented (Outcome). Project ultimate goals are defined with yearly KPI's and



School children showcasing their talent in painting competition as a part of Project ABCD organised by Toyota Kirloskar Motor (TKM)

are time bound, to achieve the same. Every project has sustainability plan with clear ownership by the community and exit strategy, where we handover the matured project with standard operating procedures to take the project forward by community. We have recently adopted the real – time capturing of the data to ensure effectiveness of the data capturing with Geo-tagging.

Use of Logic Framework Model (LFM): Structure: Input->Activities->Output->Outcome-> Impact->Sustainability - It aids in effective monitoring of the entire



Corporate social responsibility (CSR) has become one of the standard business practices of our time. The aim is to achieve a positive impact on society, while maximising the creation of shared value.

implementation phase by checking if the project results (outputs and outcomes) are being met in a timely fashion. Further, it also aids in assessing the risks and assumptions and creating a mitigation plan for the same. Moreover, it helps in analysing the roles and responsibilities of various stakeholders and helps in the better management of the entire project.

Verification of Data: The projects outcomes and data is validated by a third party. We also have developed a case study to further validate the accuracy of the implementation process to achieve desirable results. Later, the CSR management holds discussions with beneficiaries and stakeholder to understand the impact of the project.

Data Sharing with relevant stakeholders: Our stakeholders are part of the end-to-end implementation process. Engagement in the project makes them responsible and allows them to take ownership of the project. With this approach, we owe the success of the project to the community.

How do you align your CSR activities with the organisation's sustainability strategy?

In relation to CSR, right from the inception, Toyota management was visionary towards societal development. We started our first activity in the education domain and slowly ventured into various thematic pillars. Through CSR, we have practiced and aligned the same principles adopted in business, for successful implementation of the project called 'Toyota Way'.

Our leadership team has been very encouraging in terms of implementing the projects and this commitment has been proved in the way CSR amount is spent consistently towards social development. As a result, the thinking way has always emerged and evolved over the years. We have started our journey from 'philanthropy' to now focusing on 'sustainable CSR'.

We differentiate ourselves with the creation of unique social models using the Toyota Way principles. This enables us to set and standardise the process of implementation and be a role model for other corporates to follow. We are enhancing our reach by creating social value chain, by involving our business partners to partner to take these initiatives to a larger society under Team Toyota Activity initiatives

In addition, at Toyota, we show consideration to the planet in everything that we do. We investigate and promote systems and solutions that are eco-friendly. As a responsible organisation, we at TKM firmly believe in the philosophy of "Respect for the Planet" and aligning our activities to this vision. At Toyota, our Global Vision 2050 sets six environment challenges to be achieved, these are aligned to sustainable development goals. These six challenges include focus on Zero Carbon emissions which not only seeks to achieve zero carbon emissions from new cars, from our manufacturing plant but also to strive to achieve Zero Life Cycle CO2 emissions. The other three environment challenges relate to minimisation and optimisation of water usage, establishing recycling based societal systems, and establishing a future society in harmony with nature. Each of Toyota's affiliate across the globe has a role to play for the society in the region it operates in and is committed to work towards becoming a part of the solution to fundamental challenges, such as: Energy Security – Fuel Efficiency and Environment Protection and Safety – Technology Safe for both Human and Environment. Towards this vision we have also achieved good success in using renewable energy for meeting majority of our energy needs, restricting the use of Kaveri water for just cooking and drinking purposes. This has been achieved with a focus on measures aimed at continual efficiency improvements, recycling of water and water harvesting etc. In order to educate children and create



Toyota Kirloskar Motor (TKM) Conducts Sanitation Quiz Competition as a part of Project ABCD

awareness for the environment we have also created an Eco Zone.

How do you involve and engage your employees in the CSR activities? What is their attitude towards this work?

As a responsible corporate, TKM introduced iCARE (Community Action to Reach Everyone), an employee volunteerism platform in 2017, to promote proactive involvement of employees.

With employee engagement, the main motive is to achieve long-term sustainability which is the core of our CSR initiatives. Such activities come a long way in educating, empowering, and sensitising the community that each action, whether big or small initiated by one and all, does make a big difference towards creating a smarter, safer and sustainable society.

As a part of our iCARE initiative, we map the interest levels of our employees to implement skill-based volunteering program. Having conducted 12 activities so far, we have gathered immense experiences to achieve our goal to make it a “social movement driven by passion”. Our employees voluntarily take out time from their busy schedule for community development. The impact of each of these activities is the testimony of their passion and commitment.

To give you an example: Earlier this year, TKM employees rejuvenated a lake near Ramnagara district. The lake was not in use for nearly 20 years; even the community living in the vicinity of the lake never realised the existence of such a lake due to the weed and tall grown grass around it. With the hard work of the iCARE volunteers, the rejuvenated lake was de-weeded, and restored benefitting the community members. As a result, the CEO of Zilla Panchayat in Ramanagara district has declared all the lakes to be rejuvenated in the area.

Tell us how TKM has responded to the Covid-19 outbreak in terms of its responsibility towards its employees, other stake holders and overall society.

Toyota Kirloskar Motor has taken several measures to safeguard health and safety of all stakeholders including: Community, Customers, employees and dealer partners. Some of these initiatives are as follows:

Community: Since the onset of the pandemic, TKM has been monitoring the fast-evolving situation and proactively responding appropriately in accordance with needs of the community & the Government. The company has always been at the forefront of supporting the society and government in addressing critical social issues. Recently, 3000 Hazmat suits were handed over to the government health volunteers in Karnataka, 3500 essential kits to daily wage workers benefitting over 15000 members. This was followed by deployment of 14 buses to support the health department in the state. TKM also contributed to Rs. two crore to Karnataka Chief Minister’s Relief Fund besides supplied 77,000 masks, 45,000 bottles of sanitizer and 12,000 examination gloves to government health care workers and law enforcement agencies. TKM has pledged to support IISC Bangalore by providing mobile medical unit to support molecular testing and research in the field of COVID-19.

Customers: Under its ‘Customer Connect’ program, the new set of services being offered by TKM include extension of Vehicle Warranty (New & Toyota Vehicle Purchased from TOYOTA U-TRUST), Free Maintenance Service, Roadside Assistance, Extended Warranty & SMILES Pre-Paid maintenance package for up to two months

Dealer Partners: The primary objective of the COVID package is to ensure liquidity to sustain the business during the lockdown thus protecting dealer partners for approximately 38 to 75 days based on individual dealer overheads. The COVID package ranges from immediate settlement of any dealer claims to inventory interest subsidy for vehicles in dealer stock and spare parts payment deferment amongst host of other supports. Besides, TKM is working with its finance partners for a one-time reduction of inventory funding interest at this unprecedented situation.

TKM supported by providing unique “Dealer Operations Restart Guide”. This guide is to educate and empower its dealer partners about the importance and adherence to good safety & hygiene practices, to secure all stakeholders from health hazards and restart its business

Suppliers: TKM extends support to ramp up production of face shield through supplier Stumpp Schuele and Somappa from the initial 275 units per day to over 17,000 units per day

TKM support by providing unique and comprehensive ‘Restart Manual’ for industries to follow post the lockdown. 

By Diwakar Dayal

DISPELLING MISCONCEPTIONS

Defending industrial control systems requires a multifaceted approach if organisations are serious about thwarting cyber threats.



Until recently, industrial networks were separated from the rest of the world by ‘air-gaps’ - a security measure disconnecting industrial and business networks. However, given the interconnected environment we operate in today, ‘security by obscurity’ isn’t adequate. Defending industrial control systems (ICS) that serve as the conduit from grids to manufacturing units requires a multifaceted approach if organisations are serious about thwarting cyber threats.

The increased convergence of IT and OT has expanded the attack surface and attack vectors, creating a massive gap in an organisation’s ability to truly understand where it’s exposed. Attackers can use the IT network as an initial vector for attack, and then leverage the convergence point to penetrate the OT network. Once penetration is achieved, attackers can compromise the controlled processes by changing program commands on the programmable logic controllers (PLCs). People with access to the internal networks can achieve the same either intentionally or accidentally by plugging in an infected laptop into the OT network. This complex, sensitive, expanded and the little understood attack surface is what security teams are increasingly tasked with managing without the proper visibility. As organisations navigate the unknown risks within industrial environments, they also need to be aware of certain misconceptions in the industry that will keep them from truly understanding their cyber exposure.

Misconception 1: traditional IT tools can detect ICS attacks: The convergence of IT and OT systems has fostered the idea that IT detection tools can work effectively in ICS environments. In most cases, traditional IT security tools won’t work with ICS devices as they don’t communicate well with OT protocols/systems

and are not practical when placed within an ICS environment. ICS systems and devices are purpose-built and different. IT security tools cannot understand OT-specific protocols or safely analyse OT devices.

Misconception 2: ICS is ‘always’ air-gapped: Many organisations claim that they’ve mitigated security threats by physically separating ICS from the network. This isn’t a practical solution as business requirements in the form of ‘smart services’ are driving the need for real-time interaction between the world outside and the OT environment, making the case for increased connectivity between the two worlds.

Even if an organisation manages to completely disconnect its ICS from their enterprise networks, there’s still “other IT” to worry about. Directly-connected networks of vendors who offer maintenance and support for ICS also need to be considered. In many cases, organisations that think they are air-gapped have access vectors such as removable media or insertion of infected computing devices within the OT environment to worry about.

Misconception 3: Only passive security technologies can be used in an OT Environment: Most technologies that are used to inventory assets, determine configurations and detect possible malicious activity within an OT environment rely heavily on passive network monitoring techniques. This is fairly effective and does not impact the network since little to no traffic is introduced by the monitoring technology.

That said, passive techniques are not 100% accurate since they never truly “see” the actual configurations on the devices themselves.

When suspicious activities are detected, the stored copy of the device configuration can be compared against the current state, and potentially malicious or accidental changes identified. Vendors of OT equipment have been using these methods for decades to safely configure and monitor their devices.

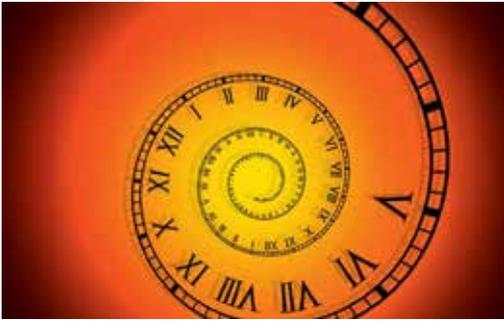
Stopping an attack requires the ability to understand the complete attack surface and see the attack. Attacks, whether physical or digital, have the ability to massively disrupt day-to-day operations for businesses. Managing cyber risk has never been so important in our connected world so don’t fall for these misconceptions. 

The author is Managing Director, Tenable India

By Ravindra Ojha

SCALABILITY, SPEED AND SKILL.

The transition to normalcy and then to growth in the post COVID-19 period will be challenging but would serve as an opportunity for the India manufacturing sector.



Prior to COVID-19, leaders in the industry were evolving strategies to take the industrial business to next orbit through Industry 4.0. No one dreamt of the havoc the virus could bring to humanity and business at large, in such a short span. The supply chain experienced a level of disruption never experienced before. Production of goods and services, the sign of prosperity, came to a grinding halt to level-zero. The focus swiftly moved to the survival mode of here and now. Life-protection, health-care, hygiene, food-supplies and basic need fulfilment became the only priority. However, the success of lockdown and social-distancing paved the path to hope. But, what after lockdown? Humanity would continue needing goods and services. Manufacturing would commence but with a new normal. Demand would manifest itself in a different avatar which would change entire manufacturing practices in industry.

The five key challenges and associated recommendations envisaged are:

INFORMAL MIGRANT LABOUR CHAOS

Informal migrant labour returning back to the industry for work is likely to take a hit. Their fear psyche will dominate their decisions and would wait and watch for a reasonable period of time. Local labour is not likely to be an equivalent early replacement to production to the migrant in terms of skill, productivity and quality. Warehousing and other supply chain related activities

are likely to be affected the most especially when the pent-up demand rises in the post-COVID-19 days. A lot would also depend on the responsiveness of MSME which have a large number of informal labours. This is the apt time for modifying the archaic labour laws with special focus on the informal lot.

MULTI-NATIONAL FACTORY MOVEMENT TO INDIA

China, known as the factory of the world, is likely to witness an upheaval. COVID-19 has added fuel to fire in the already strained US-China trade relationship. The deteriorating trade relations of multiple nations with China would accelerate the shifting of factories to other Asian countries like India, Vietnam, Thailand and many others. It would be an excellent opportunity for Indian manufacturing sector. The Challenge of supply-chain infrastructure in India will have to swiftly respond to the changing needs, especially in the areas of Ports, customs-clearance speed, road quality etc. Indian policy on ease-of-doing-business may have to be revisited quickly for speedy and easy entry to new and meaningful manufacturing set-up.

LEANER & AGILE PRODUCTION SYSTEMS

Engineering industries are likely to be the worst hit in financial terms because of their high capital investments. New customer demands, based on new behaviors / fear of future / risk aversion / purchasing capacity are anticipated to bring in more severity to production



Humanity would continue needing goods and services. Manufacturing would commence but with a new normal.



Demand would manifest itself in a different avatar which would change entire manufacturing practices in industry.

process in terms of volatility, uncertainty, complexity and ambiguity. Shorter lead times, shorter time to market, shorter lot-size, waste-free manufacturing systems, stretching to improve utilization (OEE) of plants, increased total cost of ownership and more agility to respond to the needs would provide relief and subsequently be the new normal.

NEW NORMAL FOR HEALTH & HYGIENE

Entry-exit health check-ups of employees, Social distancing, hand hygiene (washing), appropriate masking, towards contact-less (gloves/ no-touch) Gemba operation, sanitization of relevant areas, rules in the canteen, veggie canteens and many newer practices would get implemented. This would result in layout changes (spacious), more washing areas (contactless tap operation), increased water consumption, availability of disposable low-cost masks / gloves, emergency health rooms, homing facility for worker, rules during taking meal and other eatable etc. This is bound to make manufacturing units a better place to work in terms of health and hygiene, however, there will be a cost to it.

APPLICATION OF TECHNOLOGY & NEW COMPETENCY

The post Covid-19 struggle of manufacturing plants, after a 45-day lockdown, to transition from Survival stage to Recovery stage is going to be challenging and painful. This will drive low-cost automation in operations, application of robotics for non-value adding labour content of manufacturing, use of 3D printing for critical parts, accelerate the application of drones and AGV, Artificial Intelligence would play a major role in consistent assessing and re-planning due changing situations and increasing uncertainty. However, these are likely to happen at a gradual pace. Physical and seamless supply-chain will become critical using technology (RFID). Innovation and New-product development shall see a leap in Indian manufacturing arena.

In summary, the transition to normalcy and then to growth in the post COVID-19 period will be challenging but would serve as an opportunity for the India manufacturing sector which has the capability in terms of Scalability, Speed and Skill. 

The author is Professor, Operations, Great Lakes Institute of Management, Gurgaon

MOOG AND VOITH FORM STRATEGIC BUSINESS ALLIANCE

Moog Inc. and Voith Group, both developers, manufacturers and suppliers of electric, hydraulic and hybrid drive solutions, have signed the contracts to form the joint venture HMS – Hybrid Motion Solutions GmbH based in Rutesheim recently. The joint venture provides for a strategic business alliance to expand the hydrostatic servo-hydraulics business in various industrial markets. HMS – Hybrid Motion Solutions GmbH aims to combine the solid expertise of both companies in the field of hydrostatic servo drives and leverage synergies to enter new markets. The new joint venture will focus on research and development, design and assembly as well as service. “For Voith, the establishment of the strategic business alliance with Moog is an important step towards strengthening our portfolio of hydraulic drive solutions. By bundling the know-how of both companies in the field of self-contained servo drives, we can offer our customers integral system solutions and jointly drive forward the further development of the hydraulics of tomorrow’. I am looking forward to the future cooperation with Moog and the team of

HMS”, states Rolf Schweizer, Executive Vice President & CEO of Voith Turbo Industry.

“The foundation of HMS – Hybrid Motion Solutions GmbH, and thus the strategic cooperation with the Voith Group, is an important milestone in establishing Moog as the long-term market leader for electro hydrostatic drives in mechanical and plant engineering”, explains Pim van den Dijssel, Group Vice President and General Manager Electro Hydraulic Products and Services of Moog. “Continuously shorter development times and the establishment of a complete portfolio of products and solutions in this area will make a significant contribution to achieving this strategic goal. For our customers, this means that they can continue to rely on Moog as a technology-neutral specialist in drive technology.”

Moog GmbH in Boeblingen was founded in 1965 as the first subsidiary of Moog Inc. outside the USA, and specializes in the development of hydraulic, electric and hybrid drive solutions. Moog GmbH is the main order, logistics, service and repair center in Europe, and is also responsible for German and Eastern European product sales.

By Niranjan Mudholkar

RISING TO THE OCCASION

The world has changed and industries need to adapt to the changing order keeping in mind the big picture, what will pay off in the medium and long-term, says **V. Anbu**, Director General & CEO, Indian Machine Tool Manufacturers' Association (IMTMA)



"Machine tool industry needs to ramp up its processes by leveraging technology for innovation and new product development. This will help the industry to garner opportunities in some of the sunrise sectors such

as healthcare and medical equipment, aerospace, etc. which were hitherto not explored fully."

What are the important lessons learnt from the Covid-19 outbreak and how can the manufacturing industry move out from this situation?

Coronavirus outbreak has presented unprecedented challenges for business and leadership both in India as well as across the globe, something which has never been experienced in recent memories. Leadership will be put to the test and will play perhaps the most vital role in steering the entire manufacturing industry out of this downturn. The world has changed and industries need to adapt to the changing order keeping in mind the big picture, what will pay off in the medium and long-term. Industries need to venture into new areas which were hitherto left unexplored, make optimum use of technology and do more R&D for newer forms of innovations. In simple terms, it won't be just sufficient to master the art of survival but also excel in widening the horizons, and the decision must be taken now.

Tell us about one humanitarian act that IMTMA has done during the lockdown.

Indian Machine Tool Manufacturers' Association (IMTMA) is supporting the Government of Karnataka by stationing the stranded migrant labourers at its exhibition centre in Bangalore and acting as the nodal point

for food distribution in the local area.

What will IMTMA focus on once the lockdown is lifted?

IMTMA will be focusing on health and safety of not only its staff but also the value chain in its business. The association will also be simultaneously working with the central and state government authorities to help IMTMA membership reap the benefits of the various policy initiatives, enable for them a steady cash flow, ensure that there is enough liquidity with the industry so that business continues. IMTMA will also advise and guide member companies on the various opportunities available in different sectors and help them diversify their offerings accordingly.

Your message for the Indian manufacturing industry.

Industry will see a new norm with new opportunities rising on the horizon. A large number of overseas firms are looking at investing in new destinations and India has an advantage to be an alternative manufacturing hub in Asia. Machine tool industry needs to take note of this development and ramp up its processes by leveraging technology for innovation and new product de-



Machine tool industry needs to strengthen its systems and processes to become self-reliant and self-sustainable and face new challenges that may emerge in future.

velopment. This will help the machine tool industry to garner opportunities in some of the sunrise sectors such as healthcare and medical equipment, aerospace, etc. which were hitherto not explored fully. Machine tool industry needs to strengthen its systems and processes to become self-reliant and self-sustainable and face new challenges that may emerge in future. 

UNIVERSAL TOOL-GRINDING MACHINE

Walter presents the new and competitively priced all-rounder Helitronic Raptor for the production and regrinding of tools

For some time the market has been demanding that machine tools must be 'more flexible', 'universal' and 'automated'. The equally important requirements of 'more specialised' and 'more cost-effective' often cannot be reconciled with these demands. However, this is exactly what Walter has achieved with the latest extension of their grinding machine portfolio, the Helitronic Raptor. Walter offers the right machine solution for the grinding of tools for every customer application.



The competitively priced all-rounder Helitronic Raptor from Walter for the production and re-sharpening of tools.

Flexible and cost-effective: The Helitronic Raptor is a flexible and universal tool-grinding machine especially designed for the grinding and re-sharpening of rotationally symmetrical tools for the metal and wood industry.

The specialized equipment of the Helitronic Raptor: 'Specialized' means in this case: optimising the important equipment options so that the Helitronic Raptor is targeted at the re-sharpening sector of rotationally symmetrical tools, in which one usually:

- does not require a large variety of automation
- does not require automatic tool support systems

- does not require an automatic change of grinding wheels
- but still requires a high degree of flexibility in the working area for large and diverse types of tools.

For this reason, the Helitronic Raptor - unlike other machines from Walter - is not configured for options such as wheel changer, robot loader or hydraulic tool support systems.

Further equipment features are:

- Low vibration, solid grey cast iron, gantry type construction
- 11.5 KW spindle motor
- Grinding software Helitronic Tool Studio
- Top loader (option)
- Glass scales (option)
- Torque drive for the A axis (option)
- Probe for measuring the grinding wheels (option)
- Manual support steady rest (option), and other options.

Tools with a maximum diameter of 320 mm and a maximum length of 280 mm including end face operation can be ground with the Helitronic Raptor. For automatic loading of up to 500 tools, an optional top loader, integrated in the working area, is available.

NEW MODULES FOR CLEANING AND LASER MARKING OF TOOLS

For application in the robot loader on the measuring machines HELICHECK PLUS and HELICHECK PRO

WALTER presents new modules for cleaning and laser marking of tools for application in the robot loader on the measuring machines HELICHECK PLUS and HELICHECK PRO

The use of new modules for cleaning and laser marking of tools in the robot loader further increases flexibility during manufacture and final inspection. The user saves valuable time by automatically loading the measuring machine with the robot loader and concurrently cleaning and laser marking the tools outside of the measuring area.

Tool cleaning module

A clean tool is essential for a valid measurement of tools. Therefore, the tools are cleaned before measurement in an ultrasonic bath, which is integrated in the robot cell and separate from the measuring area. Tools are subsequently dried in the air stream, which can be adapted individually depending on the tool length.

Laser marking module



Robot loader with the externally installed tool cleaning (1) and laser marking modules (2)

After cleaning and measuring the tool, the high-quality marking of the tool can then be carried out in the laser marking module, also integrated in the robot cell and separate from the measuring area without any penetration. Marking can be made on the shaft and/or tool



Laser marking on tool shaft

end face with static or dynamic data.

For complete flexibility, the robot loader for the HELICHECK PLUS and HELICHECK PRO measuring machines can be specified with an individual preparation for these two modules - they can then be individually retrofitted if required.

LUBRICATION-FREE SMOOTH MOVEMENT WITH IGUS HYBRID LINEAR SYSTEM

Hybrid roller bearing with tribo-polymer sliders halves coefficient of friction in lateral position

“IF A LOW DRIVING FORCE IS REQUIRED FOR MANUAL ADJUSTMENTS, ROLLERS ARE USED IN THE BEARING ELEMENT. ESPECIALLY FOR A LATERAL INSTALLATION, THE POSITION OF THE ROLLERS FOR THE FORCE ABSORPTION IS CRUCIAL.”

In order to move doors, monitors or even panels, users rely on lateral installation of the linear systems. To enable the linear guides to absorb these lateral forces better, igus has now developed a new hybrid linear system. Two hybrid bearings provide low-friction adjustment with polymer rollers and tribo-polymer slide elements. Combined with an easily fit rail adapted to the new roller bearings, igus offers a cost-effective and visually appealing complete solution.

In the packaging industry, furniture technology or even in machine tools: drylin linear guides can be found wherever movement is required. On tribologically optimised liners, the linear carriages slide on the rail, ensuring precise and long-lasting adjustment. If a low driving force is required for manual adjustments, rollers are used in the bearing element. Especially for a lateral installation, the position of the rollers for the force absorption is crucial. As a solution for such applications, igus has now developed two new hybrid roller bearings, which offer smooth adjustment with low drive forces and maximum support at the same time. The WJRM-41-10 has two offset polymer rollers with optimised alignment for better force absorption and easier rolling. The hybrid roller bearing WJRM-31-10 with single roller is in turn the matching, supporting bearing on the opposite side. By using the two roller bearings, the user can minimise the coefficient of friction by half and increase the service life of the application. In both bearings, in addition to the rollers, there are sliding

“COMBINED WITH AN EASILY FIT RAIL ADAPTED TO THE NEW ROLLER BEARINGS, IGUS OFFERS A COST-EFFECTIVE AND VISUALLY APPEALING COMPLETE SOLUTION.”



Two new lubrication-free hybrid roller bearings allow for easy adjustment - for example of doors - in the side mounting position. (Source: igus GmbH)

“USING A TOP PLATE, THE TWO NEW ROLLER BEARINGS CAN BE EXPANDED TO A LINEAR CARRIAGE. TO ENSURE THAT THE BEARINGS CAN ALSO BE USED ON THE APPROPRIATE GUIDE, IGUS HAS DEVELOPED A LOW-PROFILE HYBRID ROLLER RAIL.”

elements made of the low-friction tribo-polymer iglidur J. The lubrication-free and maintenance-free material is characterised primarily by its low coefficient of friction in dry operation. Both bearings can be positioned at the desired bearing clearance. These are very cost-effective if the bearings are produced in the zinc die-casting process.

Smooth adjustments with low-friction

Using a top plate, the two new roller bearings can be expanded to a linear carriage. To ensure that the bearings can also be used on the appropriate guide,

igus has developed a low-profile hybrid roller rail. This has a special geometry optimised for the hybrid roller bearing. The rail has a simple design without visible holes and is able to attach from the back with sliding blocks. This makes the new rail in combination with the hybrid roller bearing ideal for lateral installation, for example in kitchen and furniture construction as well as in machine tools or in jig construction.

For details, contact: Vinayak Shetty, Product Manager – Drylin, igus (India) Private Limited; vshetty@igus.ne or visit www.igus.in

A POWERFUL PARTNER FOR INDUSTRY 4.0 AND IIOT

A connectivity specialist is now offering a powerful platform to facilitate customer dialogue and communication.



Harting is setting new standards for industrial networks under the claim "All for Ethernet".

Extraordinary times call for new methods of communication: In 2020, the Harting Technology Group will – for the first time – be presenting innovative and state-of-the-art products and solutions for the Industry 4.0 and IIoT megatrends in purely digital form. Under the Harting Experts Camp label, the connectivity specialist is now offering a powerful platform to facilitate customer dialogue and communication. The platform will feature a wide range of product presentations, webinars, expert talks and much more. In a kick-off event the extensive program for the upcoming months was presented by the Harting Management.

"The industrial arena is undergoing far-reaching change: For Harting, this transformation means leveraging our key technologies and entering into targeted partnerships in order to pool skills and competencies capable of creating new solutions within the framework of our entire technology network," explained Philip Harting, CEO Harting Technology Group. "Our ultimate goal here is to develop these solutions in larger contexts and create ecosystems that generate significant added value for our customers."

Consistent communication architecture: Against the background of rising data volumes, companies need reliable industrial communication networks that are tailored to their specific requirements. Being able to access all relevant data in real time ensures significantly faster, more flexible and more efficient production processes. The Harting Technology Group is seeking to make a decisive contribution to developing an integrated communication architecture, from the sensor to the cloud.

SMALL ETHERNET INFRASTRUCTURES KEY FOR THE NETWORKED INDUSTRY

For many years, Harting has been setting milestones for future-proof connectors that meet these rising requirements, particularly with regard to their stability in challenging environments. Harting turned the RJ45 into the RJ Industrial®, created modular M12 interfaces with X-coding and PushPull locking, and set the next major milestone in Industrial Ethernet with the miniaturized ix Industrial® interface – which is 70% smaller than an RJ45, yet significantly more robust. ix Industrial® is one of the most important components in the HARTING solution portfolio for its All for Ethernet segment. A compact and powerful Ethernet infrastructure is the key to the networked industry of tomorrow!

INDUSTRIAL STANDARD INTERFACE FOR SPE T1 INDUSTRIAL AVAILABLE EX STOCK

Users can now make investments with a reassuring measure of security: IEC 63171-6, published on 23 January 2020, sets the basis for future IIoT networks. The international standards bodies ISO/IEC and TIA have declared the IEC 63171-6 interface as the standard for SPE in industrial applications. On this foundation, a comprehensive portfolio for the Single Pair Ethernet market is now emerging. The T1 Industrial interface is the first of its kind. The IP20 version is now available ex stock in field assembly format (AWG 28-22) and an overmoulded format (AWG 28-22).

SPE INDUSTRIAL PARTNER NETWORK GROWS TO 20 MEMBERS

Last year saw the foundation of the SPE Industrial Partner Network. As a registered association, the Network is more than just a loose association of companies with shared interests – it is a strong, legally binding community of partners. Consequently, it

provides the security required to implement this new physical layer. All the companies in the network are technology leaders in their own right; between them, they specialise in the various fields needed to strengthen and complete the SPE ecosystem. The common, unifying basis of their work is the international standardisation for SPE infrastructure in accordance with IEC 11801-x,



Harting Ha-VIS eCon 2080GX-I-A: Compact and efficient Full Gigabit Ethernet switch with ix Industrial® interface.



Han S° is the new secure connection technology for modular battery storage systems. The compact, flexible housings can accommodate contacts up to 200 A.

industrial production have expressed their support for IEC 63171-6 and joined the SPE Industrial Partner Network.

Han° S: Safe contacting of modular energy storage systems: In Han° S, Harting is – for the first time – introducing a special connector for battery storage modules. Global demand for electricity storage systems is booming. The new series meets the technical requirements of the latest standards for stationary energy storage systems (including UL 4128) and offers users optimum safety for the connected units. The single-pole connector solution with a 200A high-current contact is mechanically coded, is coloured red and black for easy identification, and locks intuitively. In this way, Han° S enables fast, reliable contacting of storage modules and enables the processing of large volumes.

Han° 1A: Miniaturised rectangular connector ideal for networking: The Ethernet networks sensors, machines, controllers, computers and data centres. Harting is now offering interfaces tailored to these applications as part of the miniaturized Han° 1A industrial connector series.

The Han° 1A features two new inserts for fast and secure data transmission. This can be used to supply end devices with up to 100 Mbit/s Cat. 5 Fast Ethernet for Profinet-based communication; a 10 Gbit/s, Cat. 6A version for High-Speed Ethernet is also available. The latter is used for live camera system applications.

High-performance switch with robust ix Industrial® Interface: Imaging processes are becoming increasingly important for quality assurance and monitoring in all industry sectors. New camera technologies offer higher resolution despite their increasingly compact dimensions. The new eCon 2000GX-I-A unmanaged Ethernet switches from Harting are high-performance Gigabit switches, enabling consistent networking of machine-monitoring and diagnostic systems via ix Industrial®.

FOCUS ON USER-OPTIMISED DC POWER TRANSMISSION

For the last 75 years, Harting has repeatedly set

IEEE 802.3 and IEC 63171-6. In the space of just a few months, numerous strong partner companies from various fields of

the standards for new industrial interfaces. One current trend – particularly challenging from a technical perspective – lies in the field of DC power transmission, where demand is forecast to rise sharply. To equip the field of application with the appropriate installation technology, Harting is promoting technology concepts that offer increased personal and plant protection. A novel connector for industrial applications transmits voltages of up to 800V and currents of up to 40A and cannot be removed when under load. In addition to the DC Industries working groups, HARTING is also engaged in the activities of the German Commission for Electrical, Electronic & Information Technologies (DKE) geared to drafting new standards. The project is based on cooperation with the SmartFactory KL.



Serial parts of the T1 Industrial interface will be available ex stock.

SOFTWARE SOLUTIONS FOR CLOUD AND EDGE: PARTNERSHIP WITH PERFECT

Harting is driving the development of new technologies forward. At present, we are keenly focused on establishing optimal connections between the field level and software solutions in cloud and edge computing. Harting RFID solutions, digital twin and the MICA° edge computing gateway operate at this interface. What's more, intelligent sensor technology solutions – which ensure seamless data exchange within networks – are also becoming increasingly important.

The partnership with PerFact, which Harting announced at the SPS trade fair in Nuremberg in November 2019, will be expanded in the field of software. PerFact develops customisable modules for servicing, maintenance, logistics and process management as IT solutions for industry.

More information at www.harting.com

Source: Harting

MAKING THE SHIFT

A cutting tools major is looking to bring a big change in the metalworking industry by making sustainability an integral part of its business.

Cutting tools major Dormer Pramet aims to lead a change in the metalworking industry by making sustainability an integral part of its business. At the core of this strategy is the use of new technologies and ways of working that deliver value for employees, customers and suppliers, brought together under a program called 'Make the Shift'.

This encompasses a wide range of initiatives and targets under four key headings: Circularity, Climate, People and Fair Play. A list of key actions and objectives are now in place with the aim to deliver all by 2030. This includes increasing recycling of its products and packaging material, reducing waste, lowering its CO2 impact, halving the total recorded injury frequency rate, developing a diverse and inclusive workforce and engaging in community involvement projects.

An example of the very tangible results already achieved by this initiative comes from Dormer Pramet's production and R&D department. Through international collaboration, a project team has made innovative technological developments which have enabled significant reductions in energy consumption and, at the same time, improved product quality.

By implementing new insulation on its furnace coating, the manufacturer improved the heating of its CVD coating reactor, significantly shortening



The sintering furnace at Dormer Pramet's indexable production unit.



By implementing new insulation on its furnace coating, the manufacturer improved the heating of its CVD coating reactor, significantly shortening cycle time.

cycle time. This not only improved the deposition conditions, which affects the evenness of the coating on inserts, but it also generated a positive environmental impact, reducing CO2 emissions by 25 tonnes per year.

Dormer Pramet also modified the sintering cycle during the production phase. This involved a redesign of the gas flow passing through the charge, enabling a more efficient furnace. The project succeeded in shortening the length of a single sintering cycle by 100 minutes (10% of the total length of the cycle), while maintaining the quality of the process.

A gradual introduction of this new technology began in 2019 and will continue during this year, with an expected reduction in CO2 emissions of 14.7 tonnes per year. This activity resulted in the company being shortlisted in Sandvik Groups' inaugural Sigrid Göransson sustainability award. The new accolade is given to employees who have contributed to a particularly innovative solution, which has a measurable and lasting impact on environmental, economic or social sustainability projects within the company or the local communities.

For more information, visit www.dormerpramet.com or contact your local sales office.



Through international collaboration, a project team has made innovative technological developments which have enabled significant reductions in energy consumption and, at the same time, improved product quality.



Dormer Pramet's headquarters in Sumperk, Czech Republic.

By Niranjana Mudholkar

AS GOOD AS NEW

A machine tool major's RETROFiT service provided many benefits for Renault Portugal by modernising used machines and bringing them up to the latest technical standards.

Junker's RETROFiT service provides many benefits for the customer by modernising used machines and bringing them up to the latest technical standards. Compared to purchasing a new machine, RETROFiT provides savings of up to 60 percent. Renault Portugal took advantage of this program and opted to retrofit two QUICKPOINT cylindrical grinding machines.

The QUICKPOINT cylindrical grinding machines selected for RETROFiT reliably produced gear shafts at Renault Portugal in three-shift operation for 19 years. The machines required no major maintenance during their nearly two decades of operation. Now, the machines are undergoing their retrofit at Junker. Renault re-installs the upgraded machines in their new production line of transmission shafts for cars requiring the Euro 6 emissions standard. The car manufacturer also purchased new QUICKPOINT machines for this project. The machines must produce with high precision and top-notch surface quality at maximum capacity. Nuno Almeida, Project Manager for production lines at Renault Cacia S.A., appreciates the reliability of QUICKPOINT cylindrical grinding machines and continues to trust the machine model. "We need top workpiece quality and very short cycle times. The QUICKPOINT has proven itself and is easy to operate."

THE JUNKER RETROFIT SERVICE

During a RETROFiT, the JUNKER service team checks the machine directly at the customer site. All components are inspected and documented. The expert team of the Junker Group considers the customer requirements and takes the latest safety regulations and technological advances into account when performing a technical upgrade of a machine. The machine conversion can take place at the customer site or at one of Junker's production sites in Germany, the Czech Republic, or Brazil.

INDIVIDUAL MODERNIZATION

Renault counts on Junker's RETROFiT service to modernise its QUICKPOINT machines at Junker's production site. Grinding and dressing spindles, as well as the workpiece spindle, receive new bearings,



alignment, and balancing. The infed spindles of the machine are completely renewed, and electrical, hydraulics and measuring system are upgraded. A control system upgrade ensures simplified operation and the required process reliability in the production line. Junker takes care of the entire RETROFiT process considering transport, modernization, installation, and startup back in the production line.

Most customers undergoing a RETROFiT usually need to create a buffer of workpieces to keep their assembly running smoothly. At Renault, the planning was somewhat simpler: upon completion of the machine upgrades, the modified machines will be installed in a new production line currently under planning, while the newly purchased QUICKPOINT machines filled in the gaps in the old production line in the meantime.

SIGNIFICANT BENEFITS

The Renault project shows that modernization is worthwhile for growing or restructuring companies. The Junker RETROFiT service offers numerous advantages: low investment costs, functional expansion through modern components, higher flexibility through new software, extended scope of application, and increased machining quality. Renault Portugal intends to continue modernizing its machinery with the RETROFiT service. According to Nuno Almeida, "in the next few years, the JUMAT grinding machines will also be overhauled. At the moment, these machines cannot yet work on the new gear shafts, but this can be changed with a RETROFiT." 

Source: Junker Group



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