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THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

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GODREJ's FLIGHT OF MAKE IN INDIA

DEFENCE
RAFAEL ON THE MOVE IN INDIA

INTERVIEW
VINOD COOKWARE'S RECIPE OF SUCCESS

MACHINIST MANUFACTURING CONFERENCE & EXHIBITION 2020

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A BETTER & BRIGHTER FUTURE!

Well, we are in a royal mess. Let's accept it! A really ruthless slowdown had almost broken up the back of the economy in the previous fiscal. And we all know what this Covid-19 pandemic has done to further aggravate an already weak market. Yes, there are those silver linings, but the overall situation still remains bad.

But having accepted this grim reality, it is now time to think about a better and brighter future. One cannot have a good tomorrow by running away from a messy today. One has to create a future by changing and transforming the mess of the present times. It

"IT IS FROM TODAY'S CHAOS THAT WE HAVE TO CONSTRUCT TOMORROW'S ORDER."

is from today's chaos that we have to construct tomorrow's order. And for that we need more of hope and less of fear. We need more of dreams and less of doubts. We need more of collaborations and less of isolations. We need more of compassion and less of competition. We need more of manufacturing and less of politicking. So let's get going.

Editor & Chief Community Officer

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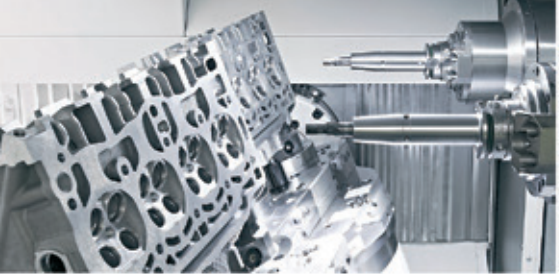

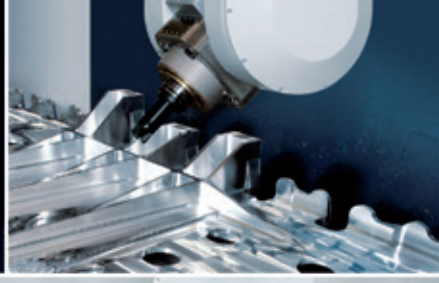

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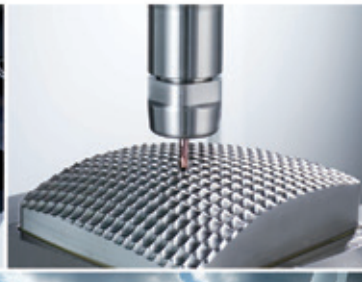

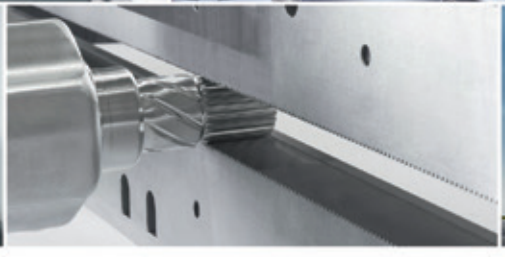


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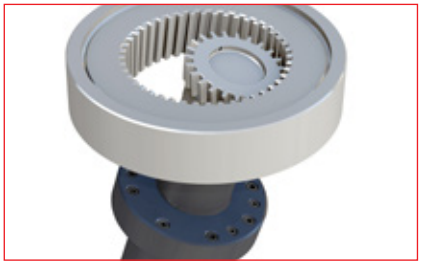

Machining

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High Performance Cutting Tools

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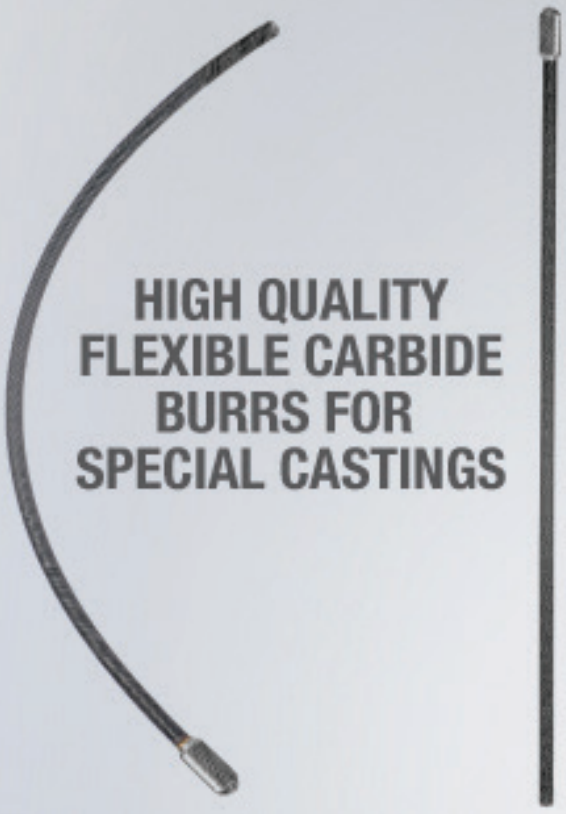
High Performance Cutting Tools



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Atal Innovation Mission launches 'AIM-iCREST'

IN A MAJOR INITIATIVE to encourage and enable holistic progress in the incubator ecosystem across the country, NITI Aayog's Atal Innovation Mission (AIM), has launched AIM iCREST – an Incubator Capabilities enhancement program for a Robust Ecosystem focused on creating high performing Startups. This is a first of its kind initiative for advancing innovation at scale in India. AIM has joined hands with Bill & Melinda Gates Foundation and Wadhwani Foundation - organisations that can lend credible support and expertise in the entrepreneurship and innovation space. These

partnerships will provide global expertise and showcase proven best practices to the AIM's incubator network. AIM iCREST, as the name suggests, has been designed to enable the incubation ecosystem and act as a growth hack for AIM's Atal and Established incubators across the country. Under the initiative, the AIM's incubators are set to be upscaled and provided requisite support to foster the incubation enterprise economy, that will help them to significantly enhance their performance. This will be complemented by providing training to entrepreneurs, through technology driven processes and platforms. The program aims at going beyond incubator capacity building. Given the current pandemic crisis, the effort will focus on supporting start-up entrepreneurs in knowledge creation and dissemination as well as in developing robust and active networks.

Studds starts operations at its new facility in Haryana

STUDDS ACCESSORIES LTD. has commenced operations at its new, state-of-the-art manufacturing facility at Faridabad in Haryana. Spread across an area of over 5.5 acres, the Company has made an initial investment of over Rs.160 crore to set-up the largest helmet manufacturing facility in Asia. Apart from producing some of the most popular motorcycle helmets from Studds, including the Shifter and Thunder series, the facility will also produce bicycle helmets for domestic market. In addition to setting-up the biggest helmet manufacturing facility in Asia, Studds also recently began operations at its another manufacturing plant, which is India's only facility with an in-house Expanded Polystyrene (EPS) production line. EPS is a crushable foam used in helmet production and is the most important safety feature in the helmet. Spread across 1.5 acres, Studds has invested Rs. 40 crore in the second plant, marking a total investment of over Rs. 200 crore in the manufacturing plants. The new plants will have production capacity of 7.5 million units of motorcycle helmets and 1.5 million bicycle helmets per annum. These facilities will ensure direct employment for over 1500 individuals.

Motherson production picked up in June 2020

MOTHERSON SUMI SYSTEMS LIMITED (MSSL) has announced financial results for its fiscal 2020-21 first quarter, which ended on 30th June 2020. Commenting on results, Vivek Chaand Sehgal, Chairman, MSSL said, "Coronavirus pandemic has created unprecedented challenges for the global automotive industry. Lockdown in various parts of the world severely dented demand for automobile sector in the first quarter of the fiscal. Our topmost concern and focus during this period were the well-being and safety of our employees across all our plant locations and we worked on a war footing to put robust safety protocols in place. We thank our team members globally who worked very hard under these challenging conditions to ensure uninterrupted supplies to our customers. However, even though first quarter was a wash out, economies have started witnessing green shoots of recovery. Our teams and plants across the globe have also resumed operations and are working closely with our customers to fulfil their requirements. We now expect demand for the auto industry to gain momentum in the coming quarters of this fiscal year"

Honeywell starts N95 mask production line in India

HONEYWELL has announced that it has begun production of up to two million disposable face masks monthly at its Fulgaon manufacturing facility in Pune, India. The masks will be supplied to frontline healthcare workers, emergency responders and government organizations as part of the efforts to combat Covid-19 in India. The masks are designed in alignment with India Bureau of Indian Standards and U.S. National Institute for Occupational Safety and Health (NIOSH) standards. "As a global leader in manufacturing superior quality personal protective equipment, Honeywell is proud to manufacture superior quality face masks to protect frontline healthcare workers in their fight against the global pandemic," said Akshay Bellare, President, Honeywell India. "We are committed to India's mission to be a self-reliant nation and bring our technical capabilities to support frontline workers in their efforts to help those in need." "We are proud of our team for setting up a highly advanced production line with physical capacity and technical capabilities to manufacture the face masks that are designed to meet NIOSH standards," said Asheesh Arora, VP & GM, Honeywell Safety and Productivity Solutions, APAC.

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Jindal Aluminium opens new powder coating facility

JINDAL ALUMINIUM LTD (JAL) has announced the launch of powder coating services from August 10, 2020, to augment its product offerings in the architectural and industrial applications. The one of its kind environment-friendly powder coating technology is capable of achieving 1/1000 mm level of accuracy. The process involves powder dispersion, electrostatic charge and curing. It gives buyer one of the most durable colour and long-lasting quality finish aluminium, resistant to fading, scratching, wearing and peeling. The company is set to have a coating capacity of up to 25MT per day with an expected plant availability of 95%. A range of attractive RAL shades and tailored hues in the glossy, semi-glossy, matte-textured and metallic finishes are available for its clients. Pragun Jindal Khaitan, VC & MD at Jindal Aluminium Limited stated, "With the introduction of powder coating services, we are set to further strengthen our position as a manufacturer and supplier of quality aluminium products. The superior quality coating coupled with minimized lead time, colour variation and variety of finishes enable the customers to procure quality powder coated aluminium profiles from us."

ABB India opens new robotics facility

ABB INDIA has opened a new robotics facility to support the digital transformation of manufacturing in India. Spread over 3,600 sq.m at the ABB Nelamangala factory premises in Bengaluru, the new facility will enable ABB India to deliver robotic applications and digital solutions for a variety of Indian industries, including automotive, food & beverage, electronics and other upcoming sectors. The facility houses a state-of-the-art shop floor that can run proof of concepts and factory acceptance tests for 1000 ABB robots every year, which doubles the company's capacity. This enables rapid innovation, adaption, optimisation and agile delivery of made-to-order robotics applications for Indian customers. Sanjeev Sharma, MD, ABB India, said: "Even with increased demand for automation, the penetration of robotics, especially in small and medium enterprises is still low in India compared to the global average. With the help of the new and improved robotics facility, we will be able to share our knowledge and encourage Indian manufacturers to embrace our game changing technologies and become best-in-class manufacturers for local and global markets."

Kamdhenu restarts 80% of its TMT bars manufacturing

KAMDHENU LIMITED has resumed around 80% of its production capacity of branded TMT bars from its franchisee manufacturing plants across India. These manufacturing plants are situated across the country including Odisha, Gujarat, Karnataka, Telangana Andhra Pradesh, Bihar, Goa, J&K, Rajasthan, Uttar Pradesh, Uttarakhand, Himachal Pradesh, Punjab, West Bengal, Jharkhand, MP, Northeastern region and other states. "With the start of phase 3 of unlocking in India, we are expecting the gradual recovery of the economy in the coming months. We, at Kamdhenu Limited, have resumed effectively operations of around 80% at our steel TMT bars manufacturing units. At the same time we are also adhering to all the precautions at all our offices and manufacturing units such as social distancing, sanitization, wearing of hand gloves and other norms," said Satish Kumar Agarwal, CMD, Kamdhenu Group. "The company is expecting to resume full operation across the country soon, we are working towards that," Agarwal added.

Amara Raja & Blaze set up a joint venture

AMARA RAJA GROUP AND BLAZE have signed a Joint Venture agreement to set up Amara Raja Blaze Technologies Pvt. Ltd (ARBT). This JV will leverage their combined strengths and cumulative experience spanning over three decades to innovate, develop and manufacture IoT devices for the world market. The JV will be a full-service provider of 'Concept-to-Product' and will set up a Center of Excellence (COE) focusing on product Innovation and world-class Manufacturing services for IoT based devices. The COE will help its global customers every step of the way from proof of concept to the prototyping and mass manufacturing of new products related to home/building automation, intelligent lighting, enterprise automation, energy management, elderly care and wearable devices. This JV's objectives dovetail into PM Modi's vision of 'Atmanirbhar Bharat'. The JV will start delivering 'Made in India' products to its customers as early as September 2020. Jayadev Galla, Vice Chairman, Amara Raja Group said "We will lend our expertise and capabilities in the manufacturing space and leverage Blaze's design credentials to provide turnkey solutions that are both Made and Designed in India."

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Thierry Bolloré is new CEO of Jaguar Land Rover

Chandrasekaran, Chairman of Tata Sons, Tata Motors and Jaguar Land Rover plc has announced that Thierry Bolloré has been appointed to the role of Chief Executive Officer of Jaguar Land Rover, effective September 10, 2020. Chandrasekaran said: "I am delighted to welcome Thierry to Jaguar Land Rover. An established global business leader with a proven track record of implementing complex transformations, Thierry will bring a wealth of experience to one of the most revered positions in the industry." Bolloré has extensive expertise in the automotive business, most recently as CEO of Groupe Renault and previously in senior positions at global automotive supplier Faurecia. Commenting on his appointment, Bolloré said: "Jaguar Land Rover is known around the world for its peerless brand heritage, exquisite design and deep engineering integrity. It will be my privilege to lead this fantastic company through what continues to be the most testing time of our generation. Bolloré succeeds Prof Sir Ralf Speth, who will take up the previously announced position of Non-Executive Vice Chairman of Jaguar Land Rover plc.

Thomas Schäfer takes over as Chairman of Škoda Auto A.S.

Thomas Schäfer takes over as Chairman of the Board at Škoda Auto with immediate effect. In this position, he succeeds Bernhard Maier, who is handing over the office to his successor after almost five years at the helm. Thomas Schäfer has assumed the role of Chairman of the Board at Škoda Auto on August 3, 2020. The qualified mechanical engineer began his career in the automotive industry at Daimler AG in 1991. He held various management positions in the areas of production and quality management in Germany, the USA and South Africa until 2002. From 2002 to 2005, he was a founding member of DaimlerChrysler Malaysia as Board Member for Technology, where he expanded and restructured the company's sales, production, and supplier base. Throughout his five-year tenure, he consistently promoted the expansion of the sales network, increased dealer profitability and led the Group brands Volkswagen, Audi and VW Commercial Vehicles to the current record market share of 23.5 per cent. Under the leadership of Thomas Schäfer, the Volkswagen Group has significantly developed and strengthened its position in sub-Saharan Africa. Building new production sites, entering into new cooperation agreements with importers and developing mobility concepts for Kenya, Nigeria, Rwanda and Ghana have also contributed to this.

Gilles Vidal joins Groupe Renault design team

Groupe Renault has announced that Gilles Vidal will join the Group's Design team starting November 2020. He will report to Laurens van den Acker, EVP, Corporate Design and member of Groupe Renault's Executive Committee. Laurens van den Acker said: We are thrilled to welcome Gilles Vidal into our team. Gilles has an intimate knowledge of creating strong and attractive design-led brands. His widely recognized experience, his sense of innovation and passion for design will be great assets for Groupe Renault. Gilles has been an inspiration for many, and I'm looking forward to work with him to meet the challenges of tomorrow's mobility. Gilles Vidal, 48, has been Design Director of the Peugeot brand since 2010. Under his impetus, the brand has renewed its stylistic identity, with an upscale positioning embodied by cars such as 3008 and 508. Within the PSA Group, he was also in charge of User Experience (UX) and User Interface (UI) developments and the creation of the Peugeot Design Lab agency. Gilles Vidal has spent his entire career with the PSA Group. He is a graduate of the Art Center College of Design in Vevey, Switzerland.

Anoop Seth joins Sterlite Power's Board of Directors

Sterlite Power, a leading global power transmission player, announced the appointment of Anoop Seth as an independent director of the company. Seth is a distinguished leader in the infrastructure and finance sectors. He has held leadership positions in companies such as AMP Capital, Bank of America, Bechtel Corp, IDFC, Reliance Industries, Standard Chartered Bank, and IL&FS Energy. He will advise the Board and leadership team on matters related to strategy and growth. Commenting on the appointment, Pravin Agarwal, Chairman, Sterlite Power, said, "I am delighted that Anoop Seth is joining the Sterlite Power Board. His significant experience in finance and infrastructure sector will stand us in good stead as we continue to make rapid strides in the power sector." Anoop Seth, Independent Director, Sterlite Power, added, "I am pleased to join the Board of Sterlite Power and look forward to advising and supporting the leadership team in their journey to build a world class organisation." Seth has an illustrious career spanning thirty-five years, in financial services and several infrastructure sectors. He completed his MMS from BITS Pilani in 1982 with a major in Finance, and Executive International Management Programme from INSEAD, France in 1993.

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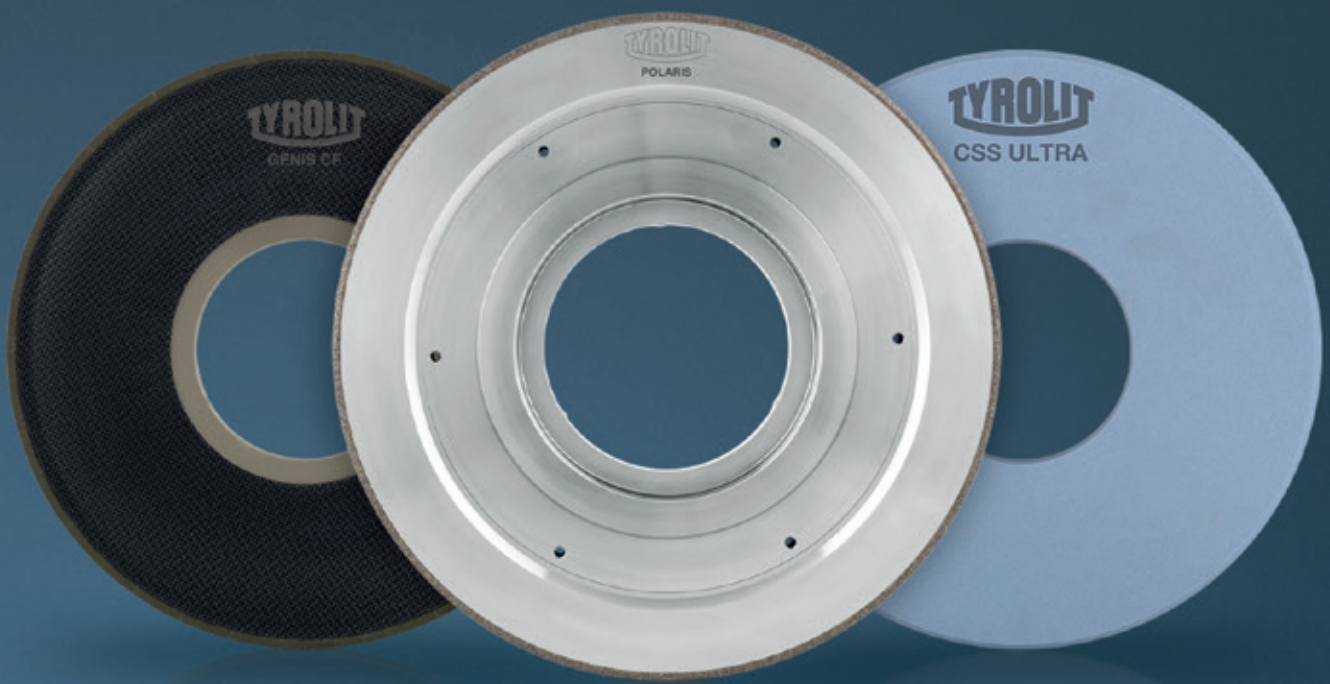

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Hindustan Zinc Ltd appoints directors on its boards

Zinc and Silver mining major, Hindustan Zinc Ltd, a subsidiary of India's largest diversified natural resources company Vedanta Ltd, announced the appointment of Anjani K Agarwal, a former senior partner of EY and Akhilesh Joshi, former CEO of HZL as Directors on its Board effective August 1, 2020. The Udaipur-headquartered HZL is the largest producer of zinc, lead and silver in India and has ambitious growth plans. Anjani Agrawal retired from EY in June 2019 after a 40 year long professional career, 26 of which were spent as Partner at the global consulting firm. He has worked with the Union Government and NITI Aayog on several policy matters and has been guest faculty at the Indian School of Business and SDA Bocconi. Said Agrawal on his appointment, "Hindustan Zinc is amongst the most successful value-creation stories post privatization and has made significant progress over the years. I look forward to working with the Board of Directors, Management team and its young talent pool for sustainable development of the business for the benefit of all stakeholders."

Former Tesla VP joins Rimac Automobili as CTO

Rimac Automobili has appointed former Aston Martin Chief Engineer, VP of Engineering at Tesla and lead at Apple's Special Projects Group, Chris Porritt, to the role of Chief Technology Officer. Chris will report directly to founder and CEO, Mate Rimac, with focus on future Rimac projects. With a career spanning more than three decades, Chris has overseen the development of a number of bespoke performance and electric vehicles. During his 16 years at Aston Martin, he was Chief Engineer for the hand-built, limited production One-77 hypercar and V12 Vantage Zagato. In 2013, Chris moved to California to become VP of Engineering at Tesla and then Apple, where he held a senior role within the Special Projects Group. His combined experiece of high-end supercar development at Aston Martin, engineering electric vehicles at Tesla and his race-car enthusiasm, make him the perfect addition to the Rimac team. Chris joins Rimac Automobili from Apple. Chris Porritt, Chief Technology Officer, Rimac Automobili, said: "The opportunity to join Rimac Automobili is an engineer's dream. Since nearly every key component is designed and built in-house by Rimac, this gives us freedom to create something that's unlike anything else that has been done before in the Hypercar world."

Dr. Karl Weber in top-level IEEE committee

Dr. Karl Weber was appointed as official representative of the German Federal Ministry of Economics and Energy (BMWi) to the Government Engagement Program on Standards (GEPS) of the world's largest professional association of electrical and information technology engineers IEEE (Institute of Electrical and Electronics Engineers). The committee advises the IEEE Standards Association (IEEE SA) and enables governments from all over the world to access and participate in the standardization processes of the IEEE. Dr. Karl Weber is now the first representative from the European Union to join the GEPS. For Beckhoff, the appointment of its colleague Dr. Karl Weber as official representative of the BMWi to the top-level IEEE committee is a great honor and recognition. "With our colleague Dr. Karl Weber, GEPS gains a very experienced automation expert who is both committed to consistent standardization as a sustainable basis for industrial communication and has a comprehensive understanding of the concerns of government, the IT industry and automation and brings them together in a focused way," says Hans Beckhoff, Managing Owner of Beckhoff Automation and IEEE senior member.

Mirko Sgodda to succeed Ulrich Bastert at Daimler Buses

Mirko Sgodda (46), currently Head of Compliance Trucks & Buses, will become the new Head of Marketing, Sales and Customer Services at Daimler Buses on October 1, 2020. He will succeed Ulrich Bastert (60), who will retire on September 30, 2020 after 35 years at Daimler. "I'd like to sincerely thank Ulrich Bastert for more than three successful decades in various key functions at Daimler Trucks & Buses," said Martin Daum, CEO of Daimler Truck AG. "In addition to his incomparable sales knowledge, Ulrich Bastert is one of our strongest leaders. He is taking his well-earned retirement. His entrepreneurial attitude and consistent customer orientation are exemplary. We wish him all the best in his next chapter of life." "In Mirko Sgodda, a highly competent and prudent manager takes over the management of Marketing, Sales and Customer Services at Daimler Buses. He has extensive sales experience in the commercial vehicle sector in a wide variety of regions. In addition, in recent years he has further developed the Daimler Trucks & Buses compliance organization and therefore knows our organization extremely well. We are very pleased that Mirko Sgodda is now part of the management team at Daimler Buses," said Till Oberwörder, Head of Daimler Buses.

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New joint Managing Director for Romaco Innojet

Michael Van den Bossche has just been appointed new Managing Director of Romaco Innojet. He will share the running of the company with Bastian Käding, who has been at the helm of Romaco Innojet since 2018. Romaco Holding GmbH has just announced the appointment of Michael Van den Bossche as new Managing Director of Romaco Innojet with effect from 1 August 2020. In his new role he will be responsible for Sales, Laboratory, Customer Service and Product Management. Van den Bossche will share the management of Romaco Innojet with Bastian Käding, who has been at the helm of the company since 2018 with responsibility for Project Management, Engineering, Operations and Administration. Prior to joining Romaco Innojet, Belgian-born Van den Bossche, who holds a master's degree in biochemical engineering, worked for various leading international players in the business of processing technologies, process design and development. In the course of his professional career spanning nearly two decades, he has gained extensive experience in the sale of processing solutions for the pharmaceutical and food industries. During the last few years, he has increasingly focused on continuous technologies for manufacturing pharmaceutical solids. Van den Bossche has lived in Germany since 2017.

Waters Corporation names Udit Batra President & CEO

Waters Corporation has announced that Dr. Udit Batra has been named the Company's President and CEO, effective September 1, 2020. He will also join Waters' Board of Directors at that time. Dr. Batra succeeds Christopher O'Connell who will remain in his current roles as President and CEO, and as a member of the Board until September 1, 2020. As previously announced, O'Connell will also remain with Waters as an advisor until the end of this year to support the transition. Dr. Batra brings to Waters more than two decades of leadership and operational expertise in the healthcare and life sciences industry, including a proven track record of driving results at the top of the industry and successfully managing a global organization. Most recently, Dr. Batra served as Chief Executive Officer of the $7.7 billion Life Science business of publicly traded Merck KGaA, Darmstadt, Germany, which operates as Millipore Sigma in the United States and Canada. In this role, he led the business' successful integration of Sigma-Aldrich, which was acquired in 2015, resulting in the creation of Millipore Sigma. Since that time, Dr. Batra oversaw a strategic transformation of the business and drove above-market organic sales growth and margins, which remain the highest among MilliporeSigma's integrated peers.

Dow India appoints new Country President

Dow Chemical International Pvt. Ltd (Dow India) has announced the appointment of Chandrakant Nayak as the company's new Country President, effective from September 1, 2020. He will oversee the next phase of expansion and growth of the leading material sciences company. He will uptake this additional responsibility along with his current role as Commercial Director – Polyurethanes for India and India Sub-Continent. Nayak has been with the company for over 25 years and has held several key leadership positions across multiple business units and regions. Closely associated with the rapid growth in India, he has played a key role in establishing Dow India's business partnerships across major industries including packaging, telecom, automotive, and consumer markets through local business models and innovative product solutions. Nayak joined Dow in 1995 in Mumbai as Business Manager for the Polyethylene business and has had extensive experience in key growth economies in Asia, the Middle East, and Africa. Passionate about community initiatives, he was instrumental in the development and launch of the company's signature CSR program – the Polyurethanes Jaipur Foot Project – which has received international acclaim.

Rahul Tikoo is MD for Huntsman Indian Subcontinent

Huntsman Corporation has appointed Rahul Tikoo as Managing Director of both the corporation's business in the Indian Subcontinent and its Polyurethanes division in India, effective July 1. In his dual role, Rahul is responsible for driving corporate growth strategy and accelerating Polyurethanes division business in India. He reports to Rohit Aggarwal, president of Huntsman's Textile Effects division, for the Huntsman India corporate business and to Steen Weien Hansen, VP of Huntsman's Polyurethanes – Europe, Africa, Middle East and India, for the Polyurethanes business. Huntsman's presence in the Indian Subcontinent encompasses the textile effects, advanced materials and polyurethanes divisions, two manufacturing sites, corporate shared services and a major research and development facility serving the region. Rohit Aggarwal said: "We are pleased to welcome Rahul to Huntsman and are confident that his business acumen and diverse industry experience will lead Huntsman to our next phase of growth." Steen Weien Hansen added: "The Indian Subcontinent is a very important emerging market for our Polyurethanes business. Our customers respect innovation. Under Rahul's leadership, we will strengthen our innovation and customer-centric approach." Rahul joins Huntsman from BYK, where he was managing director of its South Asia region. Prior to BYK, he held various roles with Agfa and AkzoNobel.

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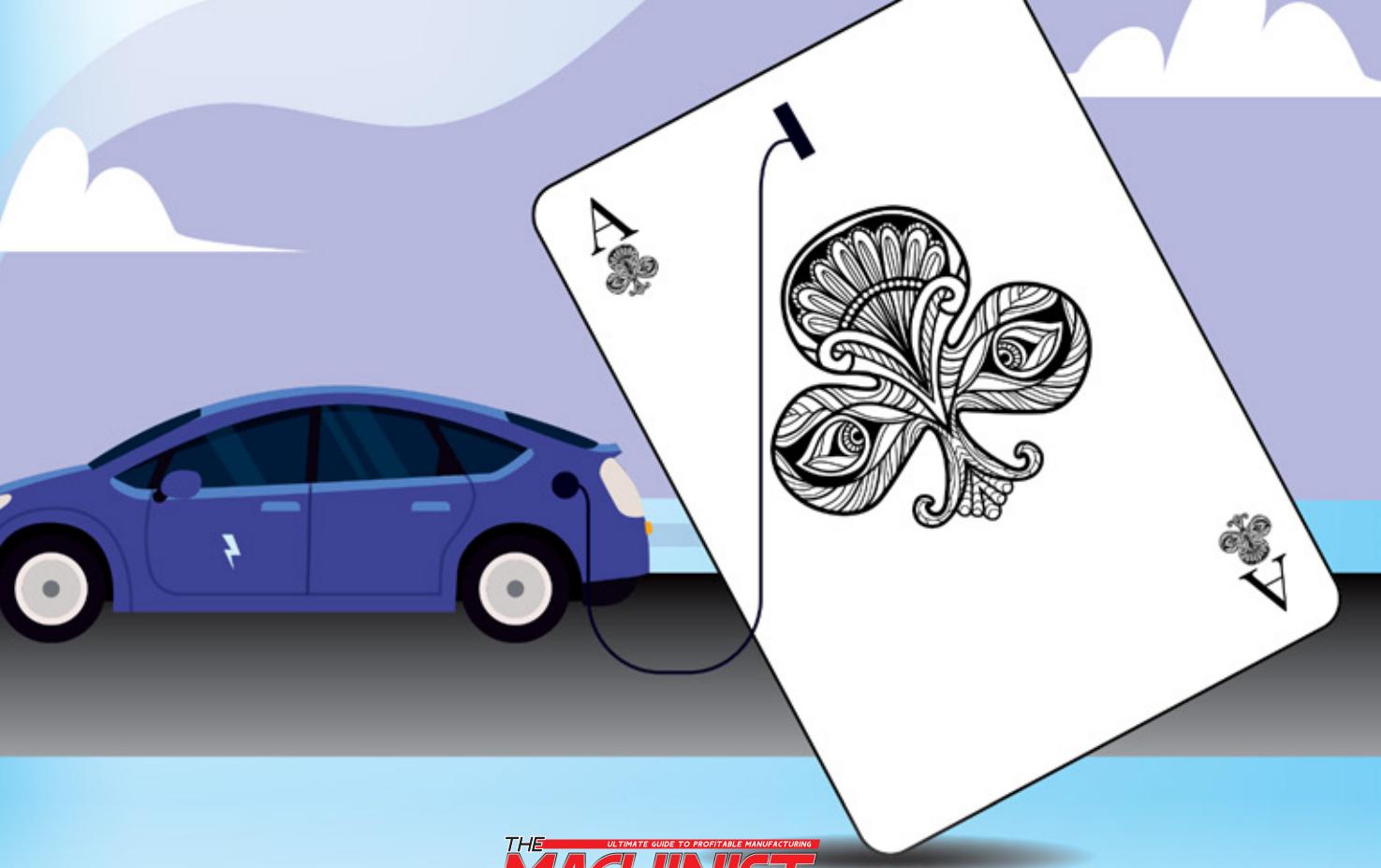

THE MACHINIST
ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

EV ACE LIST 2020

With the Indian electric vehicles industry ready to ride into an electrifying period, The Machinist lists out some of the key leaders who will be at the forefront of the EV Future.

Mahesh Babu
MD & CEO, Mahindra Electric Mobility

Diego Graffi
Chairman & MD, Piaggio Vehicles

Sulajja Firodia Motwani
Founder and CEO, Kinetic Green

Chandan Mundhra
Chairman & MD, Savë Electric Vehicle

Ankit Kumar
CEO, GoZero Mobility

Kapila Soni
Managing Director, Croyance Automotive Private Limited

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Mahesh Babu

MD & CEO, Mahindra Electric Mobility

By Niranjan Mudholkar

How has the Covid-19 outbreak affected the industry and your organisation?

During this pandemic, we have seen a decline in public-transit ridership by over 70 percent and has also adversely affect fleet and shared mobility operations. However, as things open up, we have seen a gradual increase in demand for local mobility for short distance travel. We expect the demand for electric three/two wheelers to go up. The demand for our Mahindra Treo electric auto has picked-up and is about 60 percent of pre-COVID levels. We also believe that micro mobility solutions and other technologies that support physical distancing may benefit. Customer demand for these solutions could soar once the initial crisis subsides, increasing their attractiveness to investors. As India continues to urbanize and the demand for last and first mile connectivity increases, India's EV revolution will be led by electric three-wheelers.

> We are committed towards making India the global hub for manufacturing and developing electric vehicles.

What are the key challenges and how are you dealing with them?

This unprecedented crisis has and will further change the nature of businesses. In the short and middle term, we will see significant changes and disruptions in supply chains. With just in time deliveries from the supplier side, OEMs and dealers will now supply the vehicles also just in time to customers, putting pressure on revenue. Thus, it will be critical all stakeholders to focus on inventory and cash flow management. In the long term, we will see new supply chains established; many OEMs will identify suppliers locally or from those countries from where imports are problem-free. One of the best things that have emerged from this pandemic is that it has proved that work from home can be very efficient. Mahindra Electric is committed towards making India the global hub for manufacturing and developing electric vehicles. Mahindra Electric has in fact embraced these uncertainties and challenges and through purposeful innovation, we are developing accessories for our TREO and TREO Yaari to ensure shared mobility is safe even during Covid-19 times.

We should look at this crisis as an opportunity to accelerate the transition toward sustainable mobility. Here's a good chance to revive the economy with a greener mission.

How happy are you with your existing product portfolio and are you looking to enhance the same in the near future?

Mahindra showcased a wide range of electric vehicles at the Auto Expo 2020 in February 2020. We have announced the launch of India's most affordable electric car – Mahindra eKUV100. We also showcased the future of urban mobility with Atom concept vehicle that will be launched in India this year. Mahindra Electric displayed its 350v production ready EV platform MESMA 350 which will underpin global products. This made-in-India technology will be exported to Korea and other European countries. We will soon also be launching a new load carrier version of Treo called the Treo Zor that will redefine last and first mile delivery solutions.

What are your plans to localise the supply chain?

We are proud to announce that our Treo range of electric three-wheelers is completely localized (except for the cell). We have our own components including the battery pack. Mahindra Electric is setting up a new manufacturing plant in Chakan and a global R&D centre for electric vehicle technology in Bengaluru. Our aim is to make EV technology in India for the world.

How are you differentiating on battery front?

Mahindra has an experience of over 230 million electric kilometres on Indian roads and there are many electric cars that have crossed over two lakh kilometres without any battery replacement. This gives us a lot of confidence on our battery technology and that it is the best out there.

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Diego Graffi

Chairman & MD, Piaggio Vehicles

By Niranjan Mudholkar

How has the Covid-19 outbreak affected the overall EV segment in India?

The outbreak of Covid-19 has impacted businesses across the globe and we are not insulated from it. The EV segment which is at a nascent stage has definitely been similarly impacted particularly on the passenger side. There were efforts taken by various industry players to promote the EV ecosystem in India it was picking momentum. Intensified steps would need to be taken both by the government on infrastructure & OEMs on their product development and cost to put the EV segment back on track. At PVPL, we will continue to invest on new products & technologies in the EV space as we believe this will be a segment of future growth. Having launched the Ape' E-City late last year we are soon lining up multiple products in the EV space.

What are the key challenges?

This is an exceedingly challenging period for the entire automotive fraternity. More than two months of negligible production and revenue is obviously a setback. After resuming operations at our Baramati factory, the demand still needs to pick-up due to ongoing lockdowns. We anticipate some kind of recovery over the next six months; however normalcy could take longer than that. I think the first important step which we need to take is to re-strategize our procurement process. As far as industry and production is concerned I think, JIT (Just in Time) as a production strategy will become very important, as it ensures no unnecessary building up of inventory of parts and keeps the lid on cost

Have you made any new announcements?

Yes, we have recently launched the E-commerce platform for the sale of both two wheelers and the commercial vehicles range in India. This is the first-of-its kind platform designed in India for the online sale of commercial vehicles. Considering the current situation where showroom walk-ins are low, this platform will give our customers online access to select and book our products including our electric vehicle Ape E-City with the final product being delivered to the customer's home.

Will you enhance your product portfolio soon?

We have a very good opportunity in the last mile transportation segment in the three-wheeler business due to our wide range. We have been front runners in diesel three wheeler space, and now we can proudly say that we have customer centric products and the largest range in the alternate fuel space in our segment.

How much are you dependent on imports?

We have been following the 'Make in India' concept for more than a decade now at our Baramati facility. We are continuously looking at ways to further build efficiencies in our supply chain management processes.

How different is your battery technology?

Lithium-ion is an established technology and there has been a consistent improvement on both technology and cost. There are various chemistries at play that offer for technological advancement. High energy density, faster charging cycles, higher range and lower cost is the way forward and most battery manufacturers are working towards this. While other fuel cell technologies are also being developed it will take some time for commercialisation. Piaggio's Ape E-City is the first electric auto in India in the L5 category to offer a battery swapping option. We are working towards providing solutions to customers both fixed and swappable as per their need and application.

What are some of the initiatives that your company is taking with regard to tying up with taxi services and so on?

We are in talks with various aggregators, e-commerce companies and captive customers looking to add electric three wheelers to their fleet.

Sulajja Firodia Motwani

Founder and CEO, Kinetic Green

By Niranjan Mudholkar

> Kinetic Green remains very bullish on the adoption of electric vehicles in the long run as everybody is becoming very health conscious. People now understand the benefits of a good environment with no pollution.

How has the Covid-19 outbreak affected the overall EV segment in India and your organisation in specific?

The Indian automotive sector was already struggling in FY19-20 before the Covid-19 crisis. It saw an overall de-growth of nearly 18 per cent. This situation worsened at the onset of the Covid-19 pandemic and due to the lockdown. These two years (FY19-20 and FY20-21) are challenging for the Indian automotive sector on account of slow economic growth and negative consumer sentiment.

Demand is returning to the auto sector, though slowly. Post lockdown automakers across segments reported improved performance in volume at 10-70 per cent of usual sales in domestic markets. I believe that the automobile industry is expected to recover with a lag effect of one quarter post economic revival. Most of the automakers started operations during May although at much lower utilisation level, while in June and July utilisation has improved significantly.

Kinetic Green remains very bullish on the adoption of electric vehicles in the long run as everybody is becoming very health conscious. People now understand the benefits of a good environment with no pollution. In the short term, we expect that there will be an impact on our core business which is shared mobility. For the next two months, there will be less movement of people on the streets and people will not be very keen on using shared mobility.

At present, what are the key challenges and how are you dealing with them?

Due to the Covid-19, the major challenge that the company currently facing is the adoption of shared mobility, which is affecting demand for our electric three wheelers for passenger movement or what we call- e-Rickshaws. In order to avoid the impact, Kinetic Green has brought a new range of products which are very much relevant and required in the post COVID times. These new offerings are in addition to our core business but are more relevant in the current social context. Further we are focussing on activities to conserve cash as well as cutting costs in the short run.

We are currently looking at cost reduction, cash generation and focussing on the newly introduced model range. We will push back some of our other investment plans for the next 1-2 quarters so we can

monitor the status of the economic and demand revival. Although there is no change in our core business strategy and there is no diversification away from the electric vehicle business. We are convinced of the great promise for electric vehicles in the coming days owing to their benefits of lower running cost, simplicity, and their amazing impact on the environment!

Have you made any new announcements in the market recently?

Kinetic Green has brought a new range of products which are complementing our business of electric vehicles. The company has recently introduced new offerings and products which include Kinetic e-fogger and e-sprayer range for disinfecting outdoor areas like public places, slums, large industrial campuses, hospitals, factories, and residential townships; a portable UV Sanitizer, suitable for disinfecting indoor areas like hospital rooms, offices etc. The company has also launched an e-cycle. These new offerings are in addition to our core business but are more relevant in the current social context.

How happy are you with your existing product portfolio and are you looking to enhance the same in the near future?

We are quite satisfied with our newly launched product line, to curb the spread of the Covid-19, Kinetic Green has recently introduced a range of green solutions that effectively disinfect the indoor and outdoor areas and create a germ-free and healthy environment. We have also launched a new e loader- suitable for green logistics or last mile deliveries for e commerce companies. We are also bringing out an e-sabzi van and a e-ambulance. The company has also launched an e-cycle- which is appealing to the health conscious and also to those who want to avoid public transport. These new offerings are in addition to our core business but are more relevant in the current social context.

> "We have worked very hard towards indigenisation and adopted a Make in India approach aggressively, to improve quality and reliability of our models. We are now at only 10 percent or less in terms of import content. We are attempting to bring this down to zero in near future.

How much are you dependent on imports and what are your plans to localise the supply chain further?

Kinetic Green has one of the highest levels of localisation in the EV industry today. We are proud to say that while our first model launched in 2016 had 60 percent import content; we have worked very hard towards indigenisation and adopted a Make in India approach aggressively, to improve quality and reliability of our models. We are now at only 10 percent or less in terms of import content. We are attempting to bring this down to zero in near future.

Battery technology is a major aspect of this market. How are you differentiating on this front?

Kinetic Green has inked partnerships with BPCL and Ola Electric to revolutionise the electric vehicle sector with a nationwide battery-swapping network. This model is designed to address some of the critical concerns and deterrents faced by the drivers for owning and operating electric three wheelers. The Kinetic-BPCL solution has already been implemented on a fleet of Kinetic Green E3W at Kochi and Lucknow. The vehicles under the swappable platform are deployed near the high traffic metro stations and offer last mile connectivity to passengers at just Rs.10!

Quite a few EV companies are tying up taxi services, e-commerce companies and transportation agencies to provide them e-mobility solutions. What are some of the initiatives that your company is taking in this regard?

Kinetic has floated its own mobility arm called Kinetic Green e-Mobility and we have been focussing on using our mobility services to demonstrate and popularise electric vehicles to the masses. We believe that once someone uses or experiences an EV, it immediately appeals to them as the ride is silent, vibration free, emission free and affordable! Towards this effort, Kinetic Green e-Mobility has tied up various metro authorities like Kochi Metro and Maha Metro where we are deploying our electric three wheeler fleets along with battery swapping in order to popularize E3W as best means of last mile connectivity.

Chandan Mundhra

Chairman & MD, Savë Electric Vehicle

By Niranjan Mudholkar

> We had shifted our entire supplier base to India much before the Covid-19 pandemic and are not dependent on China at all.

How has the Covid-19 outbreak affected the overall EV segment in India and your organisation in specific?

The Covid-19 pandemic seems to have had a catalytic effect on the electric vehicles (EV) industry and on our company too. We have experienced an increase in demand and awareness of Electric Vehicles, especially in the logistics segment. I feel the Covid-19 pandemic has showed everyone the air quality damage caused by gas guzzling vehicles and how EVs can impact our daily lives positively without hampering our need for mobility.

At present, what are the key challenges and how are you dealing with them?

Supply chain is disturbed and migrant workers are yet to return and join work. I believe it is temporary and things will be back to normal soon.

Have you made any new announcements in the market recently?

Not yet, but we will be making a few before Diwali this year.

How happy are you with your existing product portfolio and are you looking to enhance the same in the near future?

We are quite happy with the existing ones and it always keeps expanding based upon the preference of our customers. Having the capability to customise we create multiple variants out of each model. It will always keep adding up.

How much are you dependent on imports and what are your plans to localise the supply chain further?

We had shifted our entire supplier base to India much before the Covid-19 pandemic and are not dependent on China at all.

Battery technology is a major aspect of this market. How are you differentiating on this front?

We are exploring multiple technologies of batteries and keeping a watch on the claim-vs-delivery percentage of each type. We do not plan to enter into battery and its R&D at this point of time and will adopt a proven technology and go ahead with it in near future.

Quite a few EV companies are tying up taxi services, e-commerce companies and transportation agencies to provide them e-mobility solutions. What are some of the initiatives that your company is taking in this regard?

We are in talks with a few aggregators as well as with the last mile delivery companies where we are going to provide a package deal with Vehicles, charging infra, battery swapping, maintenance etc. So the entire ecosystem is built and their operations get carried out hassle free.

Ankit Kumar

CEO, GoZero Mobility

By Niranjan Mudholkar

How has the Covid-19 outbreak affected the overall EV segment in India?

I think Covid-19 has impacted everyone and every industry in India. Particularly for EV segment it has resulted in a positive way with more consumers interested to buy an electric vehicle. GoZero Mobility in particular has seen a surge of 300 percent in demand owing to the fact that globally people have become super conscious about being healthy and fit.

At present, what are the key challenges?

There is a dual level of demand-supply challenge that we are facing today. Due to the sudden increase in demand and broken logistics system (due to the lockdowns), we were experiencing zero inventory problems during the month of May. We re-worked our plans for procurement, optimised inventory control, created additional supply chain vendors in India and Taiwan, changed our C&F agents in fortnight to get out of this. The entire team during the first two weeks of June was busy fire-fighting this situation and lastly we were able to overcome this. Now, we are maintaining an inventory for two months in advance with better planning for re-ordering of components.

Have you made any new announcements in the market recently?

We have introduced EMI solutions for our consumers recently, which is helping us with our increased sales. Also, we recently launched our first flagship merchandise, anti-pollution mask, which is selling like anything.

How happy are you with your existing product portfolio?

Extremely happy with our current product portfolio, both Mile & One are well accepted consumer products in the market. We have plans to enhance the same and add more products. We have some launches planned towards the end of this year. There will be specialised consumer focused products.

How much are you dependent on imports and what are your plans to localise the supply chain further?

Currently, our 80 percent supply chain is localised, we still depend on imports for electronic components. Most of our electronic components come from Taiwan. We are evaluating vendors in India to localise our supply chain for such components; we have an aim to make 100 percent in India in the next few months.

We have an aim to make 100 percent in India in the next few months.

Battery technology is a major aspect of this market. How are you differentiating on this front?

Agreed. Battery technology is an ever evolving industry and a cost driving factor for any EV. We have in-house team of battery pack integration engineers and chemical engineers to support the overall vehicle efficiency. Currently, we use Lithium battery packs in all our e-bikes. We are working on integrating LFP battery packs which will provide long life cycle to all products.

Quite a few EV companies are tying up with taxi services, e-commerce companies and transportation agencies. What are some of the initiatives that your company is taking in this regard?

Though we focus on B2C as a key vertical, we also promote e-biking among B2B segments. We have collaborated with multiple mobility providers, shared mobility companies, delivery companies, corporate parks to promote our products. We also have plans to create specialised products for B2B segments.

Kapila Soni

Managing Director, Croyance Automotive Private Limited

By Niranjan Mudholkar

"The pandemic allowed us to get more Indigenous.

How has the Covid-19 outbreak affected the overall EV segment in India?

Over all industry is affected by the Covid-19 pandemic lockdown. The Q1 financial results of various sectors reflect the impact. Neither the EV sector is any exception to this, nor is Croyance Auto. We have been enforced to postpone our market launch. We have already resumed office from first week of June 2020 as per the rules & regulations given by the Government relating to Covid-19. We have worked hard during this time to stay connected with our prospective clients. My personal view is that this pandemic lockdown has provided team Croyance an excellent opportunity to work on its marketing strategy and you will soon see our vehicles plying on the Indian roads.

How are you dealing with the challenges?

One of the biggest challenges that we faced was to manage our on-going work. Due to lockdown most of our office staff was allowed to work only from home which couldn't be done for Factory staff. We had to stop all the work at workshop. So we capitalised by working on our recommencement plan. Since we missed on our May 2020 Go Live plan, we realigned our strategy during lockdown and rescheduled the date to November 2020. Since unlock in June 2020, team Croyance is back with full strength.

How happy are you with your existing product portfolio?

Croyance Auto is very much happy with its current product profile because we have received a good response from most of the E-commerce companies, major business houses and leading logistic companies in India as well as globally. I am pleased to inform you that we have even received few pre-bookings/orders as well during this lockdown period. The product range we have is developed with a lot of efforts and research of the Indian market.

What are your plans to localise the supply chain?

Croyance Auto was started with some dependencies on imports like battery technology as we planned to land in to market by end of May 2020. However, the pandemic allowed us to get more Indigenous. Our team has done spectacular work from home in this lockdown period to localise major component and now we have already tied up with many OEMs for the vehicle parts to be manufactured within the country.

Battery technology is a major aspect of this market. How are you differentiating on this front?

Our vehicles are equipped with best in class VRLA Gel batteries and Li-ion Batteries which are imported. The batteries of our vehicles are specially design for us [Croyance Automotive] only, because we have an exclusive contract with the OEM to make it only for us in our own brand name. With the aim to world class electric commercial vehicles to its customers, Croyance has brought the best technology from across the world.

Quite a few EV companies are tying up with taxi services, e-commerce companies and transportation agencies. What is your company doing in this regard?

Our products will mainly to cater to the last mile services such as deliveries, distributions, food trucks, tow trucks and so on. We have been already approached and are in talks with many large market players who have been in the business for a long time. We have also presented our plans to some of the key logistic companies in India and abroad. They are satisfied with our test results and are keen to begin with pilot projects.

By Niranjan Mudholkar

BUILDING ON A GOOD START

Public-private partnership along with autonomy to both ISRO and private industry was a much needed push forward for higher indigenous content and encouraged initiatives for local material and software as a part of the 'Make in India' initiative, says **Surendra M Vaidya,** Executive Vice President and Business Head, Godrej Aerospace

Over the last decade, there has been a remarkable growth in the defence aerospace field, and today, the aerospace sector has become a major potential area for manufacturing activities in India. How do you look at the progress in this area, considering the `Make in India' initiative?

The government's 'Make in India' initiative, as far as the aerospace and defence sectors are concerned, has certainly gathered momentum with the defence reforms, and Indian companies getting the opportunity to prove themselves through privatisation.

Some of the challenges constraining the growth of Indian aerospace industry are lack of raw materials being manufactured in India which meet global aerospace standards, non-availability of requisite machines and tooling, as well as absence of certification bodies, agencies for aerospace of international standards, etc. Therefore, currently the projects available to Indian manufacturers are low on technology and most of them are for structural assemblies and parts. This is a good start and larger volumes will be essential for getting the return on investment.

How has Godrej's contributions impacted the sector over the years?

Godrej has been associated with ISRO for the past three decades. The association began with the manufacturing of simple components to ISRO's requirement and gradually, it progressed into making subsystems for the launch vehicles. We have been manufacturing complex systems such as the liquid propulsion engines for PSLV and GSLV rockets, thrusters for satellites and antenna systems. Godrej Aerospace has also played an integral part in the prestigious Chandrayaan 1&2 and Mangalyaan missions. Godrej & Boyce has been proudly committed to the cause of indigenous manufacturing for India's space programs which are key to propel India's technological prowess.

"The government's 'Make in India' initiative, as far as the aerospace and defence sectors are concerned, has certainly gathered momentum with the defence reforms."

The most important part is that Godrej has shown the capability to develop many manufacturing technologies along with the development that happens at ISRO, and has developed very critical and unique facilities for the first time in India. It takes a lot of effort and time. Gestation period for such facilities is very high and training of personnel is also time consuming. A private industry player like Godrej has shown that kind of passion and patience considering the long time period for recovery of investments. This is the greatest contribution, as in many cases R&D is not successful and one needs to start from scratch again.

Godrej Aerospace has been associated with the BrahMos programme since its inception in 2001. Godrej is a dominant contributor manufacturing most of the metallic sub systems in the BrahMos missile. Besides the main airframe, Godrej supplies control surfaces and nose cap. Godrej also supplies the Mobile Autonomous Launchers, Missile Replenishing Vehicles for the

"
The reforms will not only boost domestic manufacturing but also will act as a catalyst in turning around the impact that the ongoing pandemic has had on the sector.

land launched versions. Godrej Aerospace has been manufacturing and supplying complex airworthy systems for aircraft and helicopter applications for more than 10 years for Global OEMs.

How will the recently announced reforms help speed up the 'Atmanirbhar Bharat' initiative?

Public-private partnership along with autonomy to both ISRO and private industry was a much needed push forward for higher indigenous content and encouraged initiatives for local material and software as a part of the 'Make in India' initiative. This, combined with the Centre's decision to impose restrictions on import of 101 weapons and military platforms, and creation of a separate budget for domestic capital procurement in the current financial year is the biggest boost that the sector has received and will really get the ball rolling towards the achievement of complete self-reliance.

How will they impact the manufacturing sector as a whole?

The reforms will not only boost domestic manufacturing but also will act as a catalyst in turning around the impact that the ongoing pandemic has had on the sector. The Indian companies who have developed equipment and systems for the defence sector will now get the chance to manufacture in numbers and deliver to the armed forces. This will also open lot of opportunities for the whole supply chain which includes many MSME and SME companies.

What does Godrej have in pipeline for the sector? What are the current projects?

Many of the projects Godrej have been working on have long term orders. These include orders from domestic sector for Liquid propulsion engines for ISRO Launch vehicles, Air frame assemblies for BrahMos and other missile projects, Launchers for BrahMos program etc. Participation in LCA Tejas for import substitution of line replaceable units like primary actuators is another focus area. For the export segment, we are primarily working in civil aircraft segment. We manufacture complex fabrications and brackets in sheet metal, tubings for engines, high precision match set assemblies on fuel management systems, rubber fuel tanks for helicopter platforms, structural assemblies of lightening pods for surveillance and so on for global OEMs.

UPDATE

G&B SEES RISE IN PRECISION ENGINEERED EQUIPMENT

Godrej & Boyce said that there is likely to be rapid increase in the demand for precision equipment and larger opportunities for growth in bespoke engineering systems and equipment offerings as the country's "Make in India" mission gathers greater momentum. A strategic partner of Nuclear Power Corporation of India (NPCIL) for over 20 years, Godrej Precision Engineering was integrally involved in supplying mission critical equipment to NPCIL for the Kakrapar Atomic Power Plant-3 - the first indigenously built 700 MWe Pressurized Heavy Water Reactors (PHWR) in India that achieved criticality recently. Godrej Precision Engineering delivered the Fueling Machine Bridge & Carriage for Kakrapar Atomic Power Plant-3 which are installed in the critical zone of the Nuclear Power reactor.

With approval of 10 new 700 MW nuclear power projects, competent and committed partners with necessary experience in design, engineering & manufacturing, backed by significant scientific knowledge and technical prowess, will be one of the key drivers of the government's 'Atma-Nirbhar' initiative. "At Godrej & Boyce, we have been investing for over 50 years in building strong engineering and machine-building capabilities and partnering with Indian institutions to deliver complex equipment for key strategic industries like Nuclear Power and Defence", said Jamshyd N Godrej, Chairman and Managing Director of Godrej & Boyce. "Our strong experience of mission-critical systems and an integrated framework for design, manufacturing and testing will help accelerate India's journey towards industrial self-reliance," Godrej added. "Our ability to innovate and execute has helped us partner with our customers and the equipment has been 'made in India' for the first time", said Kaustubh Shukla, Chief Operating Officer, Industrial Products Group, Godrej & Boyce. Godrej Precision Engineering manufactures custom-built equipment for complex and sophisticated systems for several mission-critical applications in nuclear power, land based and naval systems for Defence and for other industries like Steel, and Wind Energy.

Tata Motors brings India's largest tipper truck

Tata Motors has launched Signa 4825.TK – India's very first 47.5-tonne multi-axle tipper truck for surface transport of coal and construction aggregates. The Signa 4825.TK is powered by Cummins ISBe 6.7-litre BS6 engine with high power rating of 250hp and torque rating of 950Nm from 1000-1700rpm to ensure faster turnaround time. The powerful engine is mated to a heavy duty G1150 9-speed gearbox, with 430mm dia organic clutch. Speaking at the launch of the Signa 4825.TK, RT Wasan, Vice President, Product Line, M&HCV, Tata Motors said, "Tata Motors has used the BS6 implementation opportunity to not only migrate to the stricter emission norms, but to truly upgrade the entire product portfolio. Through our Power of 6 philosophy, we will continue to offer first-in-the-industry products and solutions and further strengthen our position in the cargo and Construck segments."

Optare PLC delivers first battery-electric Metrodecker EV

Ashok Leyland has announced another significant milestone by its subsidiary Optare PLC. First York launched the first of 21 battery-electric Optare Metrodecker EV double-deckers on Thursday 30 July. This follows the successful launch of the EV Double Decker in London with Metroline, this Metrodecker is a part of the 107 Metrodecker EV order Optare has received since the product was launched 18 months ago. Each Metrodecker EV with First York can carry 98 passengers, although that capacity is currently restricted due to social distancing measures. The model delivers a range in excess of 160 miles. Vipin Sondhi, MD & CEO, Ashok Leyland, said, "Optare continues to be a key piece in our overall strategy to be amongst the Top 10 CV makers globally."

TKM launches the Fortuner TRD Limited Edition

Toyota Kirloskar Motor (TKM) has launched the Limited Edition of the New Fortuner TRD in the Indian market. TKM has leveraged the heritage of Toyota Racing Development (TRD) to bring a sporty appeal to the Fortuner TRD. The Limited Edition is available in both 4x2 and 4x4 Automatic Transmission (diesel) variants in dual-tone stylish exterior, stunning dual-tone dashboard and rugged charcoal black R18 TRD alloy wheels. Commenting on the launch, Naveen Soni, Senior VP, Sales and Service, TKM, said, "An important accessory to the Fortuner TRD Limited Edition to ensure customer safety is the air ionizer owing to the concerns about the air we breathe in these challenging times."

Hyundai registers domestic sales of 38,200 units

Hyundai Motor India Ltd has registered cumulative sales of 41,300 units with 38,200 units sold in the Domestic market and 3 100 units in the export markets in July 2020. Commenting on July sales performance, Tarun Garg, Director (Sales, Marketing & Service), Hyundai Motor India Limited said, "With the changing trend of preference for personal mobility, our consistent efforts are towards fulfilling the customer needs and meeting the market demand."

Vitesco & Padmini VNA form joint venture

With Vitesco Technologies and Padmini VNA Mechatronics PVT have signed a joint venture partnership. The new company 'PV Clean Mobility Technologies' will offer selected powertrain technologies for the Indian market that meet the new emission standard Bharat Stage VI. They are also working hand in hand with their local customers to increase vehicle efficiency and reduce emissions. The aim is to create an outstanding local supplier for the Indian automotive market by combining strengths and expertise in joint solutions for clean drive systems. The product range is focusing on sensors and actuators, as well as fuel delivery modules for passenger car, commercial vehicle and two-wheeler-markets. Both partners have a 50 percent share in the joint venture, which will be based in Gurugram, India.

DICV launches used vehicle biz

Daimler India Commercial Vehicles (DICV) has announced the launch of 'BharatBenz Exchange', its new offer to the used commercial vehicle segment. BharatBenz Exchange will supplement its existing new vehicle sales model by offering an exchange platform where customers can exchange their used vehicles of any brand for new or used BharatBenz vehicles. Satyakam Arya, MD & CEO, Daimler India Commercial Vehicles said, "As the number of BharatBenz owners rapidly increases, we feel it is the right time to tap the massive potential presented by the used commercial vehicle segment."

By Niranjan Mudholkar

ON THE MOVE!

The fact that we have created JVs in India is a visible indication that we are anticipating a continued growth in this sector, says **Eli Hafets,** Regional Director, India at Rafael Defense Systems Ltd

Briefly tell us about the journey of Rafael Advanced Defence Systems Ltd. in India till now. How satisfied are you with the progress so far?

Rafael Advanced Defense Systems Ltd. designs, develops, manufactures and supplies a wide range of high-tech defence systems for air, land, sea space and cyber applications for the Israeli Defence Forces and the defence establishment, as well as for customers around the world. The company offers its customers a diversified array of innovative solutions at the leading edge of global technology, from underwater systems through naval, ground, and air superiority systems to space systems.

Rafael prides itself in being able to create partnerships with international leading aerospace and defence companies overseas. Over 100 offset activities and industrial cooperation have been set up with over 20 countries worldwide.

India is an important client given the strategic nature of ties between the two countries. Rafael has been present in India since the late 1990s and has continued to supply sophisticated weapon systems to the Indian MOD. Given the current trends in the Government, Rafael has been more than willing to create structures to ensure technological transfer to India, and has to-date created two joint ventures in diverse fields to support 'Make in India' initiatives of the Government.

> "India has very talented manpower and with the training that we provide, we are certain that both Rafael and the local economy will reap substantial benefit from this win-win cooperation.

How's been the business in the ongoing fiscal and how would you compare it to last year's performance?

The Covid-19 pandemic places a hurdle in progressing programs not only in India, but with most other countries, even ones which have been in the pipeline and in some cases nearing fruition. As we are still just halfway through the year, it is rather complex to predict the eventuality of this year's results, particularly due to the circumstances prevailing globally, which are certain to have an effect on business. Having said that, we are carrying on as planned and on schedule, and we are optimistic that once the situation stabilises, we will be back on track to complete pipeline business activities and make further progress on ones that have slowed down. As this is happening, we remain on-the-move, researching, developing, keeping in close touch with our partners and customers around the world, and looking forward to a resumption of personal engagement with our Indian partners.

Has it been challenging to find the right talent in India? Do you have in-house training infrastructure and programmes to address this issue?

We are very satisfied with the high level of engineering teams in India, while successfully absorbing the technology and creating value and synergy with our Projects and R&D Teams. As mentioned we have two joint ventures created in India. These JVs have been trained in the equipment and processes that are the baseline

for Rafael. Currently, these have been done with the team from Rafael, Israel, but we continue to train the teams in these technologies as newer inductions happen. This is a combination of in-house and external training. India has very talented manpower and with the training that we provide, we are certain that both Rafael and the local economy will reap substantial benefit from this win-win cooperation.

Rafael has been more than willing to create structures to ensure technological transfer to India, and has to-date created two joint ventures in diverse fields to support 'Make in India' initiatives of the Government.

How has the Covid-19 outbreak affected the operations of Rafael Advanced Defence Systems Ltd. in India and how are you dealing with the same?

Despite the challenges limitations posed by Covid-19, we continue to work in supporting India's defence programs as best as can be done remotely, in full cooperation with the Indian MOD to address its needs, and fulfil its operational requirement, with the support of our local JV's.

Tell us about your collaborations in India and what are some of the key projects that you are currently working on?

Rafael continuously works to form JV's and industrial cooperation in line with the Make-In-India Policy. Rafael has been working steadily to create Technology Partnerships or Joint Ventures with major Indian companies to address various projects and has created structures to ensure technological transfer to India, which will also serve as an important pillar in propelling India to be part of a global export supply chain.

"

The 74 percent FDI increase will facilitate the procedure through the automatic route.

Over the last few years, Rafael has continued to realise its commitment to the Indian market and to its economy, including last summer's inauguration of a state-of-the-art facility at Hardware Technology Park, Hyderabad as part of its JV with Astra Microwave that has yielded ARC (Astra Rafael Company), for local manufacturing of the SDR BNET communication system for the Indian Air Force, with a US$30 million purchase order and Electronic Warfare (EW) systems to be provided to all services. In addition, RAFAEL has placed a US$100 M Order for MRSAM missile kits for the Indian Army and Air Force from KRAS (Kalyani Rafael Advanced Systems Ltd. India).

This, among other steps, is part of Rafael's compliance with the "Make-in-India" policy of the Indian government and is testimony to Rafael's global commitment to local production, knowledge transfer and industrial cooperation.

Tell us something about the manufacturing capabilities and capacities in India.

Our supply chain in India is supported by more than 100 vendors, most of them are MSMEs that have been trained and qualified to supply parts of our systems. Private companies are willing to make more investments for the future to come. We believe that based on local contracts within India, the same supply chain can support export activities from India.

How would you analyse the 'Make in India' initiative in the context of your industry?

Rafael is committed to supporting 'Make in India' initiative and has therefore invested in Indian Joint Ventures as elaborated in the previous questions. We at Rafael, with our advanced technologies, are willing to continue supporting this through our investments in Defence companies.

How do you see the defence manufacturing sector in India growing in the next two years?

The fact that we have created JVs in India is a visible indication that we are anticipating a continued growth in this sector. The scale of the growth is best commented upon by the Govt of the day, but we certainly believe that there is considerable scope for improvement. This fact has been acknowledged by many professionals in the field. The 74 percent FDI (Foreign Defence Investment) increase, although not new, will facilitate the procedure through the automatic route, to all those who consider an investment in the Indian market. One of the growth factors may be exports, and to that effect we are looking at some overseas opportunities with our local partners based on systems and solutions offered to Indian Armed forces.

By Niranjan Mudholkar

HERALDING A NEW BEGINNING

Social distancing restrictions on the shopfloor call for a relook at manufacturing strategy, with better use of equipment backed by data, says **T K Ramesh,** Managing Director & CEO, Micromatic Machine Tools Pvt. Ltd.

How has the Covid-19 outbreak impacted the Ace Micromatic Group in terms of business and operations?

As you know we are in the capital equipment (capacity) business. During this pandemic, it is not about creating capacity but about using existing capacity optimally. Our approach has been to help our customers utilise their existing capacity to its maximum efficiency.

This means offering support, service, modifications and more to help them make the best of their situation with our machines and services. We have done this through dedicating senior engineers for each area, offering breakdown support, spares support and other services.

From an operations point of view, we have been pushed to urgently adapt to the digital way of working through work from home. With more than 60 percent of our employees working on-site, having to deal with the disruption is a challenge. So we adopted virtual and remote methods of solving customer issues, improving and develop digital support tools.

We have used the lockdown effectively to put into effect a system of digital communication with members of our company, group and clientele through regular online meetings, webinars and social media. Now with 'Unlock India' slowly allowing businesses to operate physically, we run with lower on site staff and a cyclic system among the team. Besides this, strict sanitization of employees, temperature checks, social distancing is all in place to adjust our working to the new normal.

"We have used the lockdown effectively to put into effect a system of digital communication with members of our company, group and clientele through regular online meetings, webinars and social media."

The MSME segment has been the worst hit due to this pandemic. What is Ace Micromatic Group doing to help its customers in this segment?

As soon as this issue began we knew that MSMEs would be the worst hit, the MSME segment are our most important stakeholders we initially started by extending the warranty period of all the existing machines under warranty. We also went ahead and extended AMC support to customers including those that were expired. Added to this, we announced a 50 percent discount for all Covid related calls to our MSME customers and a dedicated team of senior engineers in every location to offer technical support in emergenciess. We also sought digital methods to train our customers on programming and conducted eight webinars in regional languages for post-lock-down restart guidance. This saw more than 4,000 customers successfully learn how to troubleshoot their machines independently.

During this pandemic, we realised that the physical restrictions would not stop us from finding solutions for our customers.

What are your views on the Government of India's 'AtmaNirbhar Bharat' campaign and the package announced along with this initiative?

An overhaul initiative of this sort was overdue and it was good to see the government respond and put an unfortunate happening to bring reform and reclassification that will certainly help in the long run. However, from an immediate survival perspective there are cau-

salities and not much help has been forth coming for the already stressed MSME sector that works with very difficult circumstances against tough odds. This sector is the one that has been a large employer and a growth engine of the nation in many sectors but has not found adequate support from any quarters, not just the government.

With social distancing restrictions reaching the shopfloor, do you think it paves way for a higher degree of digitalisation and automation in the manufacturing plant?

Yes, it certainly does. It calls for a relook at manufacturing strategy, with better use of equipment backed by data. For example, re-layout of the shopfloor, manpower distribution into pods that keep in mind social distancing and more had to be figured out, implemented and continuously optimised along the way with appropriate automation and digitisation. This needs a 360 degree view and a perspective which necessitates digital automation. The application of IIOT and Industry 4.0 has to be perceived uniquely to suit Indian conditions and requirements, which is to enable people and not for eliminating them. The usual western models are more from a reduction or elimination perspective as availability and costs of people are very different from a local perspective.

> "The application of IIOT and Industry 4.0 has to be perceived uniquely to suit Indian conditions and requirements, which is to enable people and not for eliminating them.

I understand that the Ace Micromatic Group has a strategic alliance with JTEKT Toyoda Americas. Tell us more about this partnership and how the Group is leveraging on the same?

Yes we are working with them for marketing and providing support for our machines in USA. Also our grinding solutions company Micromatic Grinding Technologies Ltd manufactures a cam lobe grinding machine GC20M and an OD grinding machine Gl32 A/P 32 E machine under licence agreement with JTEKT Toyoda which are sold by them.

The Group had set up its first overseas Technology Centre in Shanghai, China about a couple of years ago. What's the news on that front?

Not only was this the first from Micromatic but any Indian machine tool company from India. One of the important functions of this Tech centre is to provide our customers and dealers first-hand experience of our products. The centre of experience which is part of the International Machine Tool Park shares space with many other leading global machine tool players, we strongly believe this is the only way to get Chinese customers and channel partners experience modern Indian machine tool technology. They have been appreciative of the range of machines, along with required toolings for customer trails, as well as of our IOT offerings TPM-Trak and the customer friendly layout and experience with our local Chinese staff. We are slowly but surely making our presence felt.

There has been a substantial increase in the customer footprint from various parts of China resulting in enquires. Fortunately, China has been able to handle Covid-19 and mitigate the risk by the end of February 2020. There has been a good pull for our machines catering to manufacture PPE. Challenges in supplying, installing the machine during this period are of great learning. We hope that other locations too will follow up in mitigating the Covid-19 risks and to open up businesses soon.

Ace Micromatic Group has a long association with The Machinist Super Shopfloor Awards right from the first edition in 2015. Although the 2020 awards ceremony has been postponed due to lockdown restrictions, do you see a platform like this providing the much-needed boost of positivity to the industry?

As a company, and I personally, have been associated with the event since inception and are proud to have helped in its conception and fruition. It is a much needed celebration for the shopfloor heroes and a showcase of their great efforts. It certainly boosts and brings a lot of cheer and positivity to the entire manufacturing space. I am sure that it is a much anticipated event among the fraternity. It would be a crowning event this time around once the situation gets conducive for it to take place and it will herald a new beginning.

By Niranjan Mudholkar

RECIPE OF SUCCESS

"We are currently working in tandem with all relevant bodies and authorities to ensure that we maintain a good balance between business continuity and fluid market conditions," says **Sunil Agarwal,** Director, Vinod Cookware

How has the Covid-19 pandemic impacted Vinod Cookware both in terms of manufacturing operations as well as overall business? How are you dealing with the same?

During the initial days, everything was on a standstill because of the lockdown. With the gradual lifting of the lockdown, we have been able to resume manufacturing (though not full-fledged yet) following the government protocols. Although manufacturing has been back on track, we had to address two key challenges, the disrupted supply chain along with the ready stock that needed movement. Thanks to the e-commerce sector, we had some movement in the goods, even when the offline markets were shut. However, the markets now have been opening and by next quarter, we shall see improvement both in terms of consumer sentiments and fluidity. We are currently working in tandem with all relevant bodies and authorities to ensure that we maintain a good balance between business continuity and fluid market conditions.

Many organised sectors in the Indian manufacturing industry are adopting the concept of 'Smart Factory'. The Covid-19 outbreak has further pushed the industry towards the same due to the growing significance of digitization and automation? But is the cookware industry ready for it?

Yes, the organised sector in the Indian manufacturing industry was transitioning towards automation of processes and smart factory even before the outbreak of the pandemic. But Covid-19 has led to further push, to automate. Pertaining to the cookware industry, we have seen massive changes in the last some time period, be it in the machinery or the technology used. The cookware is no longer a simple, traditional product; it is actually engineered with lot of R&D and market understanding, while keeping technology in the epicentre. Today, the machinery used by Vinod Cookware has been imported from Korea. Handles of the products have been manufactured using a special kind of machinery, and more such advancements have taken place. The industry has moved towards smart factories in the organised sector and Covid-19 is going to give it the much-needed boost.

"Vinod cookware has been automating several of its processes, from manufacturing to the logistics. We have been focusing on building a factory which is future ready, and herein our main objective is to improve the efficiency, right from the physical production to the operations."

How would you look at the 'Smart Factory' concept in the context of Vinod Cookware?

Vinod cookware has been automating several of its processes, from manufacturing to the logistics. We have been focusing on building a factory which is future ready, and herein our main objective is to improve the efficiency, right from the physical production to the operations. We have combined digital technology to enable a seamless flow in manufacturing and supply chain management. "Smart factory" is nothing but Industrial revolution 4.0, currently in making.

Covid-19 has forced every business to redraw its strategies and plans. How is Vinod Cookware adapting itself to the New Normal?

Yes, like every other business, we too had to revisit our already laid plans for FY 20-21. We started aggressively focusing on the adoption of digital tools and technologies to help us engage with the consumers and maintain business continuity. We aim to recover for the lost time period by fortifying our current online presence and increasing the traction on our products and educating the people via social media as during this pandemic people have been highly active on social media platforms and the engagement has been higher than ever. We are also working towards introducing a new range of cast iron products, handcrafted from premium cast iron, which is a perfect combination of traditional cooking with a modern approach. Vinod Cookware has been revolutionising the Indian kitchens, with a touch of technology since 1962 and we shall continue to follow the same through all times.

The pandemic has completely disrupted the supply chains across geographies. Moreover, in India, it has also led to serious unavailability of labour due to mass migration of workers. How is the manufacturing industry, in general dealing with these problems? What is Vinod Cookware doing to tackle these issues?

We were not impacted by lack of labour, like everyone else. In fact, most of the manpower is from the vicinity of our factory and hence our processes (after shutdown) have been seamlessly executed. Though upon lifting of the lockdown, we started off with just 30 percent capacity and now we are escalating it further in accordance with the government guidelines. To protect our workforce, we have been following social distancing norms, frequent sanitizing, temperature checks and usage of masks among other initiatives. We have already created semi-sanitisation tunnels for the same. Protection of our people is amongst our top priorities.

> "Even when the pandemic blows over, the industry shall be working towards economic recovery and build itself robustly enough to experience growth in FY21-23. We also anticipate a strong global shift for manufacturing resources to India in the next 5-7 years.

Do you think that the long-term promise of the Indian manufacturing industry is still intact? When do you see the industry bouncing back?

The Indian manufacturing industry is a winning leap that has not only been intact, but has also been revamping itself, thereby building its niche in the world. The pandemic has surely proven to be a set-back; however, the industry is still working aggressively to thrive under these unprecedented times. Even when the pandemic blows over, the industry shall be working towards economic recovery and build itself robustly enough to experience growth in FY21-23. We also anticipate a strong global shift for manufacturing resources to India in the next 5-7 years. The industry has been waiting for

Meet Sunil Agarwal, Director, Vinod Cookware

Serving the company from the past two decades, Sunil Agarwal has become a notable dignitary in the industry thanks to the accolades he has earned for his brands. Expanding Vinod's repertoire from stainless steel to state-of-the-art technology categories such as induction cookware and the competitive non-stick cookware, Agarwal achieved success regularly. He infuses his mottos – safety and health –into the research and development of Vinod's brands too and manages to create a buzzing environment within the company. The credit for truly building the Vinod Empire and making it an outstanding name among industry peers goes largely to Agarwal.

In his various other interests, he has also been an active affiliate to Stainless Steel Merchants and several industrial bodies. An ardent Sports enthusiast, Agrawal loves to indulge in some Squash and Badminton in his free time!

this opportunity for quite some time now with a lot of optimism, for the manufacturing sectors, both from a local as well as global perspective.

Tell us about your manufacturing facility at Palghar, Maharashtra. Do you think the current capacity is sufficient to support your growth plans?

Well currently, the capacity is to the requirement. However, when it comes to the growth plans, we are going looking at expanding our operations. We also aim to take our manufacturing unit outside of Maharashtra, depending on the state government support. The current capacity is sufficient but we are looking at expanding.

How does your product portfolio look today?

Over the years, Vinod cookware has built a strong image and a trustworthy connection with home makers. After a decade of experience and repertoire of over 400 products spread across five categories, Vinod Cookware's Pressure Cooker is our huge success story as it has manifested the launch of 'Sandwich bottom' in the history of Indian kitchens. Our product portfolio includes state-of-the-art cooking technologies such as non-stick cookware, hard anodised cookware, stainless-steel, zest non-stick, hard anodised, and platinum series cookware. We have built a dynamic portfolio of over 400 cookware products. We are working on introducing cast iron products including frypan, kadai, grill pans and tawa in different sizes complementing every kitchen needs. Additionally, we have also expanded our portfolio and diversified into tableware, bottles as well as tiffin boxes.

Have you launched any new product recently? Tell us about the same. What is the frequency of new product launch for Vinod?

Recently, we extended our range of TriPly Platinum Series with the launch of Platinum Frypan, introducing burn free cooking to traditional Indian Kitchens. The Frypan is built in three layers i.e. stainless steel - aluminium - stainless steel that helps in maintaining hygiene and enables contamination free cooking, even distribution of heat as well as burn-free cooking. This cookware has revolutionised the stainless-steel industry in India. The fry pan is manufactured with the highest grade 304 stainless steel that makes it rust proof and lasts for a life time. Owing to its magnetic 430 stainless steel, the pan can be used on induction, gas and stove.

The frequency of new product launch is one in a quarter or more than one in a quarter sometimes. It completely depends upon the R&D, technology and innovation that we are working upon. We are planning to have a very big launch in the next month and we are already working towards it.

How has been the business in the ongoing fiscal? How does it compare to the growth in the previous fiscal?

This fiscal year began with unexpected unfolding of events, and putting a damper on the business plans across the world. Initially, due to the lockdown we experienced a setback as well. In the previous fiscal, we had a turnover of Rs.180 crore and we are aiming for the turnover to be Rs.170 crore in the ongoing fiscal.

What kind of growth targets have you set for the next two years?

As mentioned earlier, we clocked in revenue of Rs.180 crore in 2019 and we are working very hard to reach the target of Rs.170 crore this year as well. We aim to grow by 20 percent more in the next two years.

I understand that Vinod Cookware is entering its 57th year of existence. How do you look at this milestone in terms of the journey so far and the way ahead?

The journey has been a delightful. Looking back at all these years, having faced roadblocks and emerging stronger, has been quite a learning experience for us. We started with a small stainless-steel utensils manufacturing unit in Mumbai and now we have manufacturing units scaling up to capacity of 11,000 pots per day but now due to Covid-19, it has gone to approximately 4000 pots to per day. We have achieved several milestones and first timer tags including - being the only brand to have introduced aluminium sandwich Bottom products in the Indian market. We are looking towards investing more in the E-commerce platforms and extensive digital adoption. We also have a lot of innovative high-end products in pipeline that we shall be announcing soon.

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FROM SHOPFLOOR TO TOPFLOOR

The Machinist magazine has announced its Manufacturing Conference & Exhibition 2020, a virtual event for the manufacturing industry.

Understanding the industry's needs to have a robust knowledge sharing and networking platform virtually, The Machinist magazine announced its Manufacturing Conference and Exhibition 2020. This first virtual flagship event from The Machinist is getting overwhelming response from the industry and partners. While delegate registration has started with a bang, exhibitors too have been responding very positively to this unique platform also now popularly known as MCE 2020.

"After the last few very challenging months of 2020 due to both the economic slowdown as well as the Covid-19 pandemic, our opinion is that the Indian market will grow significantly."

Shashank MP, President, FFG MAG India

VIRTUAL NETWORKING PLATFORM

At a time when social distancing norms have put severe restrictions on one-on-one meetings, this virtual platform is giving a pretty good opportunity to key suppliers and manufacturing industry professionals to come together on a single virtual platform in a mutually beneficial manner.

The Conference will bring together prominent industry leaders from different sectors. These industry captains will deliberate on the impact of the Covid-19 pandemic as well as other economic problems on various aspects of the manufacturing business. From operational issues to management challenges, these leaders will share their valuable insights on shaping the future of Indian manufacturing.

The Exhibition will allow exhibitors to showcase their products, solutions & services for the Indian manufacturing industry. It will help them reach the right audience while saving on the production and logistics cost.

"Manufacturing sector is in the recovery path after experiencing difficulties of pandemic time and expected to reach normalcy soon with new protocols."

Subrahmanya Kumar, Country Sales Manager – India, SBU Metal Precision, Tyrolit India Superabrasive Tools Pvt. Ltd.

"Industries must adopt new business techniques, digital platforms, smart marketing tools, and social distancing on shopfloor to achieve smooth business operations."

Mohini Kelkar, Director – Business Development, Grind Master Group

IMPORTANCE OF DIGITAL PLATFORMS

Commenting on the significance of digital platforms like The Machinist Manufacturing Conference & Exhibition 2020, Shashank MP - President - FFG MAG India, says: "Digital platforms are likely to play a significant role in the future years to come. A significant step with a positive impact on cost, time and quality is digitisation. Software developments in audio and visualisation enable getting to know people and technology better which in turn will drive development of strong businesses and partnerships. Such digital platforms allow reach to an enormous audience. The provision of being able to attend these events at one's convenience, across time zones and being able to repeat sessions or record results effortlessly will make them very effective digital marketing and knowledge sharing platforms.

Yatendra Kumar, Business Head – MotulTech India, says that although Covid-19 has brought social distancing restrictions, this period is equally important to connect with customers to share your thoughts, success and future plans and reassure them that we are with them wholeheartedly and committed to make them successful. So such digital initiatives are the only way to meet our customers.

Preetham P.A, Aerospace and Defense Lead, Forbes and Company Limited, says that digital platforms like "The Machinist Manufacturing Conference & Exhibition 2020" will help the industry to connect both B2B and B2C. This platform will help share insights of how some of the best in the industry are adopting to the change."

Subrahmanya Kumar, Country Sales Manager – India, SBU Metal Precision, Tyrolit India Superabrasive Tools Pvt. Ltd., states: "In the current scenario digital platforms are very important to get connected with the industry, valued customers and share information on the innovations in the product offerings and the possible optimisations through them. As the

Highlights of the Conference

Keynote Panel Discussion - Disruptive Times, Evolving CEOs: How leaders are adapting to the market disruptions including the pandemic, and steering their organisations to survive, succeed and sustain in the New Normal.

Keep it running - Managing and maintaining the plant: A discussion involving operation heads and maintenance heads to understand the challenges of running and maintaining the plant in the New Normal.

Total Solution for Smart Manufacturing – A presentation by FFG MAG India

Clean Bowled! - Hygiene & Cleanliness on the shopfloor: A special session on cleaning up old habits to maintain both social distancing and sanitation on the plant with Sanjiv Paul, Sr. Vice President, Manufacturing, India Yamaha Motor Pvt. Ltd.

CEO Panel Discussion - The Westside Story: A high-profile discussion involving US and European expat CEOs working in the Indian manufacturing industry. The discussion will highlight how they are responding the Covid-19 pandemic and how they are adapting to the new Indian business conditions.

Right Restart - An insightful panel discussion that brings together key shopfloor partners to discuss the best practices for restarting operations in the right manner.

"The biggest differentiator is the competitive advantage India offers with a young resourceful workforce."

Preetham P A, Aerospace and Defense Lead, Forbes & Company Limited

exhibitions can be visited from one's respective location, this platform will be a nice opportunity for all the concerned to take advantage of the same."

Mohini Kelkar, Director – Business Development, Grind Master Group, thinks: "Digital platforms like webinars, online conferences and virtual exhibitions are playing important role in growing businesses in the post Covid situation. These platforms are very useful even to have a discussion, negotiations and finalise the orders. The Machinist Manufacturing Conference and Virtual Exhibition is a good initiative towards new normal, and we are sure that it will be a grand success.

Shyam B V, MD, Blum-Novotest Measuring & Testing Technology Pvt Ltd, says that digital platforms are the futuristic industrial innovation. "To sight an example, in our company Blum-Novotest, we have developed an app called as measure Expert for the end user usage which is available in IOS, Android on free of cost for their ease of understanding the macro programmes to setting or measuring their work pieces or Tools using probes and this is like technology at the figure tips.

"We have always been with The Machinist since many years with participation in their Best Brands in metal cutting event 2018 and 2019. It was a great honour to receive the recognition in the consecutive years. We hope the new digital platform exhibition also gives a kick start to reach out to our new customers in the future with better solutions and business."

Deepak Paul, MD, igus India, says that the Covid-19 scenario has emphasised the human resilience and adaptability. As businesses ceased to operate the way it was known for many years, the transition to digital platforms was almost automatic and seamless.

"Interestingly the changes prove not useful for just the crisis period, instead it throws up enormous opportunities and benefits. For an advertiser, he today has a larger audience at relatively cheaper costs; for a user, he now has access to significant information and contact possibilities, all at low cost and comfort of his household or office or even better, when mobile. There are no more timelines and 24 x 7 in the true sense becomes operational.

"We are happy, though not surprised that a platform like "The Machinist" has been on the forefront of setting the new benchmarks for this transformation. With many such "Industry Firsts" and "Firsts for the Industry", we are confident that The Machinist and their worthy contemporaries will continue to excel and raise the bar in terms of user benefits. We are therefore extremely happy to partner with this Conference and look forward to a Great Show and possibly a 'New Normal'!"

WAY AHEAD FOR INDIAN MANUFACTURING

Shashank of FFG MAG India also expresses his views about on the outlook for the Indian manufacturing industry for the next 15 months. He says: "Our opinion is that the Indian market will grow significantly. Reforms like self-reliant India being promoted will certainly motivate higher investments in all manufacturing sectors. India is also being looked as a preferred destination for most global manufacturing companies. Fresh investments are expected in diverse sectors like electric vehicles, aerospace, defense, medical equipment and consumer electronics in addition to the automotive and farm equipment sectors which will complement the rapid growth of Indian manufacturing sector.

Yatendra Kumar of MotulTech says that few signals of early positive start have already started coming in, like growth of tractor sales, GST collections etc., but short to medium term growth is still in doubt. However I am very confident of Indian Manufacturing in long term 12 ~15 months period thanks to various reasons like our own consumption, less dependency on export, local manufacturing initiatives like Make in India for new segments like electronics manufacturing and support to existing segments like pharmaceuticals, auto components and other engineering goods and chemicals. Apart from this control on import of non-essential cheap products from China by common people and

"I am very confident of Indian Manufacturing in long term 12 ~15 months period thanks to various reasons like our own consumption, less dependency on export, local manufacturing initiatives like Make in India and so on."

Yatendra Kumar, Business Head, MotulTech India

government agencies will also be additional benefit to our manufacturing sector.

Subrahmanya Kumar of Tyrolit adds, "Manufacturing sector is on the recovery path after experiencing difficulties of pandemic time and expected to reach normalcy soon with new protocols. The market will start realising the actual demand which will raise the manufacturing activities. The drive by many global manufacturers to relocate from China to alternative countries is expected to reward Indian manufacturing sector. Governments' steps towards being self-reliant through Make in India and increased indigenisation through private participation in defence sector etc. will further support the manufacturing industry."

Mohini Kelkar of the Grind Master Group believes that 'to sustain through this hard time, industries need to have tight controls on their budgets, operating and material costs, process optimisation and also make effective use of available manpower'. "Industries must adopt new business techniques, digital platforms, smart marketing tools, and social distancing on shopfloor to achieve smooth business operations," she explains.

Preetham of Forbes and Company Limited, believes that demand in India will increase in the next 15 months. "Some of the factors which will influence this are the rapidly increasing middle class population and their spending power, the reduction of global company's dependency on China, privatisation of the public sector in India with focus on defense and railway.

"Investment in the Indian manufacturing sector has been on a rise both domestic and foreign with investments of over US$600 billion in FY20. Initiatives like Make in India, Atmanirbhar Bharat, changes in the taxation policy with more transparency in tax laws should bring a change in the way business is done in the country."

"The biggest differentiator is the competitive advantage India offers with a young resourceful workforce; India still has a huge demography which is untapped in the B & C category towns which are being upgraded with better connectivity and bigger investments," Preetham says.

Shyam of Blum-Novotest is optimistic of the future business. "We are gearing up towards the same. We are expecting a paradigm shift in industries such as electronic, medical and private sector participation in defence industry in addition to the well-established auto industry which is working towards mission plan 2026, infrastructure projects etc. We are already experiencing a steady growth in our business as the industry is looking at optimisation of the investments and the automation which would be the key for future success."

"The best outlook that we hope for is an early restart and accordingly plan to re-skill and up-skill to be leaner, smarter and ready."

Deepak Paul, MD, igus India

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Shyam B V, MD, Blum-Novotest Measuring & Testing Technology Pvt Ltd

Sharing his views on the future outlook, Deepak Paul of igus says that in the times when the best predictions go haywire, we doubt whether we could rely on any "outlook". "At best the "outlook" that we could hazard is a hope that things will get better. From a business perspective we see multiple challenges, low demand and cash flow being the main two concerns.

"We have now seen a long period of declining demand initially from the economic slowdown and now due to the Covid lockdowns and closures. Loss of jobs definitely is a concern which however, is incidental to contractionary cycles. Only, this time that we have a deep and significantly prolonged contraction.

However, the silver lining for India is that our Industry is largely driven by domestic demand and not exports (which should be a good growth engine going forward in the new World dynamics). The long period of low demand therefore has to reverse at a certain point and the sooner we are able to turn around, the jobs should be back as we go into expansion and growth could be sharp. The businesses that will prune themselves to be leaner will survive and be ready when things improve. The best outlook that we hope for is an early restart and accordingly plan to re-skill and up-skill to be leaner, smarter and ready," he concludes.

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By Niranjan Mudholkar

DEALING WITH THE NEW CHALLENGES

To be the company that is disrupting instead of being disrupted by the competition requires flexibility and agility along with a leading edge thinking and technology to make that happen, says **Cas Brentjens,** Vice President, Infor Nexus for Asia Pacific & Japan

Manufacturing companies today face the Herculean task of protecting the lives of their employees while also safeguarding business. This is possible only if they can restart the operations in the right way. What role do you see advanced technologies playing in enabling manufacturing industry to get back on track in New Normal?

You can look at this from a number of angles – the supply chain angle, the facilities management angle, and lastly the workforce management angle. By what we have witnessed, it was the supply chain industry which observed immediate changes during these times and we have a few solutions with quality insights on what's happening on the global supply chains. The factories in China were shut longer than usual post Chinese New Year and the supply chains were disrupted but it proceeded back to normal quickly and then the world shut down. The malls, shops, companies, retails stores and brands stopped ordering and became stagnant, giving rise to cash problem in the supplies and liquidity crunch. To deal with this scenario, we came up with two programs on the supply chain - one is helping companies with real time visibilities on tracking shipments and second is to infuse capital very easily, i.e. the combination between the buyer, the seller and the bank on our supply chain platform. The cash however was quite substantial where the traditional bank was not sufficient to provide trade finance so we had to bring in more trade finance companies to our supply chain. Talking about facility management and getting the factories and offices back to work,

"The pandemic has definitely fast forwarded almost five years of the digitisation across a lot of sectors. The move to ecommerce, digital economy and cloud has gotten accelerated too."

the Government introduced mandatory policies and guidelines to follow like safe distancing, new cleaning procedures and processes and instructions how to deal with personal protective equipment. We offer facilities management capabilities, with the right regulatory labelling about the contaminated machine infected area, which is a guaranteed area. It also provide procedures on maintenance and cleaning processes, which is normally done once a week to now changed to once a day or once a day to five times a day. We also have case management if in case you have an infected situation and the processes around how to manage. Not all companies have the infrastructure or systems in place to manage case management situations. Lastly, the workforce management. We observed that people still have to go to the office or to the factory but in different situations. Therefore, we provided companies with a workforce management that have time and attendance and rostering capabilities. So those are kind of three areas that we help companies dealing with this new situation.

Cloud solutions have been around for a while now but things have changed drastically now. Do you see increased use of the same due to the pandemic?

The pandemic has definitely fast forwarded almost five years of the digitisation across a lot of sectors. The move to ecommerce, digital economy and cloud has gotten accelerated too. Cloud as a system is a secure platform

One cannot keep up with the speed of innovation anymore in your own data centres and your technology to manage it by yourself.

and with the rising ransomware attacks, it is best for organisations to move their applications and data to cloud. Another aspect is artificial intelligence, as it is becoming the new normal that only works on a cloud environment where you have a dynamic elastic scalability situation. And the last aspect is the speed of innovation, which is high. One cannot keep up with that speed anymore in your own data centres and your technology to manage it by yourself. The speed of innovation, security and artificial intelligence are big drivers for cloud which got hastened due to the pandemic. How we help our customers is by consulting and supporting organisations and taking over the management of customer's business application environment.

What role do you see innovation playing the given scenario? How can Infor help the industry on this front?

In manufacturing companies, customers usually want something new or extremely personalised which lays a lot of pressure on the organisations, demanding them to be flexible and agile in the nature of their business. This is why we want to help customers in having an environment that is agile, flexible, and very customer focused. There are two categories of customers i.e. one with low volume, high complexity and other with high volume, low complexity. These are two extreme situations, and require order management processes, product lifestyle management, design, manufacturing and an integrated supply chain. And that is how we want to help our customers within those two extreme situations, industries and supply chains and be extremely capable of helping customers manage in those supply chains. In recent times, it has become dynamic as offshoring becomes reshoring, as the geopolitical landscape is impacting supply chains. So the whole digital disruption stays a very important aspect. That's where we want to help companies and kind of outpace that disruption and being the company that is disrupting instead of being disrupted by the competition. However, it requires some flexibility and agile environments along with a leading edge thinking and technology to make that happen.

> "Black swan events are completely disrupting what we are expecting, thus companies need to think completely different.

The manufacturing industry is extremely asset-driven and with Covid-19 restrictions, maintenance has become all the more critical. How can Industry 4.0 solutions help manufacturers gain competitive advantage with predictive maintenance, remote monitoring and asset management issues?

Facility management for us is same as enterprise asset management, a solution that provides clean practices, preventive maintenance schedules, identifies the assets at risks, and helps to get ready for those changing expectations. The idea has always been to go from preventive to prescriptive, to maybe more autonomous. Managing assets has been a key aspect for us and that also has to be integrated when you cannot schedule a very important customer order, when you do a major overhaul of your production line. The order management process, selection planning process and the asset maintenance management process has to be in sync. Many companies are still in the reactive stage and there is a need to switch from reactive to preventive to prescriptive stage. With that, there is a need to monitor and measure consumption, duration, and wear and tear in real time. These are some of the key roles that asset management plays to help manufacturers. We also use that same tool to do the cleaning, scheduling and then labelling since labels are important to tell which area is at risk and the area that needs to be decontaminated. So, we provide all these work processes and procedures into a manufacturing environment.

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The speed of innovation, security and artificial intelligence are big drivers for cloud which got hastened due to the pandemic.

But COVID-19 has completely revolutionised the whole world including the manufacturing industry. So, can we actually say that we are ready for Industry 5.0?

Not yet, I believe companies need to be extremely agile and ready for the change to welcome industry 5.0. For example, if retail and warehouses are down and the source is still operating, one can do direct to consumer shipments, so companies need to become agile to deal with that situation. Black swan events are completely disrupting what we are expecting, thus companies need to think completely different. However, companies are adjusting extremely fast and we see many of our customers moving into the direct to consumer trends. We see e-commerce adapting to this change, now even the local bakery not only needs to have a website, but also has to have an e-commerce platform from where customers can place an order. Every mom and pop store is almost needed to be online; companies are adopting new tools and techniques very quickly.

The automotive industry was already in some interesting movements, from battery electric vehicles – to autonomous vehicles. These are some key trends in automotive, so the automotive industry was already undergoing a big disruption and then you get such an event on top of it. How to deal with this change is very interesting and challenging for the executives in those companies.

Anything you would like to add?

I think as a company we offer very quick interesting programs across the globe as we also have very good visibility in Europe and Asia. We have got a lot of interest in those programs that we came up with because they are so essential in helping customers in dealing with some of the new challenges.

UPDATE

CHIRON GROUP INITIATES COMPREHENSIVE RESTRUCTURING

Due to the crisis in the automotive industry and the effects of the corona pandemic in the aerospace industry, the Chiron Group (Germany) is confronted with a significant decline in demand. In order to secure the future of the Group, the management, supervisory board and owners have initiated a comprehensive restructuring. This includes the bundling of production and assembly in Tuttlingen and Neuhausen o. E., the concentration on service and sales of Stama products at the Schlierbach location and the sale of Scherer Feinbau GmbH, based in Alzenau. The Chiron Group with its approximately 2,100 employees is a leading global supplier of machining centers, which are primarily used in the automotive and aerospace industries, but also in mechanical engineering and in precision and medical technology. As early as 2019, the Group recorded a significant decline in demand, triggered by the upheaval in the automotive industry and the weakening of the global economy. While the Chiron Group achieved sales of around EUR 500 million in 2018, sales in 2019 fell to EUR 443 million (-11%). In 2020, the situation was aggravated by the effects of the corona pandemic, so a further decline is expected. The Chiron Group is therefore preparing itself for further declining and highly volatile markets and anticipates a significantly reduced level of workload and unsteady sales development. "In view of these prospects, a realignment of the Group is essential," explains Managing Director Vanessa Hellwing. "This decision was not easy for us. But we must act now to secure the future and lead the Group out of this crisis stronger than before. The Supervisory Board and the owners support this course. "Our goal is to keep the Group capable of acting in the short term and to create competitive advantages in the medium term in order to secure as many jobs as possible. We are doing this with a comprehensive package of measures. We have carefully examined all the alternatives and consider the initiated reorganization as necessary and future-proof," says Dr. Armin Schmiedeberg, Chairman of the Supervisory Board. The Chiron Group plans to consolidate all German manufacturing and assembly capacities in the Tuttlingen and Neuhausen o. E. plants. Accordingly, the assembly and application departments of Stama Maschinenfabrik GmbH will be relocated from Schlierbach to the Neuhausen plant, some 150 kilometers away. The Schlierbach location will in future concentrate on sales and service for the Stama brand.

By Dr. Manfred Berger, MAG – Stephan Doerr, HESSAPP – Mario Gruenberg, MODUL

THE POWER OF POWER SKIVING

As with all manufacturing technologies, quality, cost optimization, flexibility and productivity are the top issues. 'Power Skiving' makes a significant contribution to each of these aspects.

Like electric mobility, the technology of power skiving has been known for more than 100 years and, with the availability of 5-axis machining centers, has found its way into individual and series production due to its convincing process flexibility. With e-mobility, a market is now growing which demands high precision (low running noise), high power transmission (torque and speed) from the product and equally high product flexibility in volume production. The use of planetary gears for reduction or as a differential in the drive system also increases the demand for internal gears. As with all manufacturing technologies, quality, cost optimization, flexibility and productivity are the top issues. 'Power Skiving' makes a significant contribution to each of these aspects.

In addition to traditional gear machining processes such as hobbing, gear shaping and broaching, skiving is a continuous machining process for soft and hard machining of internal and external gears. The skiving process is characterized by the tool and workpiece axes arranged in a certain relationship to each other - the axis cross angle (Fig. 1). With the coupled rotation of workpiece and tool, a relative movement of the cutting edge in the tooth space is thus created. By superimposing a feed motion, both add to the movements to the feed speed and guide the cutting edge along the workpiece axis. In this way the tooth space is 'peeled out' of the workpiece in several cuts (Fig. 2). The cutting speed results from the rotational speeds of tool and workpiece in relation to the axis cross angle. Significant for the skiving process is the short machining time (approximately 30 percent to 50 percent) in comparison to the likewise flexible gear shaping and the ability to apply the gearing close to an interfering contour (workpiece shoulder). The smaller the axis cross angle, the closer towards the interference contour can be machined.

Figure 1: Gear skiving of internal and external gears with a relation of tool and workpiece axis arranged at an angle to each other

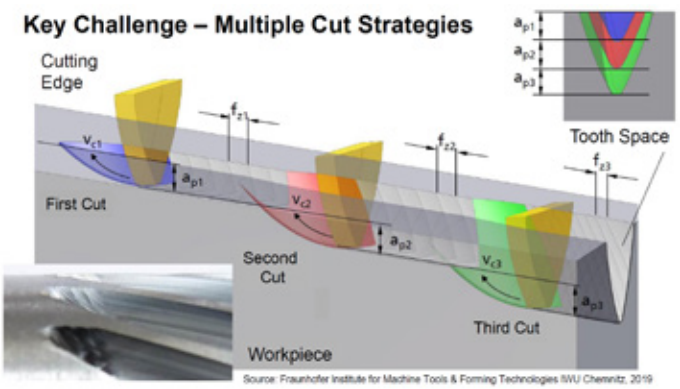


Figure 2: Production of the tooth space on the workpiece using the multi-cut strategy [3] and illustration of the kinematics with sickle-shaped chip formation when rotating the workpiece and tool with crossed axis arrangement (axis cross angle)

While the traditional alternative processes for gear machining such as broaching, gear shaping and gear hobbing are mainly used in technology-specific special machines, gear skiving can be applied on special machines and on modern 5-axis machining centers. In recent years, skiving has made a quantum leap in industrial manufacturing with the availability of modern control technology for spindle synchronization, tool technology for high-performance cutting and a machine structure that meets the high demands for rigidity and dynamics.

The main advantage of the above-mentioned process integration is that the components can be finished without or at least with fewer downstream machines.

Figure 3: Power Skiving in comparison to other gear manufacturing processes

> With e-mobility, a market is now growing which demands high precision (low running noise), high power transmission (torque and speed) from the product and equally high product flexibility in volume production.

This eliminates a large part of the loading and unloading of the components, the intermediate transportation and the quality losses due to clamping faults in the subsequent machining processes. The FFG Group therefore offers users the technology of Power Skiving on different machine concepts (MODUL gear cutting machine skiving with alternative machining processes, HESSAPP vertical turning machine for disc-type components with swivelling workpiece axis or the BOEHRINGER shaft turning centers with optional tool spindle). In an isolated comparison of the machining scope for gear cutting, Power Skiving can keep up with broaching and gear shaping and only has to admit defeat to classical gear hobbing in terms of economy. However, for series production on a greenfield site, costs, quality and productivity must be assessed as a whole, and the evaluation matrix for Power Skiving can be even more advantageous (Fig. 4).

The obvious advantage of 'Power Skiving' can be found in process integration. This background also explains the FFG Group's multiple path approach to machine development. Both machines for "Power Skiving" offer additional machining technologies such as turning, drilling and milling in addition to the gear skiving process. In the process combination, a workpiece can be almost completely machined on the machines. With the 'Power Skiving' option on the HESSAPP DVH 500, which is very well established in the market, we approach those customers that have to apply a gear to the turned part. With the MODUL VS 250, the focus is on the classic manufacturer of gears and transmissions.

A special software package for technology and process development, for simulations and for process visualization is available for both machines. FFG's skiving software is compatible with the 'SkiveAll' design and simulation software from IWU Chemnitz, an institute of the Fraunhofer Gesellschaft.

'SkiveAll' contains algorithms for the optimization of component quality. A kinematic process model is created from the workpiece analysis and the required tool geometry is calculated. In order to fully exploit the potential of skiving, this digital process twin also takes into account the machining forces, tool wear and stress on the processing machine (Fig. 5). The process (cutting sequence, cutting values, machine settings and other data) is exported to the machine where it serves as the basis for the automatic generation of the NC machining programs.

When coupled with a measuring machine, the data is transferred in GDE format (Gear Data Exchange) or in customer-specific formats. This allows a closed process chain to be established from the workpiece drawing to the finished product. 'Closed Loop Manufacturing' is becoming a key issue for gear machining

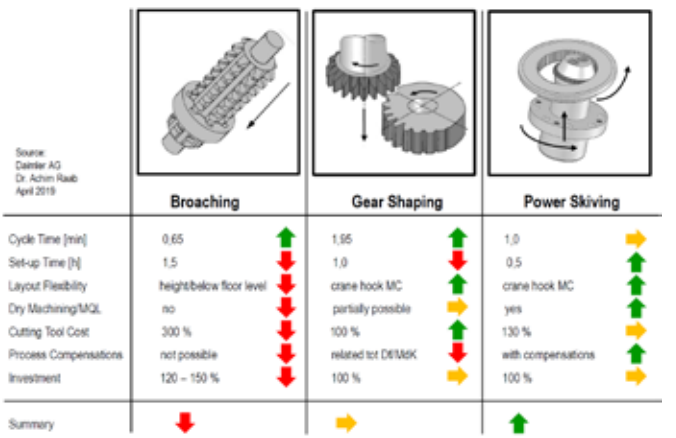


Figure 4: Evaluation matrix of gear machining in series production [5]

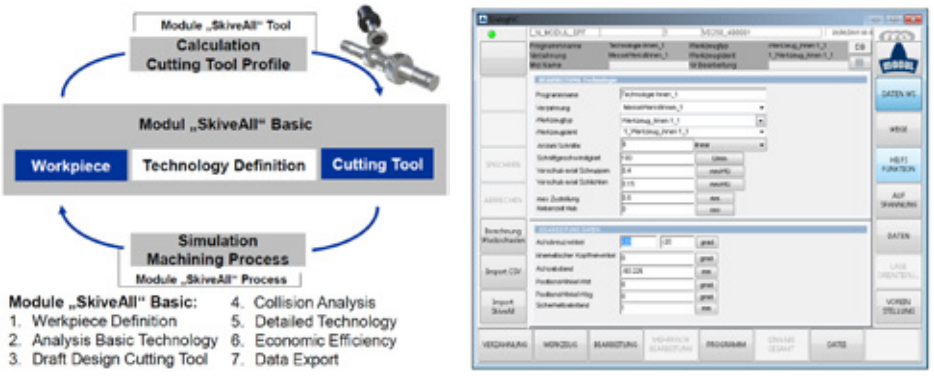


Figure 5: Application software for designing gear skiving processes SkiveAll (left) and input mask of the machine control DialogNC (right; operation, workshop programming, NC program generation, import/export to peripherical units) with direct coupling of both systems

in order to further strengthen its position compared to the gear cutting processes of gear shaping, broaching and hobbing, which have been continuously developed for decades.

Another component is the MODUL Tool Manager, a sophisticated tool management system that has already been supplied with gear hobbing machines.

For services, FFG offers an outstanding support through the digital maintenance manual installed on the machine, which provides maintenance and repair instructions in words and pictures directly at the machine. The display of maintenance intervals or the preventive announcement of due maintenance is just as possible as the logging of completed tasks. All service data can be uploaded and evaluated externally.

> "While the traditional alternative processes for gear machining such as broaching, gear shaping and gear hobbing are mainly used in technology-specific special machines, gear skiving can be applied on special machines and on modern 5-axis machining centers.

The gear skiving machine MODUL VS 250 complements the successful product range of gear hobbing machines with the 'Power Skiving' technology (Fig. 6). The process and production advantages described above are primarily aimed at suppliers and production plants in the automotive industry, regardless of the drive concept with combustion engine or e-drive. However, the machine with its tool magazine is also suitable for more complex workpiece assortments in small and medium volume production.

The 30 kW main spindle of the VS 250 allows a tool speed of 8,000 rpm, the workpiece spindle offers a maximum speed of 4,000 rpm. The tool magazine, already included in the basic equipment, has 6 pockets for tools with an HSK 100 interface.

- Maximum producible module m = 6
- Maximum workpiece diameter = 250 mm
- Automation through integrated loading gantry or external robot
- Possibility of mirrored design for integration into existing production lines or when replacing existing machines

The vertical Pick-up Turning Machining Center DVH 500 L WS (Fig. 7) can pick up and completely machine workpieces up to a swing diameter including clamping elements of 500 mm. For this purpose, driven tools can also be accommodated in the tool turret, which is equipped with state-of-the-art process monitoring (MONTRONIX). To increase the machine dynamics, the X-axis can be equipped with linear drives

Figure 6: Gear skiving machine MODUL VS 250 with automation and view into the work area

Figure 7: Vertical turning center HESSAPP DVH 500 L WS for „Power Skiving" with integrated automation and part supply via conveyor belt

on request. In addition to the classic machining operations of turning, drilling, milling and grinding, the 'Power Skiving' option package now also provides an additional swiveling tool spindle (Fig. 8) with a torque of 270 Nm, a maximum speed of 7,800 rpm and an HSK 100 tool interface:

- Maximum producible module m = 6
- Integrated workpiece handling from the conveyor belt with the pick-up spindle
- Optimum set-up operation
- Modern special software for workshop programming and process visualization SkiveAll with dialogue programming
- Main spindle with max. 4,000 rpm and 795 Nm @ 40 percent
- Y- axis stroke +/- 300mm
- Advantage of manufacturing an internal gear for workpieces with an internal shoulder

Both machine types can be integrated into existing production lines for wheels and shafts as a replacement or supplementary investment or can be used in FFG's turnkey plants with full effectiveness of the potential of multi-process technology. The Algorithmic Production System is particularly suitable for gear production, where not the individual component but components in containers (lots) are transported to the subsequent processing section, offering the best productivity and resulting lowest unit costs. These production systems are characterized by the fact that process-specific machine groups are planned in the system, which are approached with different components depending on capacity utilisation and availability. It is therefore essential that the individual machines are designed for the acceptance of different components in volume production and this process flexibility requires the coverage of the largest possible machining scope (e.g.: turning, milling, drilling and gear cutting) in one clamping. The logistics target for an order (container/batch) is determined based on the respective current capacity utilisation of the production cells and thus the available production and peripheral machines are optimally utilised. Both machine types for skiving can also be optimally integrated into conventional multi-stage production plants and agile manufacturing systems.

Source: FFG

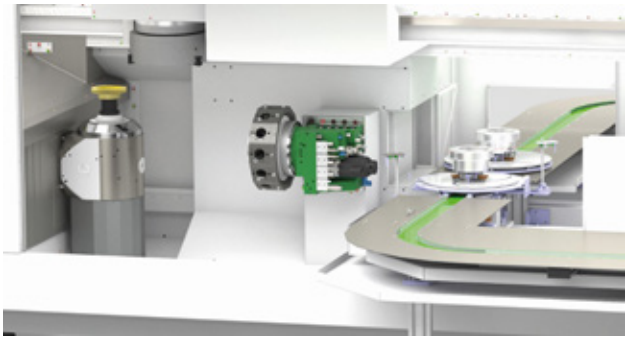


Figure 8: Work area of the CNC turning machining center HESSAPP DVH 500 L WS - view into the work area (suspended workpiece spindle, swiveling tool spindle, tool turret with a.o. driven tools - direct loading/uloading with the workpiece spindle (pick-up)

Advantages of Power Skiving:

- Elimination of the loss of accuracy with multiple clamping in subsequent operations (quality improvement) - turning (as well as other operations) and gear cutting in one clamping
- Floor space-saving process due to less logistics space for subsequent machining
- Lower total investment (no special foundations (broaching), periphery, operating and maintenance costs in the system)
- Economical machining due to short machining times (compared to gear shaping)
- Process flexibility (process optimization, retooling, path compensation, tools, cutting materials)
- Dry machining possible, no need for cooling lubricant or oil (environment, costs)
- Product flexibility (quick changeover to other workpiece types, gear profiles, straight and helical gearing)
- Production of gears close to interfering contours (shaft shoulder)
- Internal and external gearing
- Soft and hard machining - Roughing and finishing
- Hardening distortions can be compensated by tool path corrections
- Broad competence of machine and tool suppliers

INDUSTRY MEETS FURNITURE TECHNOLOGY

Lubrication-free linear guides from igus provide additional storage space in trainee carpentry pieces

Two pieces of furniture made by budding carpenters from Bergisch Gladbach demonstrates that industrial design combined with a Scandinavian look makes for unique furniture. Because they have that certain something extra, not only visually, but also functionally. This is ensured by lubrication-free drylin sliding linear guides - known by the industry. They allow smooth and maintenance-free movements in a bedside table with a linear guided element as well as in a coffee table with a pull-out unit.

As part of the machine course at the Cologne Chamber of Trade, 24 trainees from the Bergisch Gladbach Vocational College had the task of producing a small range of furniture within five days. "On the course, the carpenters should learn how to handle the various machines, such as a bench milling machine," says Frank Monschau, master carpenter and trainer at the Cologne Chamber of Trade. Over a period of several weeks, the trainees designed the furniture themselves. The results are impressive: a pull-out bedside table and a coffee table with rotating drawer and drawer opening. "We consulted the igus catalogue for the pull-out elements, because for years we have had very good experience with the linear guide systems in particular," explains Manuela Abbing, teacher at the vocational college in Bergisch Gladbach. No sooner said than done, the students selected anodised aluminium shafts with lubrication-free drylin linear plain bearings and a drylin NT telescopic rail.

Anodised aluminium shafts with lubrication-free drylin linear plain bearings provide storage space in a bedside table.

"THE TRIBO-POLYMER ENSURES A SMOOTH AND JERK-FREE SLIDING OF THE GUIDES. BUT THE PLASTIC SLIDERS HAVE EVEN MORE ADVANTAGES: BY DISPENSING WITH ROLLING BODIES, THEY RUN VERY QUIETLY, AND THE INCORPORATED SOLID LUBRICANTS MAKE THEM COMPLETELY CLEAN AND MAINTENANCE-FREE. SINCE NO GREASES ARE USED, NEITHER DIRT NOR DUST ADHERES TO THE RAILS."

Opening at the touch of a button

The designers completely dispensed with classic drawers for their bedside tables, but there should still be a 'hidden storage space'. In addition to a small shelf, the user has the option of opening the body of the table by pressing a button. For this extension, the carpenters resorted to igus linear sliders. A total of two shafts made of hard anodised aluminium and two linear plain bearings made of tribologically optimised high-performance polymer iglidur J are used. "The round shafts fit in perfectly with the design of our table. The slider allows the table to be opened and closed easily, quietly and smoothly. The solution can be quickly installed, and it easily convinced us," says Jascha Schmitz, a second-year apprentice.

To pull out a coffee table, the carpentry trainees used lubrication-free drylin NT-35 telescopic rails.

Quiet gliding and a long pull-out

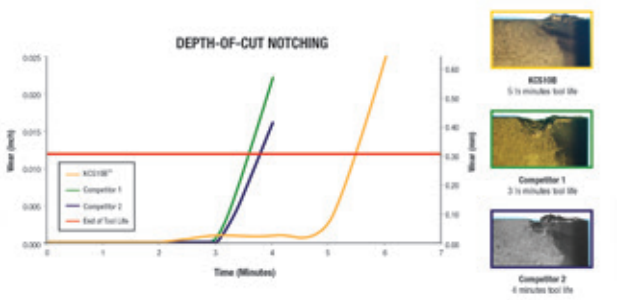
The carpenters also came up with two special elements for the coffee table. On the one hand, the table has a revolving drawer that can be opened and closed by means of a push-door opener, and on the other hand, the table can be slid open from the centre, so that books and magazines can quickly disappear into the body. "For this pull-out we needed a telescopic guide that was durable and visually appealing. The drylin NT-35 telescope made of aluminium convinced the students," says Manuela Abbing.

For its telescopic rails, igus relies on visually appealing anodised aluminium and sliding elements made of high-performance polymers. The tribo-polymer ensures a smooth and jerk-free sliding of the guides. But the plastic sliders have even more advantages: by dispensing with rolling bodies, they run very quietly, and the incorporated solid lubricants make them completely clean and maintenance-free. Since no greases are used, neither dirt nor dust adheres to the rails. Furthermore, there is no risk of contamination during operation or of the books and magazines stored. This makes the rails ideal for furniture and design.

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

KCS10B FOR SUPERALLOY APPLICATIONS

Most advanced turning grade is the new champion for machining Nickel, Cobalt and Iron based metals for aerospace and beyond.



Inconel 718 (NiCr19FeNbMo DIN), 36-39 HRC, Continuous Cut, Flood Coolant. Cutting Conditions: 61m/min (200 sfm) , 0,25mm/rpm (0.0096 ipr), 1,5mm doc (0.06" doc) Depth-of-cut notching and crater wear are far more manageable thanks to the super smooth coating and special edge-prep of inserts coated with KCS10B.

Kennametal has introduced its newest and most advanced turning grade, KCS10B, for nickel, cobalt and iron-based superalloys used in aerospace and other high temperature applications. KCS10B, which features a revolutionary coating applied to an ultra-fine grain carbide substrate for superior layer adhesion, delivers up to 50 percent greater tool life, more predictable processes, and improved productivity when working with difficult to machine superalloys. KCS10B overcomes the most common challenges encountered in turning superalloys—cratering and depth-of-cut notching—two wear modes that often lead to unexpected and even catastrophic tool failure.

Special Sputtering

Robert Keilmann, senior global product manager for turning, explained that the secret behind the success of KCS10B is Kennametal's proprietary High-Power Impulse Magnetron Sputtering (High- PIMS) technology. Rather than the light rain of droplets that fall on cutting tools during traditional PVD coating processes, High-PIMS generates a fine mist of AlTiN, building a series of "extremely thin, smooth, and wear-resistant layers."

Beating wear

Metals such as Inconel 718 and Stellite 31 are notorious for causing rapid wear and unpredictable tool life, KCS10B is proven to reduce DOC notching and extend tool life from 3 minutes to upwards of five minutes in roughing operations. Tool life in finishing operations

"KCS10B OVERCOMES THE MOST COMMON CHALLENGES ENCOUNTERED IN TURNING SUPERALLOYS—CRATERING AND DEPTH-OF-CUT NOTCHING—TWO WEAR MODES THAT OFTEN LEAD TO UNEXPECTED AND EVEN CATASTROPHIC TOOL FAILURE."

"METALS SUCH AS INCONEL 718 AND STELLITE 31 ARE NOTORIOUS FOR CAUSING RAPID WEAR AND UNPREDICTABLE TOOL LIFE, KCS10B IS PROVEN TO REDUCE DOC NOTCHING AND EXTEND TOOL LIFE FROM 3 MINUTES TO UPWARDS OF FIVE MINUTES IN ROUGHING OPERATIONS."

fares even better, with visible cratering and subsequent tool failure often delayed by a factor of two or three compared to competitive brands.

Positive and negative rake inserts are available, as well as various chip formers, edge preparations, and geometries, making KCS10B the ideal solution when turning iron-based (S1), cobalt-based (S2), or nickel-based (S3) alloys.

"Aside from a smoother surface, the new coating process also allows us to create a much sharper edge," he said.

"Our advanced honing and edge-preparation process reduces the friction that leads to heat, which further improves tool life. It also means less built-up edge, another common failure mode in super alloy materials. When coupled with the excellent dimensional accuracy that Kennametal turning inserts are known for, shops can now expect the increased performance, stability, and predictability needed to be successful with these challenging alloys."

Inconel 718 (NiCr 19 FeNbMo DIN), 36-39 HRC, Continuous cut, Flood Coolant. Cutting Conditions: 91 m/Min (300 sfm), 0,15 mm/rpm (0.006 ipr), 0,25 mm doc (0.01" doc)

"THE SECRET BEHIND THE SUCCESS OF KCS10B IS KENNAMETAL'S PROPRIETARY HIGH-POWER IMPULSE MAGNETRON SPUTTERING (HIGH- PIMS) TECHNOLOGY. RATHER THAN THE LIGHT RAIN OF DROPLETS THAT FALL ON CUTTING TOOLS DURING TRADITIONAL PVD COATING PROCESSES, HIGH-PIMS GENERATES A FINE MIST OF ALTIN, BUILDING A SERIES OF "EXTREMELY THIN, SMOOTH, AND WEAR-RESISTANT LAYERS."
ROBERT KEILMANN, *senior global product manager for turning*

For more information, contact, bangalore.information@kennametal.com

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