A Times Group publication

THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

RNI No 71129/98

Volume 15 Issue 10 • October 2020 • Rs 75

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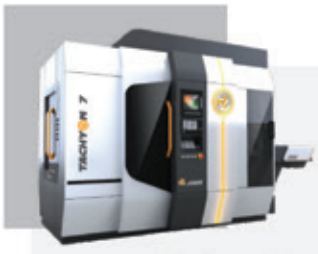

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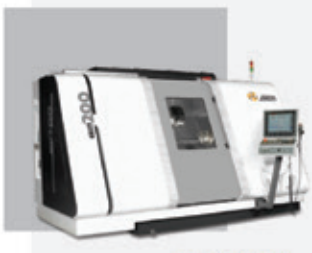

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GAME CHANGER MOVE!

For some strange reasons, the mainstream media has not sufficiently highlighted the important parliamentary reforms done last month. I am referring to the passing of the three key 'Labour Reform Bills' in the Parliament by the Government of India. I strongly believe that not only was this long due, but also it has the potential to be a game changer for the manufacturing industry. That's why the October issue's Cover Story is focussed on this all important issue. I completely agree with our Prime Minister, who has said that 'the reforms will contribute to a better working environment, which will accelerate the pace of economic growth'. In fact, while improving the work environment in way that's beneficial

"WHILE IMPROVING THE WORK ENVIRONMENT IN WAY THAT'S BENEFICIAL TO THE MANAGEMENT AS WELL AS TO THE EMPLOYEES, THESE REFORMS WILL ALSO HAVE A POSITIVE IMPACT ON INDIA'S EASE OF DOING BUSINESS."

to the management as well as to the employees, these reforms will also have a positive impact on India's 'Ease of Doing Business'. These reforms can also provide the much needed growth stimulus to our economy. Of course, it is equally critical for the administration to be on guard and ensure two things: 1. There is complete transparency, honesty as well as justice in implementation of the new laws, and 2. There is strict vigilance to ensure that there is no misuse of the same. If these two issues are addressed comprehensively, then India will gain substantially from these reforms.

Editor & Chief Community Officer

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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING
Volume 15 Issue 10 October 2020

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022 67427209 / 67427206

Printed and published by Joji Varghese for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at JRD Printpack Private Limited, 78, Resham Bhavan, 7th Floor, Veer Nariman Road, Churchgate, Mumbai - 400 020. Editor: Niranjan Mudholkar. Published for October 2020.

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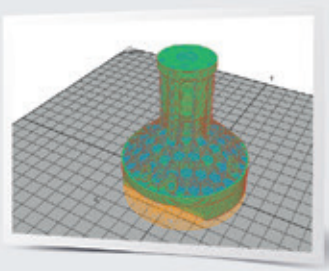

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BrahMos Missile with indigenous booster successfully tested

BRAHMOS surface-to-surface supersonic cruise missile featuring indigenous Booster and Airframe Section along with many other 'Made in India' sub-systems was successfully flight tested for designated range on September 30, 2020 from ITR, Balasore in Odisha. It is one more major step in enhancing the indigenous content. The BrahMos Land-Attack Cruise Missile (LACM) was cruising at a top speed of Mach 2.8. Raksha Mantri Rajnath Singh congratulated all the personnel of DRDO and team BrahMos for the spectacular mission. Dr G Satheesh Reddy, Secretary DD R&D and Chairman DRDO congratulated the scientific community and industry for this feat. This successful launch has paved the way for the serial production of the indigenous booster and other indigenous components of the powerful BrahMos Weapon System realising Atmanirbhar Bharat pledge.

UAE based Caracal to manufacture guns in India

CARACAL, UAE-based small arms manufacturer, has stressed in a statement "its commitment to the 'Make in India' initiative", after having previously been selected by the Indian Ministry of Defence in 2018 to fast-track the supply of 93,895 CAR 816 assault rifles to the Indian Army. Caracal has already identified the required land, facility and local partners to be able to commence production immediately. Over 20 percent of the components fitted on the CAR 816 are already made in India, with Caracal now making commitment to fully manufacture the rifles in-country, in alignment with the 'Make in India' initiative. The initiative will also see Caracal oversee technology transfer. The company already surpassed global competitors in terms of performance and technicalities to win the bid two years ago, and now confirms its readiness to service the fast track order from India within 12 months. Hamad Al Ameri, Chief Executive Officer, Caracal, said: "Having agreed to fast track the supply, and with the formalities still under discussion, we would like to reiterate our commitment to our bid and to the 'Make in India' initiative."

Funskool Goa plant gets BIS certification for electric toys

FUNSKOOL INDIA is the first Indian toy manufacturer to get certified by the Bureau of Indian Standards for Safety of electric toys – IS 15644 for the manufacturing plant based at Goa. Also, the Ranipet plant of Funskool is the very first toy manufacturing unit from South India to get the BIS accreditation. The BIS standardization was made mandatory for all toys designed or intended for use in play by children below 14 years of age, by the Ministry of Commerce and Industry, Government of India. While the deadline to secure the certification has been extended to January 1, 2021, Funskool has undergone the process of inspection and quality checks as prescribed by the Bureau of Indian Standards for their factories in Goa and Ranipet. Commenting on the occasion, R. Jeswant, CEO Funskool India, said: "With the BIS certification being made mandatory it will help the industry to compete with international manufacturers."

Tata Steel joins ResponsibleSteel

TATA STEEL is now part of ResponsibleSteel, the industry's first global multi-stakeholder standard and certification initiative that helps its members achieve their sustainability goals by providing an independent certification standard and programme via a process that aims to align with the ISEAL Codes of Good Practice. The ISEAL's Codes of Good Practice offers a globally recognised framework used by credible sustainability standards that all ISEAL members are required to comply with. TV Narendran, CEO & Managing Director, Tata Steel, said: We are pleased to become a member of ResponsibleSteel, the steel sector's first and only globally present, multi-stakeholder standard and certification initiative for sustainability. We have always emphasised our commitment to sustainable business practices and responsible supply chains. We view sustainability as integral to our business and our policies demonstrate our commitment towards sustainable development and guide us in formulating and implementing our long-term sustainability strategy. Ali Lucas, Executive Director, ResponsibleSteel, said: "As one of the world's leading steel producers, Tata Steel will bring huge depth, breadth and influence to help us achieve our mission and goals."

Tube IIL to acquire CG Power

THE COMPETITION COMMISSION OF INDIA has approved acquisition of shares in CG Power and Industrial Solutions Limited (CG Power) by Tube Investments of India Limited (TIIL). The proposed combination envisages acquisition of more than 50 percent of the equity share capital of CG Power by TIIL. TIIL is a listed entity and forms part of Murugappa group. It has three business verticals viz. engineering, metal formed products and bicycles. It is engaged in the manufacture of products for automotive, railway, construction, mining and agriculture industries. CG Power is a listed entity. It has two major business units viz. power systems and industrial systems. The power systems business unit focuses on power transmission, distribution, power solutions, setting up of integrated power systems and associated services businesses.

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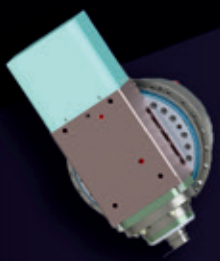

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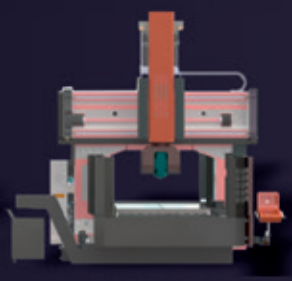

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Dalmia-OCL launches magnesia carbon line

DALMIA-OCL LTD has launched a new refractory line for production of Magnesia Carbon (MgO-C bricks) at its Rajgangpur plant in Odisha. The production line will have a capacity of 108,000 tonne and cater to the demand of domestic steel manufacturers. Once fully commissioned, this will be India's largest refractory line for production of Magnesia Carbon Bricks and promises to cut nation's import dependence by up to 50 percent. The refractory line, which has been set up under Dalmia-OCL's initiative of 'Bharat ki Factory mein Bharat ki Refractory', will come up in three phases of 36,000 tonne each. This product is widely consumed by the steel industry and most of the current demand (approximately 300,000 tonne annually) is met through imports. With the launch of the new manufacturing line, the company aims to substitute imports with locally manufactured MgO-C bricks and expects to capture 25 percent market share. Subsequently, the company plans to export these bricks to Europe and other key steel markets across the globe. The company has made a cumulative investment of Rs 50 crore in the past two years and expects its total refractory business to grow by 50 percent in the next five years.

Bombardier unveils semi-high-speed train design for India

BOMBARDIER TRANSPORTATION and India's National Capital Region Transport Corporation have recently unveiled the train design for India's first Regional Rapid Transit System (RRTS). Bombardier was awarded the contract by NCRTC earlier this year to design, build and deliver the regional commuter and intracity transit trains with comprehensive maintenance services for the Delhi-Ghaziabad-Meerut semi-high-speed rail corridor under RRTS Phase 1. The fresh, modern and advanced nature of the new train design is inspired by Delhi's iconic monument, The Lotus Temple, resonating a unique amalgamation of sustainability and India's rich heritage. "These energy-efficient trains with exceptional ergonomics and low life cycle costs will contribute towards making India's first RRTS futuristic and sustainable. Clubbed with state-of-the-art commuter centric features, RRTS is going to transform the way people travel in NCR and set a new benchmark for similar projects in the future," said Vinay Kumar Singh, MD, National Capital Region Transport Corporation (NCRTC).

Schaeffler India signs MoU with TISS

SCHAEFFLER INDIA has signed a Memorandum of Understanding (MOU) with the Tata Institute of Social Sciences (TISS) to implement a National University Student's Skill Development (NUSSD) - recognized project, aimed at providing skills training to 350 graduating students from Vadodara. The objective behind this program, which is fully funded by Schaeffler India, is to provide skill training to graduating college students to enable them to better understand and enhance their job-related skills. The initiative covers training in eight diploma courses - Banking & Financial Markets, Export & Import Management, Hospital Management Services, Entrepreneurship, Digital Marketing, Travel and Tourism, Pharmautical Sales Management and Retail Management. Selected students will receive classroom training for around 4-6 months at the Schaeffler HOPE NUSSD Training Centres established in three colleges in Vadodara and thereafter will be sent to relevant industries for internships or on-the-job-training for 40 days. The curriculum aims to empower 300 students through wage employment and remaining 50 students through Startup Community / Entrepreneurship Development.

Mahindra farm equipment sector grows 18 percent over last year

MAHINDRA & MAHINDRA LTD.'S Farm Equipment Sector (FES) has announced its tractor sales numbers for September 2020. Domestic sales in September 2020 were at 42,361 units, as against 36,046 units during September 2019. Total tractor sales (Domestic + Exports) during September 2020 were at 43,386 units, as against 37,011 units for the same period last year. Exports for the month stood at 1,025 units. Commenting on the performance, Hemant Sikka, President - Farm Equipment Sector, Mahindra & Mahindra Ltd. said, "We have sold 42,361 tractors in the domestic market during September 2020, a growth of 18 percent over last year. Retail demand continued to be buoyant backed by a very good monsoon, higher kharif acreage and continued government support, including higher MSPs for key crops. We are looking forward to a very robust demand for the festive season ahead. In the exports market, we have sold 1,025 tractors, a growth of 6 percent over last year.

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By Surendra Vaidya

PPP PUSH TO ATMANIRBHAR BHARAT

The government's decision on banning more than 100 items from the import list is a clear push for making Atmanirbhar Bharat a success. It has also helped in bringing clarity to the business opportunities that lie herein.

The Public Private Partnership Model (PPP) has been in consideration for over two decades but was limited only to discussions and drafting various proposals on how to make it work successfully. The main challenge was that we did not have the numbers to forge a partnership.

"In the PPP model, we did not have access to technology and the only option was engaging in a TOT with foreign OEMs. This has now been made possible by DRDO announcing 108 technologies that it is ready to share and also provide support in testing and certification."

Public enterprises like Ordinance factories, PSUs and R&D labs have excellent infrastructure, expert teams of scientists and engineers and a large fleet of operators, but they lack project managers and the push for productivity. The private industry players, however, bring in agility and the ability to scale up quickly. The government's decision on banning more than 100 items from the import list is a clear push for making Atmanirbhar Bharat a success. It has also helped in bringing clarity to the business opportunities that lie herein.

In the PPP model, we did not have access to technology and the only option was engaging in a TOT with foreign OEMs. This has now been made possible by DRDO announcing 108 technologies that it is ready to share and also provide support in testing and certification. This will now force us to re-look at the PPP model and make it successful as we may not get a second chance.

The customer will continue to judge our performance on quality, cost and delivery (QCD). We have been using well established platforms imported from global OEMs. Our maiden attempts to design, manufacture and supply will naturally be compared, and the same standards are required to be maintained. As we start afresh, our volumes are going to be limited with sourcing and manufacturing costs likely to be on the higher side. Also, the global situation and that at the borders will shorten the timelines for production. So even though we see a huge business opportunity, I see that we have a lot of challenges like risk management, supply chain management and technology development with sustenance. So, unless and until one is ready to invest heavily in infrastructure, manpower and test facilities with or without current OEMs, it is going to fall short of one of the three parameters of QCD.

"

So, unless and until one is ready to invest heavily in infrastructure, manpower and test facilities with or without current OEMs, it is going to fall short of one of the three parameters of QCD.

A solution which most of the countries figured out in their initial stage was the formation of clusters and sharing of risks and resources. I think we address such a time-tested model in India as PPP and I strongly believe that we should start implementing rather than debating it further and learn how we can perfect it in the coming days.

I would like to also add academia in this model to make it complete. While we are focusing on the final product, we cannot neglect fundamental research which is best done with students and professors also helping them with Masters and Ph.D candidature. Finally, I would also extend this to start ups and MSME who really bring disruption and at lightning speed. With all this coming together, we will be able to generate IP with India and further modifications and servicing of our own products over the complete life cycle of the product.

In summary, I am thrilled that the Government of India has announced and clearly defined what is expected out of Atmanirbhar Bharat and has given us a good start. It is now up to the Industry and other stake holders to take it further to its logical conclusion.

The author is EVP and Business Head, Godrej Aerospace

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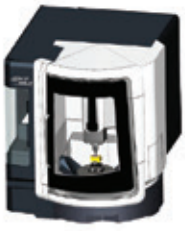

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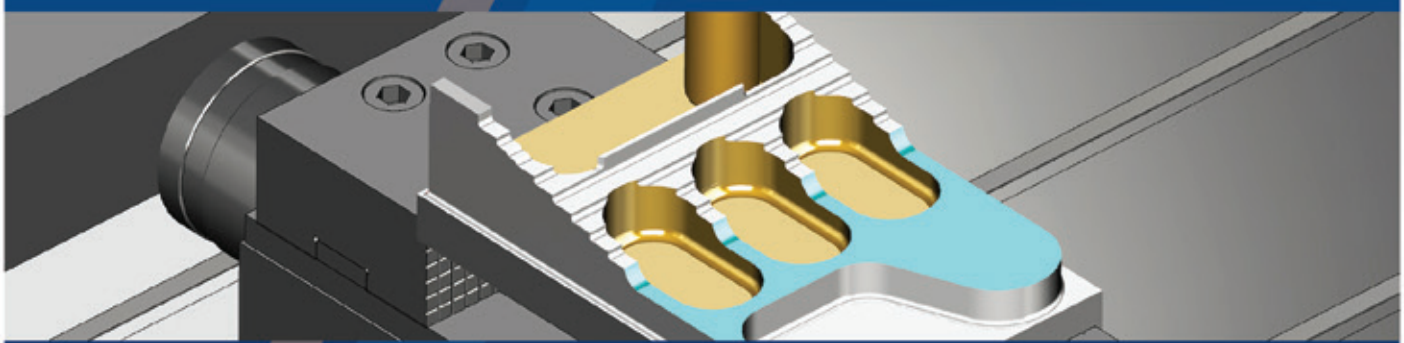

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By Niranjan Mudholkar

READY FOR THE NEXT LEVEL

'With the announcement of Government's Atmanirbhar initiative, we are confident that the industry will take up the future challenge and focus on deploying world-class technologies and processes along with upgrading the skills of its workforce,' says **Raju B Ketkale,** Deputy Managing Director, Toyota Kirloskar Motor (TKM)

The September 2020 numbers have been heartening for the passenger car segment in India. How satisfied are you with the performance of Toyota Kirloskar Motor (TKM) for last month?

The month of September has been our best month so far, ever since the pandemic hit us in March 2020. In September, we sold 8,116 units clocking a growth of 46 per cent when compared to the wholesales in August. We are seeing demand pick up and a lot more confidence in our dealers. Further, in terms of production, our manufacturing side has gone back to two-shift production a day, thereby supporting us to keep up with the demand. Besides, in the recent past most companies have made new launches which will also add to the demand going forward. TKM also announced the launch of Urban Cruiser in September, received very good response from the market. Pent-up demand as well as the onset of the festive season have also helped in boosting sales.

Are you expecting the festive season to bring more cheer to the industry in general and TKM in particular?

The demand so far has been gradually increasing over the last few months and September in particular has been good in terms of enquiry and customer orders and in view of this we expect that there will be good demand during the festive season particularly from Tier 1 and Tier 2 cities. Keeping in mind the requirements of the consumer, we have also launched the subscription and the leased option to give greater flexibility for the consumers in Delhi-NCR, Bangalore and Mumbai in the first phase. In order to further boost sales and overcome harsh market conditions environment we are making every effort. This includes improving our products, offering better services, enhancing customer delight and digitalisation of our sales operations. The recently launched Urban Cruiser has received good response and we are truly touched by the overwhelming interest from our consumers and good number of bookings has been received so far.

"We are seeing demand pick up and a lot more confidence in our dealers. Further, in terms of production, our manufacturing side has gone back to two-shift production a day, thereby supporting us to keep up with the demand."

How would you analyse the 'Atmanirbhar Bharat' campaign in the context of the Indian automotive industry?

The Indian auto industry has been growing steadily over the last two decades and has significantly contributed to the growth of the economy and has been enhancing the country's global competitiveness. Over the years, the industry has made rapid strides in quality enhancement, exports and cost competitiveness and in particular the auto component industry is globally competitive with high level of localisation. Especially,

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India is now becoming a manufacturing hub for export of casting and forging auto parts and components. With the announcement of Government's Atmanirbhar initiative, we are confident that the industry will take up the future challenge and focus on deploying world-class technologies and processes along with upgrading the skills of its workforce. Going forward, these focussed efforts will help create a strong self-reliant ecosystem that would further enhance global competitiveness and make India a global manufacturing hub.

> "The Indian auto industry has been growing steadily over the last two decades and has significantly contributed to the growth of the economy and has been enhancing the country's global competitiveness.

The Covid-19 pandemic has adversely affected the entire automotive ecosystem. However, the MSMEs have been really hit very hard. While the government has announced its packages for the MSMEs, what more do you needs to be done to enable them to get back into the business?

The Government of India has already taken some key decisions to enhance liquidity and support MSMEs due to the severe effect of the pandemic. These support packages have brought about the much-needed liquidity to overcome the liquidity crisis to keep the units operational and protect jobs during the initial phase of the Covid-19 impact. To sustain the MSME sector as they play an important role in the supply chain and to further enhance their competitiveness, this sector needs technology transfer, skilling programs and process automation development for achieving high quality products. Most important, the demand side needs a major push as volumes will make long-term investments into processes, people and technology feasible for the auto parts makers and OEMs benefitting the entire value chain.

> "Due to our localisation efforts, the significant magnitude of parts has been localised and we were able to run our production smoothly without any impact.

The impact of the Covid-19 pandemic on the automotive industry has once again underlined the significance of having a supply chain that is agile, flexible, globally competitive and self-reliant. What is Toyota Kirloskar Motor (TKM) doing towards achieving this goal?

In the last two decades, our focus has been on building self-reliant value chain and hence we have been consistently working towards increasing the supplier base through deep localisation of parts and components thereby empowering local suppliers to transform into world-class manufacturers promising quality and cost at par with global standards. Due to our localisation efforts, the significant magnitude of parts has been localised and we were able to run our production smoothly without any impact. We would also like to share that our flagship IMV products have a localisation level averaging about 85 percent. At TKM, we are closely working with our supply partners sharing knowledge, developing human resources for global standards and continuously improving product quality and becoming cost competitive.

Tell us how you are ensuring that your suppliers follow the same stringent quality standards that TKM adheres to.

Our suppliers are important stakeholders in the value chain; we work with them very closely by sharing our quality standards, knowledge and continuously making improvement to be globally competitive. In this direction TKM has made tremendous efforts and investment in processes and human development. To support our suppliers, we spend about 40,000 man-hours every year to enhance processes through system, management, training and hardware development. Further, another 8,500 man-hours are spent per year on people development. We always implement our ideas within TKM first and then showcase our success stories to our suppliers, so they are encouraged to adopt them. In addition, we also believe in the integration of sustainability in the supply chain that is crucial to deliver long-term results and competitiveness. TKM has created various platforms to share our learning, experience with our supplier partners.

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By Niranjan Mudholkar

PREPARING FOR TOMORROW

Health and well-being of employees and facilities have been the focus of all manufacturing facilities and will continue to hold the top priority status for the future as well. The next step has been continuing manufacturing in a safe and cautious manner. And finally, retooling and preparing for tomorrow, says **Sameer Mathur,** Chief Operating Officer, Schaeffler India

Considering the contingency plans implemented during the pandemic to ensure efficient operations, how can manufacturing leaders leverage on the current learnings for the future?

Well the crisis that the pandemic has led to was totally unexpected and unprecedented. It is during the crisis did manufacturers across the world realise that we have not prepped enough for a pandemic situation ever. I think that has been the first and foremost learning for all of us. But, we at Schaeffler India strongly believe that every crisis teaches us a new lesson and we have learnt ours. No doubt, this unprecedented situation has been challenging and we know that Covid will not last but it will have a lasting positive effect on the workplace. Besides, implementing new ways of working, bringing more formality, discipline and regiment into the shop floor working life, I believe, this would have a positive impact on relationships at the workplace, help improve productivity and raise quality standards. Much as this situation has created a disruption, it has also brought about new sense of belonging and togetherness among teams.

For us at Schaeffler India more than following the MHA guidelines the challenge was to work out the new layouts of working. The most significant change that we made was to work in clusters, the old reference of working in tight layouts have been totally forgotten. The emphasis on restricting people interaction and therefore forming clusters or small groups for working on the shop floor has been most consuming. Previously, we were looking at lean manufacturing, Chacku-Chacku principles etc. but now there is a complete change in mind set on that. We are learning on a daily basis. We are focussed on safety of employees and that is our primary responsibility but at the same time we want to have a sustainable and stable operation along with following protocols that are laid out by the authorities.

Do you think technology and digitalisation will play a bigger role than ever before as we shape the new normal?

Yes, I would say in the current situation, there would be a lot of acceleration that could take place in this direction. But trying to say that we will be in a position to implement robotics, automation, artificial intelligence and big data within a short period would be committing a little too much. India is a cost sensitive market and analysing the benefits that we get out of those investments is an important part of the larger picture. But rightly spoken, there would be a lot of changes that would take place or rapid adoption towards remote diagnostics and collaborative pools that we will be adopting to as well.

There is a lot of work that has been done on that front at Schaeffler globally. And I presume there are solutions which are available, and we do intend to bring those solutions to India as well. We have plants which are as old as 50 years and there are plants which are recently constructed in 2000. Automated or robotic solutions would be easier to implement at the new plants compared to the old ones. We would need to make some changes at the old plants to ensure that the new technologies are implemented there.

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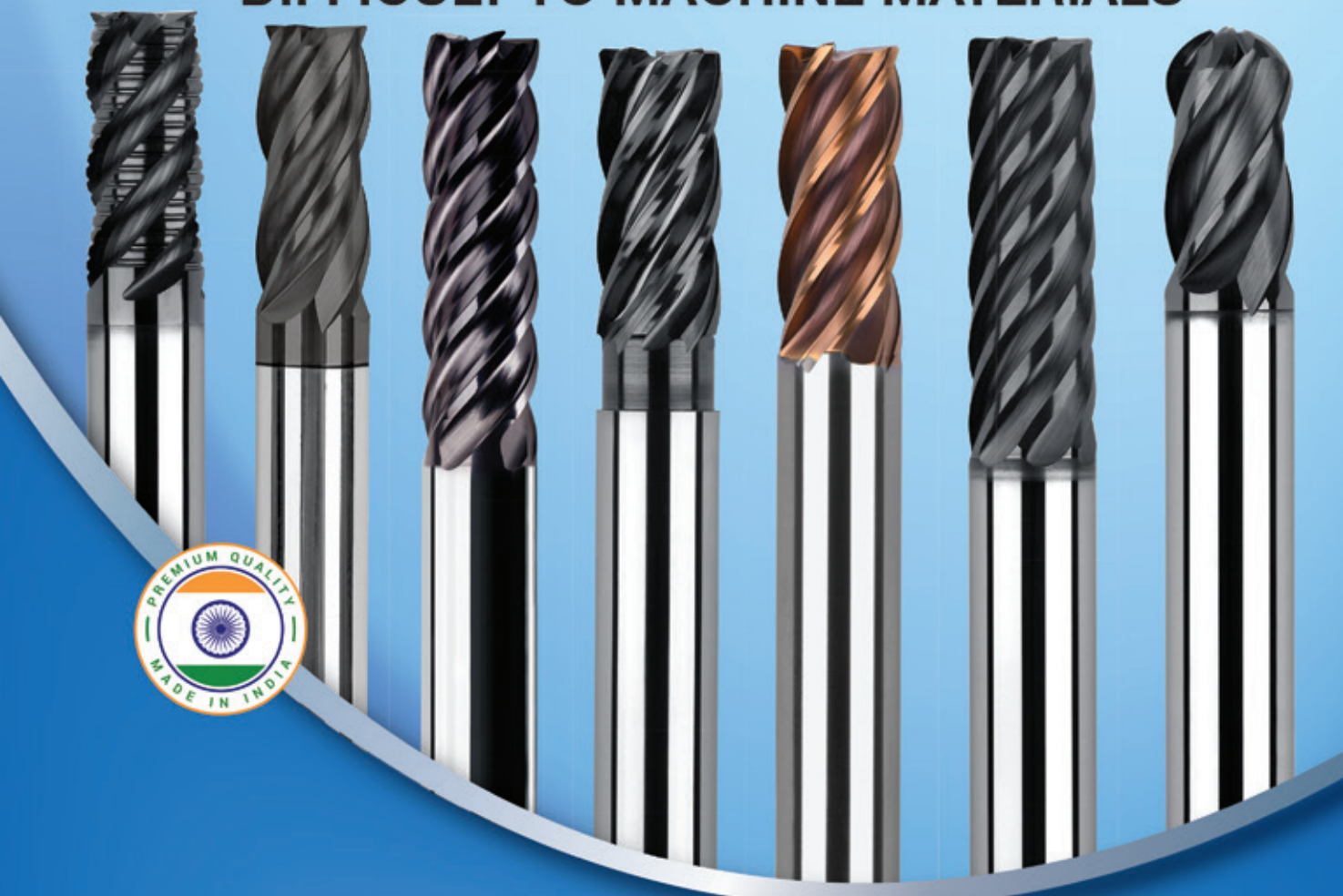

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"Factories and manufacturing plants are an important entity of organisations and therefore managing the operations will continue to be an important aspect."

What supply chain operational changes have been made and with what new safeguards?

Role of suppliers have been evolving from providing simple components to providing system solutions and this is an emerging trend in all the developing economies. This positively requires skills and capabilities as well as the willingness of the customer partners to be willing to share technologies and capabilities.

Schaeffler as a supplier has made tremendous steps in this direction and we are no more just a component supplier but system suppliers too. At the same time, Schaeffler has ensured to keep only the core technologies within Schaeffler which finally determines the quality of products and developed a fleet of Suppliers in India for doing non-core operations. From that perspective, it is extremely important that suppliers also move up the value chain – in terms of reliability, efficiency and quality. We have created a structured program for suppliers to help them move up the value chain and this has positively helped us in reducing investments at the same time optimising costs. In the process, we still continue to develop our own capabilities in those technologies so as to keep pace with the development.

Travel patterns have obviously changed for shopfloor employees. What implications does this have for the manufacturing operations?

Owing to the pandemic, there have been many changes that have been made travel being one of them. We have enforced travel ban across the organisation and non-production staff are working either remotely or from respective offices for limited days as per government protocols.

As a manufacturing organisation, our plants cannot remain idle and moreover, we are also seeing customer demands coming up. So a lot of planning is being done on a daily basis as per production schedules to ensure all safety precautions are adhered to. Right from coming into the plant, to going into the manufacturing bay, a strict protocol continues to remain in place. We have changed the layout for our shopfloor employees and have started implementing the cluster working format. In this format all employees are divided into small clusters and therefore the travel pattern is also based on these clusters. We have been working like this for the past two quarters and these systems will continue to remain in place, till we don't find a solution to deal with this pandemic.

So, to sum it up, safety and hygiene is of utmost priority and it is our collective responsibility to maintain a safe working place for our employees.

Will physical factories, as we know them, remain the same in the New Normal?

Factories and manufacturing plants are an important entity of organisations and therefore managing the operations will continue to be an important aspect. Now, when we talk about the 'New Normal' things are surely going to change and that process has already been initiated across. The few things that come to mind right away is Safety and Hygiene being maintained at the plants. These have always made a good discussion but with the new normal setting in, the implementation of the same is at the top priority for the management teams across organisations. The other most revolutionary change that the new normal has brought in is the way operations are being handled at plants. Our concepts of lean manufacturing and tight layouts have been completely disrupted and new layouts of cluster formations have been introduced and is here to stay for sure. Limited physical interactions between employees has become the top priority.

What will future manufacturing strategies look like?

The unprecedented challenges that we are facing due to COVID-19 has also opened up opportunities. The lockdown period gave most enough time and scope to prepare and realign to the new normal that we were heading into. We have been able to reassess our business strategies, needs and approaches. We strongly believe that with the right approach and behaviour, we can have a positive impact not only on the organisation but also on the business and the society around us. Health and well-being of employees and facilities have been the focus of all manufacturing facilities and will continue to hold the top priority status for the future as well. The next step has been continuing manufacturing in a safe and cautious manner. And finally, retooling and preparing for tomorrow.

We strongly believe that three factors – 'Predictability, Adaptability and Agility', will play a huge role in defining the organisational performance in the new normal. Customer centricity has been of utmost importance for us and we continue to remain closely engaged with our customers at all times. Our capability to predict and forecast our fast-changing customer needs, our mental preparedness towards the impending changes and our agility in responding to the change ahead of the competition stands us in good stead.

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By Niranjan Mudholkar

PREPARED FOR FUTURE

A key step in risk mitigation against future disruptions will be the creation of flexible operating models, increasing automation and reliance on technology to minimise human interface, says **Rajendra Chunodkar,** President – Manufacturing Operations, Lupin Limited.

Has Covid-19 put you through the toughest leadership test of all times?

A humanitarian crisis of the scale of the COVID-19 pandemic has ushered in a period of great uncertainty and change. While industries and individuals are grappling with the challenges, the global pharmaceutical industry has taken center stage in the fight against COVID-19.

Our contribution during this critical time ranges from vaccine development, research on repurposed and novel medicines, while ensuring supply of essential drugs amidst unprecedented disruption. The industry is also supporting the frontline workers and the needy, all while safeguarding the health and safety of our employees. Despite the multiple headwinds, the pharma industry has risen to meet the challenges head on.

To do all this and be prepared for more, all leaders have had to call upon great reserves of strength, previous learnings and the ability to think out of the box so that daily challenges can be met and new ones anticipated.

How has the Covid-19 pandemic impacted Lupin's operations?

Being a part of Essential Services, the pharma industry was particularly responsive to the disruption caused by COVID-19 and took exemplary and expedited steps to ensure business continuity. At Lupin, we outlined two main priorities, to keep our employees safe and to maintain our supply of life-saving medicines for the patients and communities in need.

"To deal with the Covid-19 challenges and be prepared for more, all leaders have had to call upon great reserves of strength, previous learnings and the ability to think out of the box so that daily challenges can be met and new ones anticipated."

Our manufacturing leaders stepped up to ensure that while we continued manufacturing our much-needed essential medicines, the safety of our people was not compromised.

Our manufacturing and supply chain teams responded with characteristic agility to ensure supply continuity while we rapidly adapted to new ways of working for our manufacturing, research, field and office staff. Right from screening and ensuring social distancing at work or in cafeterias, to using Personal Protective Equipment (PPE) at all times, we left no stone unturned. Our supply chain and procurement teams also ensured optimal supply of PPE and sanitisation materials, while there was an ongoing global shortage.

To overcome any input material disruptions and logistic challenges, our commercial and operational teams worked closely with our customers and government agencies to ensure that we are able to maintain a consistent supply of our products, including those being used for the treatment of COVID-19. The Government of India had announced several incentives earlier for setting up API units domestically to boost manufacturing within India and mitigate risk of supply chain shocks from external sources. We used this opportunity to reassess our manufacturing footprint, de-risk in-line products and engrain flawless execution as a key differentiator. The rapid execution and speed of socialising these best practices globally, demonstrated our agility and spirit of excellence.

What are some of the pre-covid measure implemented at Lupin operations that have enabled efficient operations despite the impact of the pandemic?

Pharma manufacturing in general requires special precautions, a clean environment and other measures such as donning head gear, a mask, full body garments, i.e., changing into uniform while on premises, hand sanitisation, an efficiently designed air handling system which avoids carrying microorganisms during the operations, etc. So, when COVID specific preventive meas-

ures such as masks, protective garments, frequent sanitisation, social distancing, etc. were required to be introduced, majority were already in place at Lupin.

For efficient supply chain management in pharma, redundancy or back up is very important for raw materials and packing material supply as well as an alternate approved manufacturing site for the same product. This helped Lupin to maintain continuous supply of medicines to patients in need, whenever there was an issue with a certain supplier or any of our manufacturing sites.

Lupin also always maintains a healthy inventory level of raw materials, APIs and finished products, which greatly helped during the early stages of the Lockdown when we experienced disruption in logistics.

> "The interest in AI arises not only to substitute humans, but to support them in their daily work. Similarly, high-performing robots can work faster for longer periods at plants. Hence, we see that Industry 4.0 adoption would unleash cost optimisation possibilities and drive efficiencies in ways never imagined before.

Considering the contingency plans implemented during the pandemic to ensure efficient operations, how can manufacturing leaders leverage on these learnings for the future?

The COVID-19 pandemic was an unforeseen event for most and put lot of stress and strain on operations and personnel to proceed with operations in a safe manner. No pandemic has caused so much disruption compared to COVID-19. But as we have formulated and have new procedures and protocols in place now for such pandemics, we are better prepared for similar disruptions in the future.

Can manufacturing companies use AI, machine learning and data analytics to predict disruptions and develop training simulations to mitigate risks related to the health and safety of their workforce to increase organisational resilience?

A key step in risk mitigation against future disruptions will be the creation of flexible operating models, increasing automation and reliance on technology to minimise human interface.

The increasing need for social distancing and contactless operations has prompted several innovations in processes and operational procedures, entailing investments in new equipment and software and data analytics where required. For example, a simple camera with thermal sensors and facial recognition AI software can instantly detect people with fever. These are being used at our factories now. Another technology uses BLE (Bluetooth Low Energy) beacons such as worker badges, or their smartphones. Using inputs from these, AI can determine the distance between co-workers in real time and if the threshold is exceeded, a warning signal is sent.

Manufacturers want to be able to keep producing and selling during an unstable period. To be able to continue, they will need to adapt quickly to inculcating AI and automation in their processes.

It is important that for contactless operations, paper documentation / approvals are avoided and we are in the process implementation of eDMS, eLog books, eBPR, LIMS, QAMS across our network. Also implementation of automation and robotics are being accelerated across all our manufacturing locations. This will help us not only for contactless operations, but for efficient and cost effective operations.

Many departments at organisations can work from home. The interest in AI here arises not only to substitute humans, but to support them in their daily work. Similarly, high-performing robots can work faster for longer periods at plants. Hence, we see that Industry 4.0 adoption would unleash cost optimisation possibilities and drive efficiencies in ways never imagined before.

What are some of the major changes that the industry needs to bring with regards to the working environment and culture in the New Normal?

Being a part of essential services, the pharma industry has been particularly responsive to the disruption caused by COVID-19 and taken exemplary and expedited steps to ensure business continuity. In fact, the operations model of pharma companies even became a ready working model for resumption of manufacturing operations across industries.

> For efficient supply chain management in pharma, redundancy or back up is very important for raw materials and packing material supply as well as an alternate approved manufacturing site for the same product. This helped Lupin to maintain continuous supply of medicines.

However, in light of the pandemic the industry will also witness massive shifts in R&D, supply chain, operations, digital adoption and talent management. Companies will also have to balance the twin imperatives of maintaining limited headcount and ensuring 100 percent productivity at sites.

At Lupin, we are using this challenge as an opportunity to become more resilient, by upskilling of talent and equipping our people with abilities to work remotely, with a deeper understanding of digital possibilities enabling us to be more efficient and more focused on introducing quality, affordable treatments to market faster to help improve outcomes for patients.

We expect pharma digitisation to result in positive outcomes for research, manufacturing, quality, commercial and other allied operations. An increase in digital promotional activity is also expected with physicians advocating for more patient engagement on virtual platforms and marketing promotions moving onto the virtual space.

However, the industry must also ensure compliance with regulations when dealing with sensitive information. Employees too need to inculcate a safety-first mindset and be receptive to changes in working patterns and privacy norms with requests for recent health and travel information becoming common.

Lupin's Tarapur and Goa sites have implemented centralised Data Acquisition System for real time data capture in manufacturing operations to reduce human errors. Tell us something about the effectiveness of the same.

Our Centralised Data Acquisition System (CDAS) captures all the data generated from various machines, instruments and equipment at a centralised place. The process of manually recording data can now be completely avoided after the implementation of the CDAS at these two sites. These also prevent the transcription errors.

The more important aspect of CDAS is that it is a stepping stone for Data Analytics. We have a plan to use the data analytics for optimising the set process parameters to improve cost efficiency and minimise our 'Out of Specification' batches. Also, the data generated can be used in predictive maintenance to improve the availability of equipment thus increasing the capacity of the plant.

Since Lupin has manufacturing operations at different geographical locations, what have you done to bring operational harmony in the New Normal?

Lupin has corporate policies and procedures for manufacturing operations, quality systems, infotech, environment, health and safety. In the new normal, the amended procedures are followed at all our manufacturing locations. For any new amendments in the policies, we have training sessions as well.

There is an increasing awareness towards adoption of renewable energy sources by manufacturing plants. What is Lupin doing in this regard?

"

The industry has an ambitious vision of achieving industry revenue goal of US$ 120-130 billion by 2030 from the current US$ 43 billion. Pharmaceutical exports should quickly evolve into a key pillar of India's overall trade expansion and diversification strategy.

As a leading pharmaceutical player supplying medicines to over 100 countries across the globe, our sites are certified by all relevant regulatory bodies. Through our environment, health and safety measures we ensure that our procedures and practices in manufacturing our products meet the highest international benchmarks. We continue to upgrade and invest in infrastructure to create a greener footprint of our operations whilst investing in our employees' health and safety through training, process overhauls and technology deployment.

In FY20, our consumption of energy from both renewable and non-renewable sources was 2,981,239 GJ. Of the total energy used in our manufacturing plants and R&D center, 10.3 percent comes from renewable sources. We have also started switching over from furnace oil to cleaner fuel for several of our facilities. To further reduce dependency on fossil fuels, we have installed solar power panels at almost all our facilities.

We have also taken steps to significantly reduce our energy consumption. 2,175 GJ energy was saved by replacing conventional sodium vapour and fluorescent lights by LED lights at five of our API sites. We have installed of motion sensors in offices and warehouses to optimise energy utilisation. We have also introduced plate heat exchangers for hot water generation, installed capacitor banks and heat pumps.

Learings from Covid-19

Some of the learnings from the contingency planning during Covid -19 which will be useful to us in the future as well are:

a. To have a spread geographically for operations and also target markets.
b. To operate with a higher level of inventory than that recommended by statistically derived calculations.
c. To have multiple sourcing options for Raw and primary materials and derisk the supply chain.
d. Vendor maintenance support can happen remotely by video calls which also helps reduce cost.
e. Physical meetings and travel can be optimised.
f. Paperless activity and digitalization can be improved further.

It has been often said that India has the potential to become the 'pharmacy of the world' in terms of manufacturing prowess. What needs to be done to achieve this vision – both from the industry perspective as well as from the government point of view?

The Indian pharma industry has been playing a significant role in driving better health outcomes across the world through high-quality and affordable generics for years now. Currently, India is the world's largest provider of generic medicines accounting for 20 percent of global generic drug exports in terms of volumes and also has the second-largest number of US Food and Drug Administration (FDA) approvals. India supplies over 60 percent of the global demand for ARV drugs and various vaccines.

Native pharma firms have been quick in capitalising on export opportunities across markets. The pharma exports from India, which include bulk drugs, intermediates, drug formulations, biologicals, Ayush and herbal products and surgicals stood at US$ 16.28 billion in FY20.

However, for long-term value creation, the industry must turn towards complex generics, specialty products and biosimilars. Both complex generics and vaccines present an opportunity to increase the value share of innovative drugs from three percent to 10 percent primarily via exports. The industry has an ambitious vision of achieving industry revenue goal of US$ 120-130 billion by 2030 from the current US$ 43 billion. Pharmaceutical exports should quickly evolve into a key pillar of India's overall trade expansion and diversification strategy.

Some key government interventions such instituting measures to ensure that Indian drugs remain export competitive, with suitable policies to help offset costs, should be prioritised, The government should also consider introducing concessions to help lessen production costs for Indian companies. There should be an increased engagement by Indian Missions abroad to be able to leverage full potential of the pharma industry in newer destinations. Lastly, there is a need to enhance engagement with governments of major export markets to lower regulatory barriers.

By Niranjan Mudholkar

The Government of India has recently passed three key labour reform bills. This long due and much awaited enhancement in the governance structure is likely to usher in a new era of progress and development.

In a historic policy reform, the Government of India led by Prime Minister Narendra Modi has passed three key Labour Reform Bills in the parliament recently. PM Modi has himself hailed the same by saying that 'the reforms will ensure well-being of our industrious workers and give a boost to economic growth'. Describing them as shining examples of 'Minimum Government, Maximum Governance', the PM further added that the reforms will contribute to a better working environment, which will accelerate the pace of economic growth.

Deepak Sood, Secretary General, ASSOCHAM, has termed these labour reforms as a critical structural change that would bring about a new paradigm of the business environment. "Combining 29 different labour laws into four Codes would not only make compliance a lot easier but also boost investor confidence - both domestic and global, as competitiveness increases. The labour reforms must be viewed as a Win:Win for the employees and employer. The flexibility would rather result in the generation of additional employment, as has been clearly brought out by such a dispensation in Rajasthan," Sood told The Machinist.

Aditi Sharma – Vice-President - Quality, Manufacturing, HSE, Cummins India, calls the Labour Reform Bills as 'a positive step towards Atma Nirbhar Bharat'.

"Combining 29 different labour laws into four Codes would not only make compliance a lot easier but also boost investor confidence - both domestic and global, as competitiveness increases. The labour reforms must be viewed as a Win:Win for the employees and employer."

Deepak Sood, Secretary General, ASSOCHAM

She further explains: "We have been seeing several reform measures in recent times being implemented to boost the Indian economy. The merger of the central labour laws into four codes is a big and a welcome step towards addressing the recent challenges of staggering economy. India has always been trying to attract foreign investments but easing of stringent regulations is the key enabler. The labour reforms are a positive step towards that, coupled with the recent rationalisation of tax regime and few other upcoming measures. Although it might be criticised that the labour reforms might make the workforce more vulnerable, but I feel that this was a much-needed reform which would act as a stimulus for growth engine and unshackle economic growth of India Inc. Yes, it is true that standalone, these labour law reforms might not be enough to drive this change, but a positive move towards India's ambitious growth strategy to be one of the leading economies globally and making India as the world's most 'open and investment-friendly' economy."

Ashish Kapoor, Director – HR, Eaton, believes that 'the reformed Labour bill has consolidated everything under a single act and now there is no need to refer to multiple different labour laws. Kapoor also says that the reforms also bring in flexibility for India's manufacturing sector to adjust their operations to the significant market changes. "Eaton has been a fair employer and will continue to focus on its employees to deliver Robust, Reliable and Efficient products in India. With Eaton's growing footprint in India, the reform will benefit the operations and make it a lot easier for us to do business," he says.

Farrokh Cooper, Chairman & Managing Director, Cooper Corporation Pvt. Ltd. welcomes the reforms by calling it a 'bold step'. He believes that the new labour codes would contribute to enhanced safety, health & working conditions, industrial relations and social security for the labourers. "We have always believed that labour is the foundation of industry and deserves equal dignity and growth potential. It is important how you interact with them consistently and openly and how you ensure transparency in all communications with them. We believe that the relationship built through this creates a marvelous synergy in a company that could do wonders," Cooper explains. He further cites examples from his organisation explaining how good labour policies can have a positive impact. "The new labour codes have provided flexibility for the deployment of temporary workers and fixed-term employees, allowing them to learn on-the-job and to become eligible for better opportunities and livelihoods. We at Cooper have done same 15 years ago! And that is why we have more than 300 employees working with us more than 30 years now." Cooper also finds resonance in key government initiatives like 'Skill India', 'Make in India' and 'Vocal for Local'. He says that Cooper Corporation's legacy of 100 years has been built on these values. "Twenty years ago, when most skilled workers decided to work in Pune and other cities with minimal job opportunities, attracting them to home and keeping them back was a challenge. We resolve this by consistently improving the abilities of the less skilled workers, empowering them, and even providing them with a skill allowance as a monetary benefit," he shares.

BENEFIT TO THE ECONOMY AND THE MANUFACTURING INDUSTRY

There is no doubt that these long awaited reforms will have a positive impact on the economy in general as well as on the manufacturing industry in particular. Sood ASSOCHAM points out that the manufacturing industry has undergone a marked change in terms of technology and business models. "The manufacturing units, nowadays, do not operate in silos; rather, they are part of global or local value chains. The manpower requirements in these units require constant skilling, flexibility, re-skilling. All this makes flexible labour laws imperative. For the broader picture, manufactur-

"With the volatility in the global business scenario, India needs to move quickly to take advantage of becoming a leading manufacturing hub. The amendment is apt and a key enabler to boost the sentiments of the industry."

Aditi Sharma – Vice-President - Quality, Manufacturing, HSE, Cummins India.

"The reformed Labour bill has consolidated everything under a single act and now there is no need to refer to multiple different labour laws. It also brings in flexibility for India's manufacturing sector to adjust their operations to the significant market changes."

Ashish Kapoor, Director – HR, Eaton

ing accounts for over 77 per cent of the country's industrial production and is amongst the largest generators of employment. The new laws, would thus, provide a great impetus to economic development."

Sharma of Cummins India also feels that 'in alignment with our PM's vision of Atma Nirbhar Bharat or Self-reliant India aimed towards making India 'a bigger and more important part of the global economy', it is important to pursue policies, regulations and reform of existing protectionist laws with ones which are self- sustaining and self-generating. "With the volatility in the global business scenario, India needs to move quickly to take advantage of becoming a leading manufacturing hub. The amendment is apt and a key enabler to boost the sentiments of the industry. I feel that the new labour law reforms will give a boost in attracting investments in mid-sized and large industries both from domestic investors and from outside India and add more jobs on a net basis," Sharma explains.

Kapoor of Eaton believes that the manufacturing industry is becoming more competitive and this reform will enable the industry to create more job opportunities. "More employment will augur well for the general economy in the longer run. The bill allows for employee benefits; for example fixed term employees will also gain access to provident fund, E.S.I.C, gratuity payment, etc. We hope this will ensure more productivity, improved costs and agility to adapt to changing market conditions," he adds.

Cooper strongly believes that the reforms will also allow the workers to maximise their potential. "In the case of the manufacturing sector, the provisions in the codes would ensure a stronger labour market and, at the same time, improve productivity. To a great extent, the Industry 4.0 revolution must be human-centred and the codes facilitate this. Wealth is created by labour, and as human beings, we must ensure that they get better deals," he explains.

Cooper also points out that the old labour laws became obsolete when the nature of the market changed drastically after liberalisation in the 1990s, creating a blockade rather than supporting anyone. "Productivity, efficiency and technology are the core of every good company. Land, labour, capital, technology and entrepreneurship are five foundations of every great organization. Labor and Entrepreneurs are live assets and require a coherent and balanced strategy. The new codes to greater extend ensures win-win situation for both employees and employers which will give a boost to the Indian economy," he adds further.

IMPACT ON INDIA'S 'EASE OF DOING BUSINESS' STATUS

PM Modi has also said that the Labour reforms will ensure 'Ease of Doing Business'. ASSOCHAM's Secretary General Sood agrees. He says: "Rigid labour laws, at the state, local and the central levels had traditionally been a major issue for new investment. The industries, facing dynamic business cycles, had no flexibility to align or realign their manpower base. This had traditionally given rise to the 'inspector raj', which has changed a lot for the better. With the new labour laws, India's ranking on 'Ease of Doing Business' is certain to improve as competitiveness is increased."

Eaton's Kapoor feels that the new bill will help reduce the burden on employers for multiple compliances as the restrictions on closure and retrenchment have been simplified.

Sharma from Cummins also highlights that the erstwhile stringent rules were hindrances towards flexibility of doing business. However, the new forms are a paradigm shift aimed towards creating a Win-Win situation both for employer as well as for employees. "The applicability clauses will give more flexibility in hiring and get the best efficiencies through the reforms. The clamp on the industrial strikes which was a big bane for industrialists and a source of deterrent for investments. What I found most encouraging is the National Social Security Board whose recommendations will result in expansion of social security net for both formal and informal workers and one big step towards societal responsibility with 1 – 2 percent from turnover being

"Human contacts between Citizen and Government officials are causing problems and can be prevented by 100 percent through a "Faceless Technology Interface" that will be real-time, less complex and quicker."

Farrokh Cooper, Chairman & Managing Director, Cooper Corporation Pvt. Ltd.

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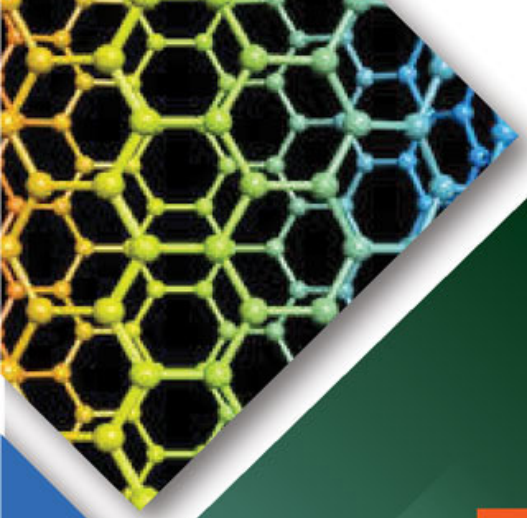

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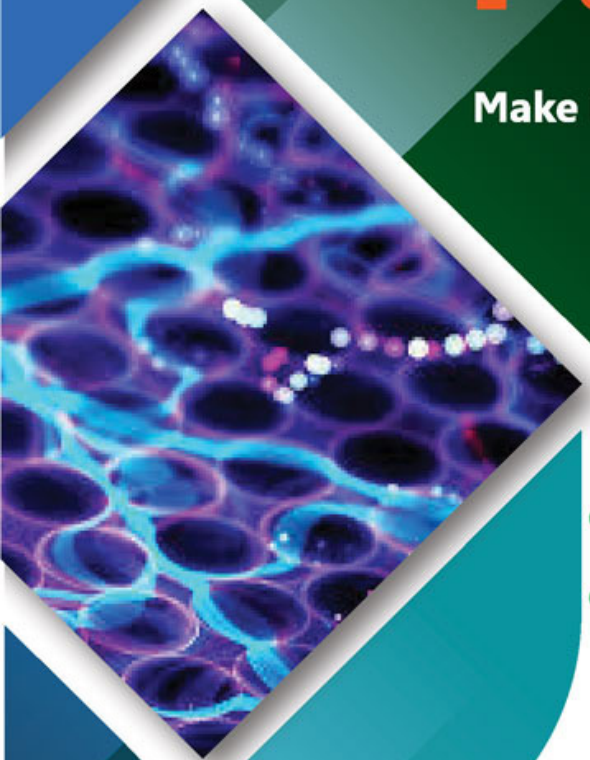

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"These are futuristic legislations to empower enterprises by reducing compliance, red-tapism and 'Inspector Raj.' The reforms also seek to harness the power of technology for the betterment of the workers and industry both."

PM Modi

allocated for such welfare schemes." Sharma also points out that the reskilling fund for retrenched employees will be a moral boost and would further ease out the societal obstacles for doing business in India Inc especially in rural India where the erstwhile stringent laws have stalled big investments in the past. "Several other measures such as mandatory appointment letter and defining the defining the Inter-State Migrant Worker for the first time makes it easy to hire skilled workforce across state boundaries, maximum daily work hours regulated and women employment scope enhancement ensuring right social and safety requirements will ensure better efficiencies and output. The Occupational Safety, Health and Working Conditions Code, 2020, amends laws regulating occupational safety, health and working conditions of employees. The empowerment given to state government to exempt any factory from the provisions of the Code to create more economic activity and jobs without compromising on the important requirements is a welcome step that would ease of doing business across state boundaries of India," Sharma adds.

Cooper states that while we have made leaps and bounds and strengthened our rank in the global 'Ease of Doing Business', a lot needs to be done. Cooper also strongly suggests that labour reforms will help to build on these issues, but we need a system of 'Faceless' statutory regulators. "Human contacts between Citizen and Government officials are causing problems and can be prevented by 100 percent through a 'Faceless Technology Interface' that will be real-time, less complex and quicker. Artificial Intelligence (AI) and India's IT technology and service provider have the capacity to develop and run systems that will radically improve the ease of doing business," Cooper states.

WHAT MORE THE GOVERNMENT NEEDS TO DO

Of course, getting the reforms passed in the parliament is one thing. Implementing them on ground is a different ball game all together. As ASSOCHAM's Sood says, implementation in letter and spirit at the local and state levels would be the key differentiators. "Proactive states would get noticed by investors. Those with a larger pool of labour resources and a congenial business environment would be the favourites amongst investors. Besides, a lot of emphasis has to be placed on the re-skilling of the manpower. The good thing is the new laws provide for the same. A constant connect with the trade and labour organisations would also help," Sood adds.

Cooper points out that the business is always based on risk taking capacity of the investors. "The government has largely realised that we must protect our markets. Industry and industrialists pay massive taxes and must be protected as a "Samaritan Citizen" in times of distress. In a situation like COVID, European nations have provided large industries with financial assistance, irrespective of their size. We understand the importance of small and medium-sized enterprises, but we should not forget that large factories are the backbone of the industrial echo system and must be considered on a par with the jobs quantum produced by them. We want Government to lower the income taxes and provide special provisions for large industries. A better tax regime is required," he insists.

Kapoor of Eaton feels that 'the reforms are in the right direction and we hope to see the progress continue, additional focus area can be on technical upskilling'.

Sharma of Eaton emphasises that the governance of the state machinery during such reforms becomes extremely crucial. "As most critics say that these reforms are more corporate-friendly and less worker-friendly is a point of debate. What we need right now is a strict governance on the changed reforms. With the recent reforms the bargaining power of workforce is diluted, and they are more vulnerable. To keep the sentiments high, Government needs to keep a strict vigilance to ensure no misuse of the clauses at the slightest pretext at an operational level," she explains. Again, as Sharma highlights, there needs to be more clarity in the functioning and implementation of reskilling fund which is a key element for social security of retrenched workers. It is extremely important to keep a vigil watch on the flouting of safety norms as the flexibility as per Occupational Safety, Health and Working Conditions Code, 2020. "There needs to be a very effective sustainable governance process to protect interests of workforce and ensure that companies do not impose arbitrary working conditions which might make workers and especially women vulnerable to unsafe working conditions. The labour reforms is great positive move towards the Vision of Self Reliant India and "Make in India" campaign, but these need to be coupled with reforms to promote rapid infrastructure development and a deep dive of policies and implementation strategies to create an open, fair and non-discriminatory business ecosystem," Sharma says on a concluding note.

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By Niranjan Mudholkar

STANDING STRONG

The Company expects to maintain annual growth of 20 percent in next three years, says **Satish Kumar Agarwal,** Chairman and Managing Director, Kamdhenu Group

Kamdhenu Group was established in 1994. Briefly tell us something about the beginning of the Group.

Kamdhenu group was founded in 1994 with a vision to provide best quality TMT bars in the market at the best price. We began with a single reinforcement steel bars manufacturing business at Bhiwadi in Rajasthan, and today we have now grown into 75+ manufacturing units across the country. Today, Kamdhenu TMT is the largest TMT selling brand in India in the retail segment, having more than 75 franchisee units and more than 11,500 dealers and distributors out of which 7,500 are exclusive for our steel business.

Tell us about the Group's transformation since then?

Kamdhenu Group has transformed from a single unit operation to being regarded among the best in the business of steel bars and paints in the country. The Kamdhenu model of decentralisation of production through strategic alliances, tie-ups with medium sized manufacturing units and providing technical upgradation, implementation of Quality Management System and effective distribution through the exclusive dealer network has helped the company reach greater heights.

In what way did the Covid-19 outbreak affect Kamdhenu Group's business and operations?

The pandemic caused the operations of our Company come to a grinding halt and caused some serious challenges not only to us but also to the almost all the industries as a whole. We did not see any sales happening in the last week of March, due to the nationwide lockdown. The impact of all this is evident on our revenue and profitability. With subsequent easing of the lockdown guidelines, we are slowly inching towards normalcy in our operations and are now operating at around 80 percent of our installed capacity and ramping up on a daily basis. We value the safety of our employees, franchise partners and distributors and are following all safety protocols.

"We are about to close the second quarter of the current financial year and hopeful that the business environment further improves in the third quarter and we get back to normalcy within the financial year."

How have you been dealing with the same?

Health and safety are two important aspects and any financial or opportunity loss can be regained as long as we have the two. We have been following all safety and social distancing norms as advised by the authorities from time to time. During the lockdown, we have taken steps to ease the burden of our employees and partners most impacted by the lockdown. Apart from providing aid in terms of ration supplies, we have also provided mask, sanitizers etc. to the needy people. We have also assisted central and state governments in the fight against coronavirus by contributing to the PM Cares Fund and by donating safety and sanitising equipment.

How has been the last fiscal for Kamdhenu Group in

terms of business and what kind of target have you set for the ongoing financial year?

In FY 2020, our brand sales turnover was Rs.10,851 crore, in spite of the lockdown and steep decrease in steel prices. Disruption in operations, man power and supply chain has reflected in lower revenues and profitability. Despite the difficulties, we have managed to achieve a brand turnover of Rs. 1,973 crore and royalty income of Rs.14.7 crore during Q1FY21. During the same period, the paints division reported revenues of Rs. 38 crore, which is lower than expected. Subsequent to the unlock guidelines and phased re-opening of the economy, we are now returning to operating at full capacity and working towards a full recovery. We are about to close the second quarter of the current financial year and hopeful that the business environment further improves in the third quarter and we get back to normalcy within the financial year.

> "Initiatives like 'Make in India' and 'Atmanirbhar Bharat' are just what we needed to become a resilient and strong economy. Self-sufficiency in all aspects is desirable and targeted policies adopted by the government towards achieving the same are welcomed.

What kind of manufacturing footprint does the Kamdhenu Group have? Are you looking to ramp up the capacity in the near future?

We have franchisee manufacturing plants and market presence across the country including in Odisha, Gujarat, Karnataka, Telangana, Andhra Pradesh, Bihar, Goa, J&K, Rajasthan, Uttar Pradesh, Uttarakhand, Himachal Pradesh, Punjab, West Bengal, Jharkhand, MP, North-eastern region and other states. We are looking at expansion into new and existing territories according to market demand and needs.

What are your plans for the Group's expansion?

We are actively looking at expanding our product portfolio and operations through franchisee route, into new territories. Any expansion will have to factor in market dynamics and we are evaluating new areas of expansion as per market demand and supply scenario.

What is your view about initiatives like 'Make in India' and 'Atmanirbhar Bharat'?

Initiatives like 'Make in India' and 'Atmanirbhar Bharat' are just what we needed to become a resilient and strong economy. Self-sufficiency in all aspects is desirable and targeted policies adopted by the government towards achieving the same are welcomed, and need to be supported by everyone.

Where do you see Kamdhenu Group three years down the line?

While three years may be too short a time for any meaningful development considering the current situation, Kamdhenu group will continue to deliver good quality products at good prices to customers across the country. The company expects to maintain annual growth of 20 percent in next three years.

SCIENCE & TECHNOLOGY

S&T INFRA TO BE ACCESSIBLE TO INDUSTRY & STARTUPS

Startups and industries will soon have access to equipment and Science and Technology (S&T) infrastructure in different institutions, universities, and colleges spread all over the country to carry out experiments and tests they require for their R&D, technology, and product development. DST is restructuring its FIST (Fund for Improvement of S&T Infrastructure in Universities and Higher Educational institutions) programme under which it supports scaling up of the network of infrastructural facilities for teaching and research in Universities and higher educational institutions to cater to high-end S&T infrastructural requirements of startups and industries. "The immensely successful FIST programme will now be reinvented to FIST 2.0 to orient it towards the goal of Atmanirbhar Bharat so as to create R&D infrastructure not only for experimental work but also to cater to theoretical work, ideas and entrepreneurship." said Dr. Sanjay Dhande, the new chairperson of FIST Advisory Board.

By Niranjan Mudholkar

BUILDING ON A STRONG FOUNDATION

As the requirements of aerospace & defence sector are niche, they need niche solutions. The machines have to be built with special features and need to be robust to withstand the tough demands year on year, says **Praful Shende,** Chief Sales and Marketing Officer - Bharat Fritz Werner Ltd. (BFW)

The aerospace & defence sector is an extremely difficult sector to work for the machine tools industry due to stringent technical specifications, difficult to machine materials and high precision components. Tell us about your experience of working with this sector.

Working for Aerospace and Defence parts/components is really a challenging task. The components for these sectors are generally machined out of exotic materials like Inconel, Titanium, Hardened Stainless Steels and Special Aerospace Grade Aluminium. These materials - with exception to aluminium - are very tough to machine due to their hardness, work hardening properties and safety of machining due to its low ignition temperature (Ti). Parts are generally of high precision with lot G&T requirements. Hence there is a need for high end and high accuracy machine tools with high torque to RPM ratios. These machine tools are expensive. Apart from machining challenges, parts/ components needed for these sectors have to be interchangeable and ready to replace which poses the challenges of repeatability.

As these components are machined in small batches spread over years, it is crucial that the machines exhibit great longevity and thermal stability to hold the close tolerances over the lifetime of the machine. This further emphasises the need for machining parts on 5-axis machines. Five-axis machines give specific advantages of least setup changes of parts ensuring repeatability and consistency. In addition to technical challenges related to machining and accuracies, the traceability demands of aerospace segment demands Industry 4.0 compliance for the machines.

What kind of challenges have you faced while serving this sector and how have you dealt with the same?

As the requirements of this segment are niche, they need niche solutions. The machines have to be built with special features and need to be robust to withstand the tough demands year on year. Typically the time duration between the initial sample establishment and actual batch production could be months and sometimes years. It is important that the machines are built to ensure accuracy over many years.

The quality requirements are stringent, components are expensive and therefore there is little room for trial. First time right needs to be the approach. All these and similar other requirements have created high entry barriers for new entrant machine builders in this ecosystem. The established players prefer machine makers from existing relationships. Overcoming this entry barrier, we believe is the biggest challenge, apart from various technology challenges while building the machines.

This, therefore, needs a long term approach and will to establish robust business relationships by winning trust of clients. Right from the inception, we believe in playing a role of trusted manufacturing partner of our customers in automotive, defence and other segments. Understanding customer needs, listening to them and utilising our engineering skills to solve their problems - is a part of our value system. As we enhance our focus on aerospace, defence segment, we believe that our strong foundation of these values will be of great help.

What kind of solutions do you offer for the aero-

space & defence sector?

We have evolved our solutions for the Aero-Def segment on three strong pillars - 1) Machining solutions, 2) Comprehensive physical / virtual automation and Industry 4.0 solutions, and 3) Process engineering solutions and services.

As far as machines are concerned, we have a full range of 5-axis multi-tasking platforms specially tailored for all the needs of this segment. We offer various configurations - namely Swift Nx (Table- Table VMC), Orion Fx (Spindle- Table HMC), TCM (Spindle - Table VMC), Virat (Spindle- Spindle) and Nexus (Turn-Mill, Mill-Turn). In each platform, we have several models and diverse options to choose from. All our platforms come ready to plug in the CAD, CAM environment. We are thus well equipped to serve this segment from an equipment perspective.

Our 100 percent subsidiary m2nxt offers full suite of solutions for end-to-end data integration and analytics, to help create a seamless digital manufacturing ecosystem for our clients. These solutions are scalable, modular, flexible and are agnostic to the brand of machines, brand of CNC control systems and brand of ERP systems - if any - operational at client shopfloor. m2nxt also offers an array of robotic, gantry based automation solutions and AGV based material transport solutions for digital shopfloors.

The third pillar of offering is - process engineering services. In the near future, we propose to offer extensive services - including prototyping, sample component manufacturing, FAI establishment, etc. for complex mid-sized, precision engineering components of the Aero-Def segment. A fully equipped set up, including relevant quality certification is proposed to be operational in near future. These services will be opened for Indian as well as global clients. With these three pillars, BFW aims to play a meaningful role as a technology enabler for the Aerospace & Defence segment.

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with machine tool builders to develop machines that address specific machining requirements. This could either require modifying an existing machine or creating a new system from grounds up. Have you had such a collaborative partnership?

World over the trend of collaborative working between OEMs of industry segments and machine makers has created a strong foundation of self-reliance in developed nations. We believe that time has come for us to proactively embrace this model for our nation. The purpose of BFW is to enable progress of Manufacturing through our philosophy of "Think Solutions". Providing special customised machining solutions has been a strength of BFW. Within BFW, we not only have state-of-the-art engineering infrastructure but also have a strong engineering team of over 100 qualified designers. Our expert research team at Dr Kalam Centre of Innovation is engaged in developing cutting edge technologies in the field of machine tool technology. With such a strong foundation, we have created several examples of "co-development" of competitive technology solutions meant to solve niche problems in automotive, aerospace and defence segments. We have worked on several mission critical projects of many Ordnance factories to provide fully tooled up and also customised machine solutions. For many leading companies in the automotive domain, we have 'co-developed' high technology solutions which otherwise would have involved import of high value machines. We have the experience of setting up semi and fully automated production lines as well. In a nutshell, BFW has the required capability and bandwidth to be a trusted technology partner for Aerodef manufacturers.

"World over the trend of collaborative working between OEMs of industry segments and machine makers has created a strong foundation of self-reliance in developed nations. We believe that time has come for us to proactively embrace this model for our nation."

With the Indian government pushing for 'Make in India' and 'Atmanirbhar Bharat' for the aerospace & defence sector as well, do you think this would also provide a boost to machine tools industry?

GOI has taken several bold and enabling policy initiatives to encourage 'Make in India' and 'Atmanirbhar Bharat'. The recent Policy document 'Defence Acquisition Procedure 2020' demonstrates strong resolve of GOI to enable private sector including MSMEs to actively participate in AeroDef requirements of our nation and to build self-reliance. We believe that a significant amount of manufacturing activity will commence and grow at a rapid rate over the next few years within India. This activity will need new generation machine tools, solutions, allied systems, jigs/ fixtures, specialised equipment, assembly/ testing systems, etc. The opportunity is immense and BFW with its engineering expertise within the field of manufacturing is ready to play its role - in more than one way - in this evolving ecosystem by providing appropriate solutions to the AeroDef players.

By Niranjan Mudholkar

SUCCESSFUL TRANSITION AND TRANSFORMATION

'We are a forward looking organisation living our opportunities today while being future ready', says **Deepak Paul,** MD, igus India

igus began its operations in 1998 in India. How would you describe this journey of 22 years – exciting or evolutionary? Why?

When igus started operations in 1998, India industrially was in contraction and the thought processes that drove industry were still traditional. The period that followed however, was exciting as India embarked on its journey to be a global player and powerhouse. We are very glad that we not only evolved along with our customers but also played a very important role in bringing technologies that could help machine building with frugal engineering or "just the right" solutions. Even after two decades, we are excited that our "Tech Up, Cost Down" approach towards machine building is being valued and is finding resonance with the industry. We look forward to the new challenges in the coming decades and will continue to contribute to the development of the industry.

How has igus India adapted to the New Normal? Is it business as usual or have you had to make some drastic changes?

Over the last six months we have seen lives and work style changing like never before. We have gone through many changes and an entirely new era of doing business. Adapting, evolving continuously and resilience have been the strengths for igus. The COVID imposed restrictions definitely were hindrance to the way we did business. Opportunities are always hidden in adversities. We spotted the opportunities to be able to be connected digitally with our customers and brought out a slew of web trainings, customer connect programs, one on one sessions and even digital exhibitions where customers could directly take a virtual tour of a 400 sq m show booth in igus Cologne even with our German Product Experts giving live and interactive sessions.

Which business segment of yours is growing faster - polymer bearings and cable management system? Why?

Growing in this period of uncertainty and contraction

"Even after two decades, we are excited that our "Tech Up, Cost Down" approach towards machine building is being valued and is finding resonance with the industry."

is definitely a challenge. However, as always, we are in constant lookout for opportunities. The possibilities with smart motion plastics over conventional solutions are becoming louder and louder and therefore we still keep realising many opportunities in both the divisions. In a nutshell, the success and huge number of projects of the newly launched LCA (Low Cost Automation) division which brings together all our products speak the complete story and growth possibilities for Smart Motion Plastics.

(LCA combines all our product offerings be it simple bushings, conveyor rollers, bar stocks or pillow blocks or belt or lead screw driven linear modules, high performance cables and hoses in the best energychain systems).

What are the key advantages of using polymer bearings? For which industry sectors are they more relevant?

Plastics are so well embedded in our daily life that it has become so inconspicuous. The advantages of optimal cost, light weight, corrosion resistant etc. are too obvious. But as a replacement to conventional metal products and components there can be huge reservations from a reliability perspective. However, the possibility of lifetime calculation based on the huge database of test results from millions of tests over four decades makes every Smart Motion Plastic product from igus reliable with predictable lifetimes. Be it for an aseptic

> We have gone through many changes and an entirely new era of doing business. Adapting, evolving continuously and resilience have been the strengths for igus.

application in a packaging, pharma or medical industry or a high load application in defence vehicle or construction equipment, from robots to machine tools and automation, from underwater applications to space, igus Smart Plastics have proven its worth time and again in every industry segments.

With emission norms and safety regulations becoming stricter in India for the automotive industry, do you think igus products will prove increasingly beneficial to this industry?

Though we do not directly influence the emission parameters, igus products find its way into many automotive onboard devices that assist in managing emissions. However, the benefits on economy of a vehicle due to light-weighting is already a given. Therefore, replacement of conventional metal components by igus Motion Plastics therefore drives up the opportunity for igus and the automotive industry overall.

The effect of the pandemic has also accelerated the process of digitisation across the manufacturing world. How do you look at it both as a technology oriented organisation (internally) and as a technology solutions provider (externally)?

As mentioned earlier we are a forward looking organisation living our opportunities today while being future ready. So, the transition was quick and automatic, our CRM was already cloud based since many years and we could easily provide remote access to our ERP for key functions to enable work from home. The transition and transformation to operate in the new digital world have been smooth and seamless.

> We would like to believe we are the best Indian company from Germany and we will strive to bring products and technology to India that will help the Indian Industry play its part in making India Atmanirbhar.

Today, the value of time has increased manifold due to the fact that manufacturing organisations want to reduce efforts on the shopfloor while keeping the cost minimal. Of course, they also want to achieve their production targets. So, do you think products like igus readychain can be of great help in this situation?

We have always spoken about productivity and believe that is the key to the growth and prosperity of any company. We diligently follow lean principles in our internal processes and production.

Beyond this all our products right from conception to putting out to the market, is driven by the facts that it must be able to be reliably chosen, fast to procure, easy to use and offer the requested performance. The current crisis with a period of low output and even worse, availability of manpower or the requirement to restrict manpower has made many companies look at productivity improvement measures. In these scenario plug and play solutions like the readychain (complete cable management) or the linear modules or even the Low Cost Automation System solutions offer huge advantages not only on the productivity improvement on the shop floor but huge advantages in inventory, vendor and quality management. These hitherto intangible benefits are becoming more and more valuable to the customers. The COVID crisis definitely has thrown open to the simple thought process "what comes in, must go out" and get monetised. igus Ready solutions are then surely the best way forward.

The Covid-19 outbreak has also provided a boost to the adoption of automation in the manufacturing industry today. Again, while organisations want to go 'high on tech', they consciously want to stay 'low on cost'. How is igus addressing this seemingly contradictory demand of its customers?

It is presumptuous that "high on tech, low on cost" is a recent fad. No, definitely not. Maybe the focus on tech has improved and cheap has been replaced with optimal cost. Nothing changes for igus much as we are still driven by our simple philosophy of "the cheapest solution that works is the best solution". In short Tech Up… Cost Down… This is our job! And if we cannot achieve at least one of these then it is not our business.

As a Germany based company, how do you view the 'Atmanirbhar Bharat' (Self Reliant India) campaign?

We would like to believe we are the best Indian company from Germany and we will strive to bring products and technology to India that will help the Indian Industry play its part in making India Atmanirbhar.

By Niranjan Mudholkar

BIG BOOST TO THE INDUSTRY

The machine tool industry is essential for the success of the aerospace & defence sector in India. We can already visualise the positive impact of "Make in India", and with "Atmanirbhar Bharat" the machine tool industry will foresee big boost undoubtedly, says **Mihir Baxi,** President – Global Sales, Jyoti CNC Automation Ltd.

The aerospace & defence sector is an extremely difficult sector to work with for the machine tools industry due to stringent technical specifications, difficult to machine materials and high precision components. Tell us about your experience of working with this sector.

Aerospace and defence are among the two critical segments for development. Both the sectors which often overlap each other throw immense opportunities for machine tool industry. The twin sectors are attracting and manufacturing industries are evolving in India. Undoubtedly, these two sectors are definitely giving more opportunities to Indian machine tool builders but at the same time there is a big vacuum in the technologies demanded by manufacturers and unavailability of such technologies with the machine tool industry of India leads to lot of R&D is involvement. These sectors look for machine tool builders with proven solutions to meet their requirement. Since the references are not available, machine tool builder finds it difficult to cater to the needs of the aerospace and defence sector.

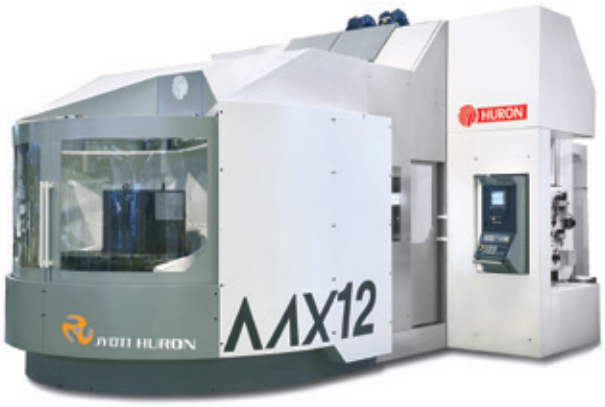
The challenges faced by the Indian machine tool builders are innumerable but technology gap is the key in terms of machine and processes as they are quite diverse than those in the engineering and automobile sector. The need to invent and build new machines, new tools and precision which are demanded by these sectors can't be achieved by the current range of machines tools made in India. We need to build high quality machines with alternative technologies for metal cutting, shaping and joining through high quality workmanship. Jyoti has come a long way. Today, we have developed a backward integrated facility and we are equipped for all aspects of defence and aerospace machine tool requirement which can manufacture from washer to rocket engine parts. We have gathered expertise in this arena meant doing everything in-house but in-house execution was a big economical affair as it meant huge investments. At present, our product range is capable to cater to major aerospace and defence companies, not only in India but also in abroad too.

"These sectors look for machine tool builders with proven solutions to meet their requirement. Since the references are not available, machine tool builder finds it difficult to cater to the needs of the aerospace and defence sector."

What kind of challenges have you faced while serving this sector and how have you dealt with the same?

Getting accepted was and is a big challenge! Convincing aerospace and defence sector without reference and rigid mind-set it still a tough task. Sometimes, it is a huge challenge to be accepted by organisation when convincing our capabilities while competing against foreign player. The attitude for Indian machine is still considered as inferior as compared to foreign brand! Technological challenges we have taken as our fore most focus and we are breaking the barriers and as a re-

sult we have produced MTX 300 – the First Indian Multi-Tasking Machine. In our view technology gap and high precision requirement are the motivating paths to be competent for the industry but the non-acceptance mind-set of the foreign buyer indeed is the real big challenge for Indian Machine Tool Builder.



What kind of solutions do you offer for the aerospace & defence sector?

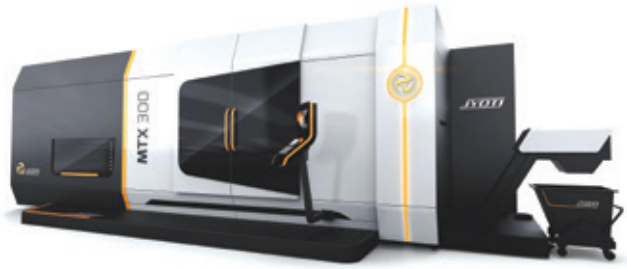
Apart from our standard Turning, VMC and HMC series machines we have developed wide range of CNC machines keeping in mind the requirement in terms of size precision and complexity of Aerospace and Defence sector. We have offered AX Series (High precision Turning/Turn-Mill Centers); VMC Performance Series & K Mill Series (C-Frame and Bridge type precision 3 axis machines); U Mill Series, KXFive Series, MX Series, KX Large Series and KXG Series (5 axis CNC machines) and MTX Series (Multi-tasking machine).

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with machine tool builders to develop machines that address specific machining requirements. This could either require modifying an existing machine or creating a new system from grounds up. Have you had such a collaborative partnership?

Jyoti is well known for adopting and executing any customised requirement among metal cutting fraternity. Jyoti has greatest manufacturing facility which enables us to take up any toughest challenge and cater those special needs. There are few companies in approach with us to have collaborative partnership in their machine tool requirement considering our capability but we have not yet concluded any of the offers in this direction.

> Today, we have developed a backward integrated facility and we are equipped for all aspects of defence and aerospace machine tool requirement which can manufacture from washer to rocket engine parts.

> Getting accepted was and is a big challenge! Convincing aerospace and defence sector without reference and rigid mind-set it still a tough task. Sometimes, it is a huge challenge to be accepted by organisation when convincing our capabilities while competing against foreign player.



With the Indian government for pushing for 'Make in India' and 'Atmanirbhar Bharat' for the aerospace & defence sector as well, do you think this would also provide a boost to machine tools industry?

Aerospace & Defence sector is a highly demanding and specialised engineering sector and it possess a distinct culture which emphasis on rigidly controlled processes, quality of output, attention to details, documentation and traceability and many more. There are a number of sectors that have been identified in which India's competitive and comparative advantage over the other countries is seen to make India a self-reliant country and a global supplier. Aerospace & Defence production is a sector that depends on several other sectors to be successful. Without the high quality allied sectors, these sectors as a whole cannot manufacture quality product. The machine tool industry is essential for the success of the aerospace & defence sector in India. We can already visualise the positive impact of "Make in India", and with "Atmanirbhar Bharat" the machine tool industry will foresee big boost undoubtedly.

By Niranjan Mudholkar

PLAYED A SIGNIFICANT ROLE

'we are channelling the three decades long experience gained through our engagement with the leading aerospace and defence organisations to support the private sector to scale up and effectively address the challenges in product development requirements', says **Mahadevan VS,** CEO & Director, SOLIZE India Technologies Private Limited

Tell us how SOLIZE India is engaging with the Indian manufacturing industry to help it evolve further?

SOLIZE India has close to three decades of engagement with Indian manufacturing industry, leading and supporting, as the industry was maturing into a global player. SOLIZE has played a significant role in evangelising and helping the manufacturing industry to adopt computer based engineering methods for product development. We are engaged with the industry in three dimensions namely - technology, process and skill.

As the product complexities and cost and time pressures are growing exponentially, the three aspects of technology, process and skill are increasingly becoming critical ingredients for success and growth.

What kind of work are you doing with the aerospace & defence segment?

Historically, aerospace and defence industry has been a predominantly Government owned sector in India. We have been very closely engaged with this sector, since its inception in 1992. As the Government is encouraging the participation of private sector in the aerospace and defence Sector, we are channelling the three decades long experience gained through our engagement with the leading aerospace and defence organisations to support the private sector to scale up and effectively address the challenges in product development requirements of the aerospace and defence OEMs.

"As the product complexities and cost and time pressures are growing exponentially, the three aspects of Technology, Process and Skill are increasingly becoming critical ingredients for success and growth."

What kind of technical support do you offer to your customers?

We have a deep rooted technical engagement with our customers. The focus of our technical support has always been to support our customers in addressing their business and technical goals. We have supported our customers in transforming their engineering processes leading to business wins, being able to effectively address regulatory requirements, transforming engineering simulations from evaluating 'Why-it-failed' to 'what-will-happen'.

More than half a decade ago, we helped one of our customers in building a "Digital Twin" of a complex equipment which was deployed for operations, maintenance, training and hazard & risk evaluation and mitigation purposes.

Manufacturing is a collaborative process across the supply chain. How can the right engineering solutions enable all the partners through this chain deliver the right product in an optimised manner?

Integration of the eco-system which allows all the stake-holders to work on 'Single Source of truth' is the key to success. This can be achieved by deploying a digital platform across the supply chain which will enable seamless data and information flow across the extended enterprise. As the supply chain becomes an integral part of the development process, it enables early detection of inconsistencies and simultaneous planning of downstream processes, which results in substantial time and cost savings.

Globally, the design and engineering function for the aerospace & defence sector has been going through a paradigm shift across the board whether it is the processes or tools or even materials. How are you responding to this change?

Many of the aerospace & defence companies have primarily invested in specific focused technology deployments, creating a fractured digital enterprise and

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We have supported our customers in transforming their engineering processes leading to business wins, being able to effectively address regulatory requirements, transforming engineering simulations from evaluating 'Why-it-failed' to 'what-will-happen'.

pockets of inefficiencies. We have been assisting these organisations to adopt enterprise level digital technologies and tools for design and manufacturing, to access, manage, analyse and leverage data from their digital assets for informed decision-making.

More and more SMEs are now looking to get involved in the aerospace and defence sector. How can your organisation facilitate their evolution?

The experience and knowledge we have gained through the three decades long engagement with the aerospace and defence sector is a critical value will be able to deliver to the MSMEs. We offer best-in-class engineering software solutions and we offer to deploy a comprehensive, end-to-end digital product development and manufacturing platform. Our Innovation Consulting Practise helps our customers to enhance their process efficiencies and outcomes, and Additive Manufacturing Services helps in prototype development and small volume production.

One of the ways to help the industry is enhancing the capabilities of tomorrow's engineers at the academic level. Are you doing something on this front as well?

We firmly believe that skills and knowledge are the driving forces for any industry to grow and Academia plays a key role in this.

During the latter part of 1980 and 1990s, we have been instrumental in introducing and assisting the Indian industry to deploy and effectively use the finite element methods and computational fluid dynamics for solving complex engineering problems. Knowledge propagation and skill development has been an integral part of this process and it is a matter of pride for us that we have trained a significant number of practising engineers and students.

We are actively engaged with the leading academic institutes in the country. We are working with them very closely, helping them incorporate the next generation advanced technologies into the curriculum and develop infrastructure that would enable tomorrow's engineers to Learn, Experience & Experiment with these technologies - making them future ready and well equipped to contribute significantly to the growth of the industry and the country.

UPDATE

SANDVIK TO ACQUIRE SOFTWARE COMPANY CGTECH

The transaction is expected to close during the last quarter of 2020

Sandvik has signed an agreement to acquire US based CGTech, a global market leader in software for numerical control (NC/CNC) simulation, verification and optimization. The product offering includes VERICUT®, a machining simulation and optimization software which is CAM, machine tool manufacturer and cutting tool neutral and works stand alone or in conjunction with all major CAM suppliers. The company will be reported in Sandvik Coromant, a division within Sandvik Machining Solutions.

"This is in line with our strategic focus to grow organically and through acquisitions in the digital manufacturing space, with special focus on software solutions close to machining," says Stefan Widing, President and CEO of Sandvik. The combined machining expertise of Sandvik Coromant and CGTech will enhance the Group's capabilities in machining intelligence, strengthen the software offering and facilitate an improved presence in key areas of the customer value chain. "It's exciting to say that we are able to expand our capabilities with CGTech. This will not only strengthen our leading market position in all parts of the world but will as well enable us to take a big step forward in offering full machining solutions to our customers, which will reduce waste significantly in their broader value chain," says Nadine Crauwels, President of Sandvik Machining Solutions.

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The transaction is expected to close during the last quarter of 2020 and is subject to customary regulatory approvals.

CGTech is headquartered in California, USA, and has about 180 employees. In 2019, CGTech had revenues of about SEK 470 million and an EBIT margin slightly dilutive to Sandvik Manufacturing and Machining Solutions' margin. Impact on Sandvik's earnings per share will initially be neutral. The transaction is expected to close during the last quarter of 2020 and is subject to customary regulatory approvals.

By Niranjan Mudholkar

READY TO TAKE OFF

Providing high-tech tooling solutions for the machining of the carbon-fibre reinforced outer fuselage skin and all structural components, together with dedicated system solutions for highly complex engine parts, landing gears, and assemblies is our overriding objective, says **Vivek Tomar,** Vice President; Technical Management, CERATIZIT India Pvt. Ltd

The aerospace & defence sector is an extremely difficult sector to work with for the machine tools industry due to stringent technical specifications, difficult to machine materials and high precision components. Tell us about your experience of working with this sector.

The continuous improvement requirements in safety-security, efficiency and lower Carbon footprints are driving agents for making aerospace & defence into a highly dynamic sector. The secret recipe for this dynamic drive lies in the structural diet enriched with nutritious and advanced materials like lightweight materials such as fibre composites (GFRP, CFRPs), aluminium, titanium and super alloys (Nimonic, Inconel, Hastelloy, Stelite etc). However, these materials are extremely demanding when it comes to their machining, which can only be carried out economically using the latest tool and machining concepts.

Steady improvements in strength to weight ratios in structural and in engine components are to blame for the increasing challenges for their machinability. As these difficult-to-machine materials become more common, converting these challenges into ambitious opportunities is the key to strategic and competitive advantage for cutting tool pioneer like us. With this goal, the CERATIZIT Group is investing handsomely in R&D in order to transform difficult-to-machine materials into easy-to-machine materials.

From our experience we can say that the key to the best solution for these challenging materials & stringent GD&T parameters lies not only in particular tooling solution but also in total process knowledge and control. Moreover, our engineers are trained periodically and equipped with updated knowledge and skills from Industry experts to offer 360 degree solution to customers.

"To transform its status from an import heavy segment to 'Atmanirbhar' segment, the industry needs to build a complete ecosystem which includes machine tooling industries."

How much of your business is generated from the aerospace & defence sector?

This sector is continuously growing and we have special focus in this sector. We generate upto 25 percent of our business from this sector.

What kind of challenges have you faced while serving this sector and how have you dealt with the same?

For companies operating in the aerospace, aviation, energy sectors where these materials are particularly prevalent and process security is vital, there is a huge demand to give specific solutions to make the process safe and fail-proof.

What kind of solutions do you offer for the aerospace & defence sector?

As one of the leading suppliers of cutting tools and machinery for the manufacture of complex aero-components, Team Cutting Tools from our Group is a reliable partner to the industry. Providing high-tech tooling solutions for the machining of the carbon-fibre reinforced outer fuselage skin and all structural components, together with dedicated system solutions for highly complex engine parts, landing gears, and assemblies is our overriding objective.

We offer exclusive range of solutions from Ceramic Milling of Turbine Blisks to PCD Reaming of Aluminium Linkages; from Trochoidal Grooving to Thread rolling; from Ceramic turning of Engine casings to Heavy drilling of Landing Gears. As an example, our MAXIMILL 261/262 system which can run upto 1000 m/

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Our innovative carbide solutions are used in mechanical engineering and tool construction and many other industries. We cater to all the requirements of customers.

min on Inconel 718 due to our intelligently designed Ceramic Grades has reduced the challenges of long cut time drastically with high process security as well. Our WTX-Ti high-performance drill is another excellent example which impresses with its performance on difficult-to-machine materials, such as high-strength and acid-resistant steels, titanium or heat-resistant super alloys.

As a powerful ally to the sector, we not only provide the perfect tooling solutions and strategies to ensure your processes run smoothly, but we also offer an advanced Smart Factory solution. Leave nothing to chance with ToolScope (Intelligent Digital assistance system), the ground breaking monitoring and control system. You will have full transparency concerning your machining operations and, with this knowledge, can increase the efficiency of your processes.

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with cutting tools majors to develop solutions that address specific machining requirements. Have you had such a collaborative partnership?

We are a complete machining solution provider, with four brands CERATIZIT, Komet, WNT and Klenk in our range and as a leader in materials technology, we continuously invest in research and development and hold over 1,000 patents. All our Indian plants are ISO9001 certified and our Round tool plant is additionally AS9100 certified. Our innovative carbide solutions are used in mechanical engineering and tool construction and many other industries. We cater to all the requirements of customers.

With the Indian government for pushing for 'Make in India' and 'Atmanirbhar Bharat' for the aerospace & defence sector as well, do you think this would also provide a boost to cutting tools industry?

Indian government's increased focus in the aerospace and defence coupled with the 'Make in India' initiative has given significant boost for global players like us. To transform its status from an import heavy segment to 'Atmanirbhar' segment, the industry needs to build a complete ecosystem which includes machine tooling industries. Hence, we can consider aerospace & defence sector as a 'Sunrise Sector'. Private-public collaborations in developing indigenous defence systems and more focus on MSMEs is creating lucrative opportunities for us in future.

We have three state-of-the-art manufacturing plants in India. We believe in 'Make in India' and 'Atmanirbhar Bharat' and we are fully prepared to take off with the flight of the Indian aerospace & defence sector.

RAILWAYS

ALSTOM'S WAG 12B E-LOCOS FASTEST FREIGHT MOVERS

Alstom-built 12000 HP electric locomotives have been officially approved by the Ministry of Railways and RDSO to run freight trains at a maximum speed of 120 kmph. Earlier this year, Indian Railways began inducting the WAG 12B e-locos, which are the most powerful locomotives to run on Indian tracks. Cumulatively, these electric locomotives have already clocked over one million kilometres, thus providing a significant fillip to the country's freight logistics landscape. These electric locos will allow faster and safer movement of heavier freight trains capable to haul ~6000 tonnes at a top speed of 120 kmph. Planned to be deployed for operations on major freight routes of Indian Railways including the Dedicated Freight Corridors (DFCs), they are expected to increase the average speed of freight trains in India by at least 20-25 kmph.

Commenting on this achievement, Alain SPOHR, Managing Director, Alstom India & South Asia said, "The approval from RDSO is indeed a matter of pride for all of us at Alstom and a testimony of our technical expertise in partnership with the Indian Railways. In line with India's push towards self-reliance, we have successfully leveraged our local engineering and manufacturing capabilities. Alstom is also committed to support IR in reducing its carbon footprint and adopt cleaner technologies in its quest to transform into the world's largest Green Railway network. India is a priority for Alstom, and we are committed to work closely with the Indian Railways for all their future modernization endeavours."

"Equipped with Insulated Gate Bipolar Transistors (IGBT) based propulsion technology, it would lead to considerable savings in energy consumption due to use of regenerative braking. The technology is also helpful towards making the acceleration process more efficient by reducing the heat generation and traction noise," he added.

By Niranjan Mudholkar

INNOVATING WITH GLOBAL AMBITIONS

The times have changed and it is imperative that we innovate all the time to effectively cater to the demands of customers, says **Mohini Kelkar,** Founder & Director, Grind Master Group

Grind Master was established in 1984. Briefly tell us how's been the journey since then?

It has been very exciting with several challenges on the way. We have witnessed all the evolutions from Industry 1.0 to Industry 4.0, and now people are talking about Industry 5.0. The times have changed and it is imperative that we innovate all the time to effectively cater to the demands of our customers. Our customers have evolved, developed and grown multiple times and so have we. It has been almost four decades since we started this journey and it is indeed very satisfying working with many of our customers for so long and giving them innovative as well as advanced solutions as their growth demands.

Grind Master US Tech Center

In 1980s, CNC systems were new and we built machines with PLCs. Now for the same customers, we build machines with Cloud based Smart Controller and AI Features, Tool Management systems, etc.

Are you happy the way the Group has evolved since its beginning?

Indeed, we have constantly innovated with not only our machines but also with the processes. Every customer application is unique and my company addresses this very well. Our deburring and metal finishing machines are needed by all kinds of industries like automotive, heavy engineering, appliances, metal (stainless steel tubes & bars) and so on. Over the period of 35 years, we have come across multiple applications and have developed a wide range of machines. I am proud to say that today no company in the world offers the solutions that we do under single roof. Also, we are in top five globally in most of the technologies that we offer.

"We have realised the importance of right tooling and consumables, and so have partnered with worldwide manufacturers. Thus, we are known as a total solution provider and not a machine supplier."

What kind of manufacturing capacities and capabilities does the Group have?

We have large in-house manufacturing facility in Aurangabad and our own subsidiaries in China, France and USA. We also have technology development centres in France and USA. We started developing import substitute machines for Indian customers in 1984 and now we are serving customers globally. We have realised the importance of right tooling and consumables, and so have partnered with worldwide manufacturers. Thus, we are known as a total solution provider and not a machine supplier. With multiple co-operations worldwide, Grind Master offers the appropriate and right solutions for every customer application within and outside India.

How has your product portfolio developed over the years?

We are strong in process research and thus are able to give optimised solutions for every kind of job that customer has. We offer deburring and finishing machines that are often the last processes in part manufacturing and so the variations of earlier processes get built in

thereby giving larger variations in input to our machines. Thus, deciding the right process has a prominent role. Also, depending on the production volumes and ROI, we need to decide level of automation as well. And we have been doing it quite successfully and consistently over the years.


Grind Master Headquarters

Tell us something about your R&D activities and focus on innovation.

R&D has been the thrust of our company since the beginning. In fact, it was our Bread & Butter that time. It is still the essential backbone of our company. Actually, we started marketing our technology and machines much later; the initial period was spent in focussing on R&D. Since we offer customised equipment, practically every customer order needs individual attention. Besides this, we have separate teams that work on new technologies and processes.

Briefly tell us about your technological collaborations with international players.

We wanted to be the Best in the world and also have global footprint. So, we have various strategic partnerships, technical collaborations, joint ventures and so on. I am proud to say that our latest collaboration is with an American company to whom we are licensing our technology.

> "Actually, we started marketing our technology and machines much later; the initial period was spent in focussing on R&D. Since we offer customised equipment, practically every customer order needs individual attention.

The Covid-19 pandemic has also accelerated the adoption of Industry 4.0. How are you leveraging on this given your alignment with this concept quite early?

We delivered machines that had cloud based IOT way back in 2013-14. This was out of necessity as it was difficult to send our person all the way to China for making some changes. We have developed our Smart Controller which has Tool Management System besides other regular IOT systems.

You entered the Chinese market in 2009. Do you think the Group has made satisfactory progress in that market in the last eleven years?

Yes indeed. The China Market has given us the scale which is not possible in any other markets. The auto production in China is 10 times that of India. We observe that in China, even MSMEs invest in good technologies and automation. They always plan for large volumes and best technology. We also find that they are more systematic in project planning and equipment purchase. There have been good learnings for us from our exports to China.

Grind Master Group acquired SPMS Supramatic, France in 2017. How's that business shaping up?

Frankly speaking, it still has lots of challenges due to the slowdown in Europe.

Like many other segments of the economy, the Indian machine tool industry has taken a big hit due to the Covid-19 pandemic. Do you see the industry bouncing back with both the passenger car as well as two-wheeler segment clocking good numbers in August 2020?

Two wheeler segment is almost back to normal and small cars demand is picking up besides the rise in the tractor segment. So, there is some bounce back. However, machine tools demand will be low for longer time and we have to diversify in other segments like railways, aerospace, healthcare, agri machinery, etc. We need to brace up and show resilience to sail through these difficult times.

Where do you see the Grind Master Group three years down the line?

We have been early in every technology we developed and then became the world's best in that technology. So, our latest development is robotic fettling and grinding machines for ferrous and nonferrous foundries. We want to be known as the leaders in this globally and are working on it.

By Niranjan Mudholkar

GLOBAL MACHINES, LOCAL SOLUTIONS

The Indian team adds value to our customers by equipping technology solutions. Design and manufacturing of fixtures, tools and prove out of customers parts are done locally, says **Sunil Rao,** Managing Director, DMG MORI India Pvt. Ltd.

The aerospace & defence sector is an extremely difficult sector to work with. Tell us about your experience of working with this sector.

With today's increasing passenger traffic and sustained aerospace and defence spending, there is a high demand for manufacturing aerospace and defence parts, including landing gear and engine components. Aerospace and defence manufacturers can choose from a variety of DMG MORI models that are specifically crafted for their demanding needs, ranging from our Vertical / Horizontal machining centers to 5-axis and complex multitasking machines. In addition, we have established our Aerospace Center of Excellence to help and fulfil the needs and prove out the machines and processes.

"Machine tools are the main driving force of the industrialisation of a country or a region. They are the cornerstone of economic development and progress."

What kind of challenges have you faced?

The main challenge with this sector is the varieties of materials that need to be processed. No two jobs are similar. Different processes, complex tooling and fitting the right machine configuration to ensure techno-commercial viability of the part is critical. Our core strength is the global experience of application team. With the Aerospace Excellence Center (AEC) in place combined with rich experience of having dealt with aerospace majors Boeing, Airbus, any challenge could be dealt with ease.

What kind of solutions do you offer?

The uniqueness in DMG MORI India is 'Global Machines, Local Solutions'. The Indian team adds value to our customers by equipping technology solutions. Design and manufacturing of fixtures, tools and prove out of customers parts are done locally. By doing so, we are able to offer our Aerospace & Defence customers cost competitiveness.

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with machine tool builders. Have you had such a collaborative partnership?

Majority of the machines supplied to defence sector are customised to suit the component requirements. The machines made by DMG MORI are universal 5-axis and this builds in the needed flexibility to address the specific machining requirement. The machine capability is further enhanced by offering complete turnkey solutions.

Do you think initiatives like 'Make in India' and 'Atmanirbhar Bharat' will also provide a boost to machine tools industry?

Currently the Indian machine tool manufactures have very limited access to machines involving 5-axis technology, Multi-tasking features involving usage of 5-axis milling and turning together, there-by our Defence & Aerospace sectors lose the technology advantage of getting such machines. Only a limited and targeted import-substitution policy combined with aggressive export promotion can make Atmanirbhar Bharat a success. Look around you and count one by one which objects you see in your environment - computers, mobile phones, watches, cars, trains, planes and so on. Then think of the objects which you do not see in your daily life, but which make your life easy and comfortable: wind turbines and solar panels that generate carbon-free energy to power your houses and devices, medical implants which improve the quality of life for people with health problems, satellites that enable us to communicate faster and cheaper, construction machinery used to make buildings, bridges and skyscrapers... If you wonder how these objects are made, they are made thanks to machine tools. Machine tools are the main driving force of the industrialisation of a country or a region. They are the cornerstone of economic development and progress. We owe to machine tools the modern industry which produces the goods that are an indispensable part of our everyday life.

By Niranjan Mudholkar

FOCUSED ON PROCESS COMPETENCY

Process competency is a very crucial factor for success in the aerospace & defence sector, says **L Krishnan,** MD, TaeguTec India Pvt Ltd

The aerospace & defence sector is an extremely difficult sector to work with. Tell us about your experience of working with this sector.

The Aerospace & Defence sectors are indeed unique due to special material requirements, complex part configuration, and non-negotiable accuracy needs. Materials like special aluminium Alloys, Magnesium, Nickel and Cobalt-based alloys, etc. add to the many machinability challenges like lower productivity and poor tool life, to name a few, in the Aerospace & Defence industries. Based on our global and local experiences, we are working to extensively develop knowledge base as well as competitive machining solutions for our customers. It must be noted that process competency is a very crucial factor for success in this sector.

TaeguTec SfeedTec family

What kind of challenges have you faced while serving this sector and how have you dealt with the same?

The most common difficulty we face when servicing Defence and Aerospace sectors is the reluctance of customers to change the process. This is a very typical characteristic of this industry. Once a certain process is tried and tested and standardised, it takes enormous amount of persuasion to convince the customer to look at new options! In this connection, regular interactions and convincing case studies are the only way we can make progress and succeed.

What kind of solutions do you offer for the aerospace & defence sector?

TaeguTec India offers the entire range of machining solutions for applications including turning, parting grooving, milling, and drilling, besides troubleshooting most material and component challenges, and addressing process and productivity concerns.

"TaeguTec India offers the entire range of machining solutions for addressing process and productivity concerns."

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with cutting tools majors. Have you had such a collaborative partnership?

Currently, the Defence & Aerospace industry is developing new components for customers. These parts are made in different parts of the world today. More often than not, the customer requirement is mostly not an absolute new development, but more relating to development of reliable process to machine these parts. Customers thus work with multiple leading suppliers to develop such solutions.

With the Indian government for pushing for 'Make in India' and 'Atmanirbhar Bharat' for the aerospace & defence sector as well, do you think this would also provide a boost to cutting tools industry?

'Make in India' and 'Atmanirbhar Bharat' initiatives by the Government of India will go a long way to strengthen the domestic defence & aerospace supply chain. We believe, in the years to come, this will provide us tremendous opportunity to offer innovative solutions at competitive prices. This will certainly have significant positive impact on domestic demand for cutting tools.

By Niranjan Mudholkar

TAKING A PRO-ACTIVE APPROACH

The Aerospace sector does come with its unique set of challenges that we as engineers see as an 'opportunity', says **Anil Bhardwaj,** Managing Director, Yamazaki Mazak India Pvt. Ltd.

The aerospace & defence sector is an extremely difficult sector to work with. Tell us about your experience of working with this sector.

Yamazaki Mazak has been the pioneer in the CNC industry for over a century now. We have been an extremely agile company right from our inception. Through decades, Mazak has witnessed the turn of technology and their applications in its true sense. Rightfully the Aerospace sector does come with its unique set of challenges that we as engineers see as an 'opportunity'. The engineering team at Mazak works in tandem with major Aerospace OEMs to create a blueprint of their custom requirements, and further develop them through our machines. We bring together our combined expertise from across the globe to render seamlessly technology and machining solutions into the Aerospace sector, through our diverse experience. Up until now, several of our satisfied customers from across the globe, have been able to leverage on our expertise and we look forward to an engaging relationship with them, being partners in their growth.

What kind of challenges have you faced?

Primarily, aerospace is a zero-tolerance business. Our customers in this industry cannot have a risk related to quality and delivery, and to that extent, the OEMs they cater to are very demanding customers requiring them to comply with their rigid production frameworks and timelines. It takes the Mazak team a pro-active approach to listen, understand and handhold our clients right from concept to production and that's exactly where our team stands out.

What kind of solutions do you offer?

Machine tool manufacturers are required to supply high-performance, high-productivity, and high-accuracy 5-axis machines and multi-tasking machines and propose new techniques to process difficult-to-cut materials and integrated components. Yamazaki Mazak offers a wide range of solutions for the Aerospace sector spanning across diverse platforms and applications. Across the past two decades, we have been able to work several customers in India and have helped them curate niche products while meeting the most stringent requirements of the sector.

"Primarily, aerospace is a zero-tolerance business. Our customers in this industry cannot have a risk related to quality and delivery."

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with machine tool builders. Have you had such a collaborative partnership?

Yes, in fact, the first Aerospace Technology Center, which is devoted to the Aerospace industry, was opened in 1999 in the Mazak Western Technology Center in Gardena, California. Right from there till today, Mazak works in with great diligence in collaboration with Machine Tool Builders to foray the latest and the most efficient and effective combination of tools and machines in the machining industry. We also conduct several Open House Programs to bring together stakeholders from the industry. Rest assured, Mazak stays at the forefront of collaborative innovation.

Do you think initiatives like 'Make in India' and 'Atmanirbhar Bharat' will also provide a boost to machine tools industry?

The 'Atmanirbhar Bharat' initiative is a well-thought mission brought by the Government of India to boost the nation's internal skill and production capabilities, on the world stage. Here in India, the Pune facility hosts a world-class Technology Center and serves as a Centre of Excellence for aspiring businesses that want to foray into Aerospace manufacturing. Mazak India is all set to be an integral part of the 'Atmanirbhar Bharat' mission and looks forward to setting greater benchmarks in the engineering and machining domain through our innovative and excellence-driven approach. Yamazaki Mazak is your partner in innovation!

By Niranjan Mudholkar

EXCEEDING EXPECTATIONS

Our innovations get you where you want to go faster, says **Keshav Khurana,** Executive Director of Wohlhaupter India Pvt. Ltd.

How much of your business is generated from the aerospace & defence sector?

While I cannot provide specifics, the aerospace & defence industry is an important sector to Wohlhaupter India, a subsidiary of Wohlhaupter Gmbh and Allied Machine and Engineering (AMEC). We continue to invest time and resources to engineer precision cutting tools that meet or exceed this industry's strict requirements.

What kind of challenges have you faced while serving this sector?

The variety of unique materials used in aerospace component production presents holemaking challenges. Materials can include hard plastics, carbon reinforced polymer fiber, 4340 alloy steels, 6061-T6 aluminum, ductile stainless steels, and high-temperature alloys like 6Al4V. Machining high-temp alloys used in jet engines, can wreak havoc on both the cutting tool and the workpiece. If heat is not sufficiently removed, it can shorten the life of the tool dramatically and produce poor quality holes. Excessive heat can weld material to the tool's cutting edge creating inconsistent material removal and poor chip formation. Poorly formed chips can create additional problems such as long strips of material wrapping around the tool body or chips welding to the interior of the hole. Any of these situations will result in very poor surface finish and hole concentricity.

Exotic materials such as carbon fiber are ideal for aerospace components such as wings because they provide high strength and rigidity without increasing weight. While most metals are composed of uniform properties that align in the same direction, carbon fiber is made of tiny textiles that are specifically positioned in different directions in order to increase strength and rigidity. While this provides essential benefits to aerospace components, it makes it difficult to drill a concentric hole with high-quality surface finish.

What kind of solutions do you offer?

We offer standard and tailor-made tooling solutions that cater to the specific demands of this sector. Our engineers work with manufacturers in this industry every day in order to design innovative cutting tools that exceed their expectations. Here are just a few examples:

The Wohlhaupter VarioBore with 3ETECH Digital Module provides precision boring for rod ends and the Wohlhaupter 365 boring head produces quality holes in deeper length-to-diameter ratio applications. The 365 also delivers consistent hole size & superior surface finish with its internal balancing system, perfect for wing hinges.

The DigiBore precision boring tool provides rapid, precise and convenient digital adjustment. In fact, our Wohlhaupter boring line is continuously advancing the digital precision adjustment of the Balance series and now includes an automatic internal balancing facility as well as tools in lightweight Alu-Line construction from Ø 65mm. AMEC's new T-A Pro drilling system lowers production cost. It also improves tool life for manufacturers drilling cast stainless-steel gear actuators or aluminum aerospace connectors. The T-A PCD drill is engineered to increase tool life, minimize delamination, and produce excellent hole quality in carbon fiber wing components. The APX drilling system, developed by AMEC, caters to processes involving deep hole drilling such as in jet turbine engines.

Many manufacturers from the aerospace & defence sector also prefer to work collaboratively with cutting tools majors. Have you had such a collaborative partnership?

Yes, this is a regular exercise for Wohlhaupter | Allied Machine and Engineering. Our cutting tool engineers work both virtually and on site in partnership with manufacturers every day to provide tooling and application support specific to each component's unique requirements.

With the Indian government for pushing for 'Make in India' and 'Atmanirbhar Bharat' for the aerospace & defence sector as well, do you think this would also provide a boost to cutting tools industry?

It would surely provide a boost to the cutting tools industry. A bit more relaxation to the industrial sector and friendlier rules & laws can make it more lucrative for all and push the growth further.

MAINTENANCE ACCORDING TO THE TRAFFIC LIGHT PRINCIPLE

New intelligent solution for the predictive maintenance of the drylin W linear systems

The drylin linear guide systems have to withstand extreme conditions in continuous operation or even in abrasive environments. In order to have the linear guides slide without lubricant, igus relies on linear bearings made of high-performance polymers. But when should I change the bearing? The new smart linear carriage from igus helps here. In accordance with the traffic light principle "stop when red, go when green", the maintenance technician receives information about the maintenance requirement at the push of a button.

Continuous operation, glass dust and wood fibres are extreme challenges for the sliding elements in drylin linear guides. igus has developed a smart drylin linear system to detect wear in the tribo-polymer bearings at an early stage. The principle: a sensor, attached directly to the liner, measures the wear of the bearing, which is insensitive to dirt and dust, and gives the user a signal in good time when the wear limit is reached. The signal can then be transmitted from the icom communication module to an intelligent system via Bluetooth, LoRa or LTE and evaluated. "On the part of our customers, however, there was also feedback that a uniform, superordinate and economical system for processing the signals was not yet available. That's why we have now additionally developed a solution that fulfils the function completely without a network connection," says Stefan Niermann, head of drylin drive technology at igus GmbH. Based on the traffic light principle, the maintenance technician can now find out via a red/green LED display on the carriage whether the liner is in good condition or has already reached the wear limit of 0.5mm. All he has to do is press a button on the carriage. Maintenance can be planned in good time.

Based on the traffic light principle, the maintenance technician is now informed via an LED display on the carriage of the drylin linear guide whether the liner needs to be replaced.

"BASED ON THE TRAFFIC LIGHT PRINCIPLE, THE MAINTENANCE TECHNICIAN CAN NOW FIND OUT VIA A RED/GREEN LED DISPLAY ON THE CARRIAGE WHETHER THE LINER IS IN GOOD CONDITION OR HAS ALREADY REACHED THE WEAR LIMIT OF 0.5MM. ALL HE HAS TO DO IS PRESS A BUTTON ON THE CARRIAGE."

"DOWNTIME AND MAINTENANCE COSTS ARE REDUCED TO A MINIMUM. THE SYSTEM CAN BE PUT BACK INTO OPERATION WITHIN A FEW MINUTES AND IN MANY CASES DOES NOT EVEN NEED TO BE REFERENCED."

Bearings changed in seconds

igus has developed a sophisticated replacement technology for a quick exchange of the bearings. This allows the liner to be replaced directly on the rail. The linear axis or the multiple-axis robot with toothed belt drive no longer has to be disassembled. A free tool from igus helps in dismantling the old bearing and installing the new one. Downtime and maintenance costs are reduced to a minimum. The system can be put back into operation within a few minutes and in many cases does not even need to be referenced.

For more information, contact Vinayak Shetty, Product Manager - drylin®, igus (India) Private Limited, Email: vinayak@igus.in, or visit www.igus.in

UPDATE

HPL SETS UP R&D CENTER FOR SMART METERS

HPL Electric & Power Ltd. has established a new R&D center for smart meter technology. This R&D center, located at the HPL's manufacturing facility at Gurugram, aims to incorporate the recent advancements in smart technologies and materials for the development of new generations of smart metering products. With this investment in developing next generation of smart meter technology, HPL aims to widen its smart meter portfolio, and further strengthen its market penetration domestically as well as internationally.

Gautam Seth, Joint MD, HPL Electric & Power Ltd., said, "We are very much focused on enhancing our smart meter technological base and become the market leader in the segment. We are investing in R&D to develop next generation smart technology to meet the future requirements with best-in-class metering solutions." Over 200 engineers will be working at the R&D center, conducting advanced research in developing solutions for smart meters technology, other metering solutions and communication technology.

TOOLS FOR THE RAILWAY INDUSTRY AS STANDARD

Across many applications, the majority of cutting tools for the railway industry are classed as Specials, designed with the customer and operation in mind. But not all products!

The Penta HD milling cutter was specifically developed for rail switches machining.

Railway focused cutting tools can often be complex due to the specific requirement needed to machine a certain component in an efficient and highly reliable manner. Therefore, across many applications, the majority of cutting tools for the railway industry are classed as Specials, designed with the customer and operation in mind. But not all products!

There are several tools available within Dormer Pramet's standard assortment, which can be used to support the production of various railway components. The company's Penta HD and Econ HN, for example, are milling tools from its Pramet indexable range which can be used for various applications, including machining switches, base plates and wagon parts, such as frames, wheel axles and bogies.

Machining Switches

Rail switches and crossings are the sections that guide trains from one track to another. Dormer Pramet's assortment encompasses tools for machining switches in all major rail profiles. The 60E1 and 60E2 rail profiles, for example, are the most common, especially in Europe. The type T section rail (flat bottom rails) is suitable for medium and heavy load traffic.

In the crossing part of the two rails, known as the frog, manganese steel, also known as Hadfield Steel, is used. An alloy steel, it is ideal for high impact environments. Manganese steel is not magnetic and has a very high abrasion resistance because the crossing must withstand the highest load on a railway track. It is a very tough material, with a low hardness (200-280HB), however, when it is machined, the hardness increases to more than 350HB.

Another material used in the production of switches is Bainite steel, which is much easier to machine, even though it is a harder material at 450HB. It is ideally suited to this part of the track due to its high strength and wear resistance. Rail steel must be designed to be able to resist plastic deformation, rolling contact fatigue, bending and thermal stresses during the welding processes and renovations.

When machining switches, the design is usually made from a single component and therefore one of the first operations is roughing the top and bottom sections of the rail. This requires a large diameter cutter, enabling the fewest number of passes possible. Both the Penta HD and Econ HN assortments have indexable cutters up to 315mm diameter.

"WHEN MACHINING SWITCHES, THE DESIGN IS USUALLY MADE FROM A SINGLE COMPONENT AND THEREFORE ONE OF THE FIRST OPERATIONS IS ROUGHING THE TOP AND BOTTOM SECTIONS OF THE RAIL. THIS REQUIRES A LARGE DIAMETER CUTTER, ENABLING THE FEWEST NUMBER OF PASSES POSSIBLE."

Penta HD

The Penta HD milling cutter was specifically developed with switches machining in mind. Allowing operators to utilize the full power of their machines, the Penta HD with PNMU insert is ideally suited to heavy roughing operations in a variety of material, including steels, stainless steels and cast iron.

Offering up to 10mm depth of cut and a feed rate of 0.7mm per tooth, the range enables high metal removal rates and productivity. Its double-sided insert design with ten cutting edges has an available length of 100mm, with each edge numbered for easier indexing.

Econ HN milling tools can be used for various railway applications.

In a recent test example, the Penta HD with PNMU insets, M chipbreaker and M8345 grade was able to machine 4,600mm of track in 39 minutes, with a cutting speed of 70m/min, a feed rate 0.33mm/tooth and an axial depth of cut (ap) at 7mm.

Another key feature of the Penta HD is the use of Dormer Pramet's patented Sidelok technology system, which provides quick and easy clamping and release of the inserts. With a large retention screw permanently remaining in the cutter body, inserts can be quickly changed

Examples of rail components which can be machined with Dormer Pramet's standard indexable milling tools.

Railway switches during the production process.

enabling more machine time and further increasing productivity.

Econ HN

Additional railway operations where standard tools can be used include the machining of base plates - the connecting element which ensures the rail is securely attached to the tie or sleeper. Also, wheel set axles, break-pad connectors, beam bolsters and bogie frames all require machining into shape.

For all these applications, customers demand high productivity, while at the same time, respecting specific production limitations and materials. In any initial machining, face milling cutters are usually the most suited tool. This allows for the removal of large amounts of metal and creates a smooth, flat surface and base, before specific shaping can be performed for connectivity with other components.

When machining the bottom part of base plates, for example, face milling cutters with diameters up to 160mm are often used. The Pramet Econ HN assortment offers a 45° face milling cutter, which is available from 25 - 315mm in diameter and includes the HNGX 06 and HNGX 09 inserts.

Designed to generate improved surface quality, the indexable range can perform both roughing (up to 6mm depth of cut), through to finishing (up to 1mm depth of cut). Its inserts have 12 cutting edges, with a wiper option for higher surface finish and is ideally suited to machining cast iron, as well as steels.

High insert density for high productivity and longer tool life, means lower cutting forces are required. Also, a differential tooth pitch and a unique geometry (F, M or R) for each operation, from finishing to roughing, along with an internal coolant supply, provides high tool accuracy and quiet running.

"ALSO, A DIFFERENTIAL TOOTH PITCH AND A UNIQUE GEOMETRY (F, M OR R) FOR EACH OPERATION, FROM FINISHING TO ROUGHING, ALONG WITH AN INTERNAL COOLANT SUPPLY, PROVIDES HIGH TOOL ACCURACY AND QUIET RUNNING."

For more information, visit www.dormerpramet.com. Alternatively, speak with your local sales team or official distributor.

INVESTMENTS

TAMIL NADU SIGNS 14 MOUS WORTH RS.10,055 CRORE

In continuation with 42 MoUs worth Rs 31464 Crores in Q1 and Q2

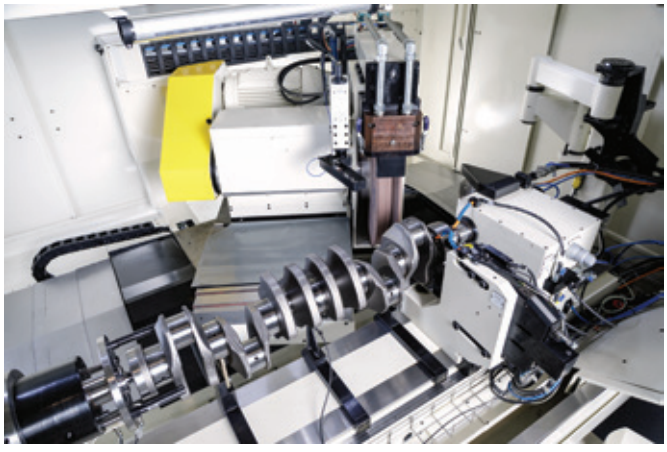
The Government of Tamil Nadu signed 14 Memorandum of Understanding (MoUs) worth Rs. 10,055 crore recently. These are in continuation with 42 MoUs worth Rs. 31,464 Crore in Q1 and Q2 that will generate 69,712 jobs. MoUs signed with foreign and domestic companies will generate an additional 7000 new jobs in the state and will provide a fillip to the sustainable investment climate of Tamil Nadu. Tamil Nadu signed an MoU with JSW Renew Energy's hybrid project for Rs. 6300 crore. MoUs with Aosheng & TPI Composites were also signed for renewable energy manufacturing.

Keeping the impetus for data centre investments worth Rs. 8300 crore from Yotta infrastructure, HDCI Data Centre Holdings and ST Tele Media, an MoU was signed with Spain's Mantra Data Centre for Rs. 750 crore. Tamil Nadu continues to attract investments in automobile and auto components and MoUs were signed with Apollo Tyres for Rs. 505 crore, Hyundai Wia for Rs. 109 crore and LS Automotive for Rs. 250 crore. The state continues to attract electric mobility investments and has signed MoUs with Li-Energy for Rs 300 crore and Grinntech for Rs. 90 crore.

GRINDING FLANGES AND JOURNALS SIMPLY AND PRECISELY

The thyssenkrupp Crankshaft Company in Danville, IL, uses the NUMERIKA GH1500 machine from ZEMA to grind their crankshafts. The reliable external grinding machine works in a three-shift operation seven days a week, grinding flange and post end on heavy-duty crankshafts.

The NUMERIKA GH1500 cylindrical grinding machine reliably produces thyssenkrupp's crankshafts. The user-friendly control system, a torsion-resistant machine bed, hydrostatic guides and grinding spindles with hydrostatic bearings ensure ideal corundum grinding results. The user-friendly control system offers the required input screens for grinding with corundum.



Crankshaft processing: The flange and journal are ground precisely (Source: ZEMA)

thyssenkrupp Forged Technologies operates 17 locations in 8 different countries and is part of the thyssenkrupp AG headquartered in Essen, Germany. In his 21 years at thyssenkrupp, Process Engineering Manager Jose Fernando Dias de Moraes has been actively involved in several grinding projects at the company's production sites worldwide. His experiences with ZEMA Zscelica Ltda during his career have been very positive and valuable.

Dias de Moraes has been at the site in Danville, IL for four years now. Together with six other engineers, he oversees four production lines. The NUMERIKA GH1500 grinds crankshafts in three-shift operation seven days a week. The line, which mainly produces crankshafts for heavy-duty trucks and construction machinery from around the world, will expand with an additional NUMERIKA GH1500 by the end of this year.

"We have replaced a machine from the production line with the NUMERIKA, as the machine previously used was no longer reliable enough. Also, the NUMERIKA works with precision and is easy to operate. We had already carried out a few projects together at other thyssenkrupp sites. The price and service are spot on. You can always rely on the team from ZEMA and JUNKER – and that creates trust," he explains.

> "The line, which mainly produces crankshafts for heavy-duty trucks and construction machinery from around the world, will expand with an additional NUMERIKA GH1500 by the end of this year.

> "We have replaced a machine from the production line with the NUMERIKA, as the machine previously used was no longer reliable enough. Also, the NUMERIKA works with precision and is easy to operate." Process Engineering Manager **Jose Fernando** Dias de Moraes

Source: Junker Group. For information, visit www.junker-group.com

METAL BINDER JETTING SIMULATION

Simulation irons out Metal Binder Jetting defects to enable mass-production Additive Manufacturing

Simufact, part of Hexagon's Manufacturing Intelligence division, has introduced metal binder jetting (MBJ) simulation, that is enabling manufacturers to predict and prevent the distortion that sintering processes will have on parts at the design stage for the first time. The new simulation tool marks a significant step forward for additive manufacturing because it helps manufacturers achieve the quality they require while exploiting the unique benefits MBJ offers for volume production.

Three phases of automated optimisation show compensation for distortion using the Metal Binder Jetting module in Simufact Additive. The results show the deviation between the simulated part and its initial CAD geometry – blue / red: bad; green: good.

Metal binder jetting is an emerging additive manufacturing technology that has several key advantages over common powder bed fusion processes; high volumes of parts can be printed with minimal spacing; no support structures are needed, and larger lot sizes are possible. It has the potential to replace low-volume, high-cost metal injection moulding for everything from automotive and aircraft parts to medical applications. Because high resolution is possible, it could also reduce the cost and lead times for production of complex and lightweight metallic parts such as gears or turbine wheels.

However, early adopters can expect a steep learning curve to learn how to achieve the quality they need to exploit these benefits. One key challenge has been predicting changes during the sintering process. A part can shrink as much as 35 percent and the simple shrinkage models used for other processes cannot predict distortion during the post-build sintering process. Until now, costly physical trials were required to perfect the printing of each part, preventing many manufacturers realising the low cost and flexibility MBJ offers.

Made available to existing Simufact Additive customers in August, the new tool extends its capabilities for MBJ processes. Manufacturers can predict the shrinkage caused by factors such as the thermal strain, friction, and gravity during sintering without specialist simulation knowledge. By compensating for these changes, parts can be 3D Printed as they are designed, and production teams can significantly reduce the proportion of parts that must be scrapped or re-processed. Sintering-induced mechanical stress is also predicted before print, indicating where defects might occur. Manufacturers can use this information to make changes earlier in their product development and reduce the need for costly redesign.

Designed for busy manufacturing professionals, the tool can automate the model setup, preparing the CAD or CAE file for manufacturing simulation and simulations can also be automated through Python scripts. To validate the sintering compensation and increase confidence in quality, the optimised geometry from the MBJ tool can be immediately compared to both the initial design (CAD) geometry and a metrology scan of a manufactured part within user interface.

"We are pleased to introduce the first solution for simulating metal binder jetting sintering process to the market so that manufacturers can take advantage of this important new method. We know customers see metal binder jetting as a pivotal technology for manufacturing, particularly where there's a need to need to produce intricate parts at high volumes like the automotive industry.

This development was only possible through close collaboration between our manufacturing and printer equipment partners and our highly experienced research & development department," said Dr. Gabriel McBain, Senior Director Product Management, Simufact & FTI.

Learn more about the solution at www.simufact.com/application-metal-binder-jetting.html

CERTIFICATION MENTORING PROGRAM FOR START-UPS AND MSMES

In the implementation of safety and security standards

LDRA has announced the reinitialization of the LDRA Certification Mentoring Program (LCMP), a unique initiative catering for start-ups and MSMEs in the India and South East Asia region. Originally launched two years ago, LCMP is a part of the LDRA Certification Ecosystem Development Program (CEDP), a broader industry initiative designed to create a dynamic industrial ecosystem by skill-building across all stakeholders.

With a decade of operational experience in India and a prominent presence across the embedded software sectors, LDRA is looking to support start-ups and MSMEs in the creation of world-class safe and secure products for industries including aerospace and defence, automotive, medical, industrial, energy, semiconductor, rail transportation and communications.

"An all-inclusive package benefitting from our in-depth knowledge on industry practices and standards, long-term industry experience and well-established pedigree is going to support the survival and growth of any new enterprise in this dynamic ecosystem," observed Ian Hennell, Operations Director, LDRA. "The annual growth rate for the number of new start-ups in India is about 15%, and many of these fledgling organizations have disruptive ideas capable of leading our industry in new directions. We aim to support the whole ecosystem with LCMP, becoming a part of each exciting start-up journey."

LCMP offers all the necessary tools, services and support as a comprehensive, exclusive, and affordable package to help budding enterprises to access the global market by developing world-class technology products. The program includes mentoring and consultation services, a skill-building training curriculum, affordable testing tools and exclusive industry-connect programs.

"Our primary goal for LCMP is to address the missing component in the start-up product development ecosystem. Stringent regulatory requirements drive the safety- and security-critical industries, and delays associated with product certification can have a major impact on the time to market, profitability and viability of a new venture," said Shinto Joseph, Director – South East Asia Operations, LDRA. "Through our mentoring program, we aim to become engaged with the start-ups and MSMEs at a very early stage of product development. We look to nurture their capabilities through our expert guidance and support, helping them to build products that comply with local and international certification requirements", he concluded.

For more information, visit www.ldra.com or contact Neeraja Nair, Assistant Manager – Marketing Communications, LDRA Technology Pvt. Ltd, at neeraja.nair@ldra.com

LAUNCH

THE NEXT LEVEL IN MACHINE TOOLS SERVICING

Micromatic 360 is the comprehensive post-sale life-cycle services made exclusively for AceMicromatic Group customers.

Micromatic Machine Tools has announced the launch of its dedicated post-sale services-Micromatic 360 on October 21, 2020. At AceMicromatic group, customers are the central element upon which all solutions and services are provided. Over the years, Micromatic Machine Tools has set a certain bar in the servicing of machines tools. A dedicated department was established to ensure that the needs of the customers concerning their machines are always met. With the best in class MTTR of less than four hours, taking things one step ahead of the standard was the next move for Micromatic.

The machining landscape today is changing at a rapid pace. Preventive maintenance and timely upgrades are critical to giving machines a new life and improved performance to meet customer demands like improved precision, quick turnaround times and increased volumes in their machined parts. To acquire such features, customer need not seek out different service providers or even different departments within the same company. With Micromatic 360, Ace Micromatic Group offers customers the convenience of complete machine servicing solutions in just one place.

Micromatic 360's Full Suite offerings

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- Machine Reconditioning & Retro-fitment
- Ace Value
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- Upgrades & Additional Features
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For more details, contact salesmmt@acemicromatic.com

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