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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

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Aristotle



Driving change!

Do you know the name of the man who leads the vehicle program execution for General Motor's entire global electric vehicle portfolio, including the commitment to launch more than 20 all-electric vehicles globally by 2023? You wouldn't. That's because the VP – Global Electric Vehicle Programs for GM is not a man! It's a woman called Pamela Fletcher, who has been in leadership roles supporting the engineering of GM's electric vehicle and self-driving technologies for more than a decade.

Who says women cannot be successful or take up top jobs in the manufacturing sector? (By the way, GM's overall top boss is also a woman!). I chose to write about Fletcher because she heads the EV segment, which will soon change everything about the auto sector. She leads the two most unabashedly male dominated domains – manufacturing and technology!

WHO SAYS WOMEN CANNOT BE SUCCESSFUL OR TAKE UP TOP JOBS IN THE MANUFACTURING SECTOR?

As we celebrated the International Women's day this month, I kept wondering why aren't more women taking up manufacturing jobs. At a time when scarcity of skilled manpower (that's what we still call it!) is one of the biggest challenges faced by the Indian manufacturing industry, I feel that we can find many answers if we also start using more womanpower. According to World Bank estimates, nearly two-thirds of females graduating in India are jobless. A problem like this can become a solution and it will have wide ranging social and economic implications.

Yes, many organisations are now making sincere efforts to bring women in this industry but more needs to be done. We need more success stories to talk about. So, if your organisation is doing something in this regard then feel free to share your story with me.

Editor & Chief Community Officer



Chief Executive Officer **Deepak Lamba**

Chief Financial Officer **Subramaniam S**

Publisher, Print & Production Controller **Joji Varghese**

Brand Publisher **Rishi Sutrave**
rishi.sutrave@wmm.co.in
+91 9820580009

Editor & Chief Community Officer **Niranjan Mudholkar**
niranjan.mudholkar@wmm.co.in
+91 9819531819

Associate Editor **Swati Deshpande**
swati.deshpande1@wmm.co.in
+91 99204 00833

Assistant Art Director **Sanjay Dalvi**
sanjay.dalvi@wmm.co.in

Project Coordinator **Fiona Fernandes**
fiona.fernandes@wmm.co.in

ADVERTISING

South **Mahadev B**
mahadev.b@wmm.co.in
+91 9448483475

West **Ranjan Haldar**
ranjan.haldar@wmm.co.in
+91 9167267474

North **Ashish Sahay**
ashish.sahay@wmm.co.in
+91 9899688440

SUBSCRIPTIONS

subscriptions.rmd@timesgroup.com
022 67427209 / 67427206

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NEWS

Ground breaking of Navi Mumbai International Airport

PRIME MINISTER NARENDRA MODI attended the Ground-Breaking Ceremony of Navi Mumbai International Airport on February 18, 2018. At a function in Navi Mumbai, he also dedicated the fourth container terminal at Jawaharlal Nehru Port Trust.

The Prime Minister said globalisation is a reality of our times and to keep pace with globalisation, we need top quality infrastructure. He said the Sagarmala project is ushering not only development of ports but also port-led development. The Prime Minister said that the Government of India is devoting significant efforts towards the development of waterways.

The Prime Minister said that the

Navi Mumbai airport project has been pending for years. He said delayed projects cause many problems, and the PRAGATI initiative had been initiated, to give priority to completion of projects. He said India's aviation sector is growing tremendously, and there is a sharp increase in the number of people flying. This makes quality infrastructure in the aviation sector of prime importance, he added. The Prime Minister said that the Union Government has brought an aviation policy that is transforming the sector. He added that a strong aviation sector also gives more economic opportunities. Better connectivity leads to more tourists coming to India, he said.

GE Transportation and Indian Railways launch two 4,500 horsepower diesel-electric locomotives

GE has delivered two 4,500-horsepower diesel-electric Evolution series locomotives to Indian Railways in the presence of senior dignitaries from Indian Railways at an event in Lucknow. The locomotives have been made under the \$2.5 billion agreement as part of the Government of India's Public Private Partnership 'Make in India' program to develop and supply 1,000 fuel-efficient diesel-electric Evolution Series locomotives.

GE has also unveiled the state-of-the-art Roza Maintenance Shed in the Shahjahanpur district of Uttar Pradesh. The maintenance shed which has been built on 20 acres with an investment of Rs. 200 crores (USD 35 million) will be equipped for digital monitoring of the GE Evolution Series diesel locomotives (4500 & 6000 hp) and will have a modern training institute for Indian Railways pilots. Ashwani Lohani, Chairman, Indian Railway Board said, "Today marks a paradigm shift in diesel locomotive family. I would like to compliment GE for this new generation fuel-efficient locomotive. The localisation aspect on this locomotive will eventually go upto 70% making it a perfect example of Make in India. It is indeed a historic achievement for GE, Indian Railways as well as the Northern Railways."

"Our strong partnership with Indian Railways is aligned to Government of India's railway modernization and Make in India efforts. The timely delivery of the first two locomotives and the unveiling of the Roza maintenance shed have been made possible owing to strong commitment from the GE team in India and globally, working closely with Indian Railways," said Nalin Jain, President & CEO-International, GE Transportation.



India's demand for new aircraft forecast at 1,750 over 20 years

AIRBUS' LATEST INDIA Market Forecast, India will require 1,750 new passenger and cargo aircraft over the next 20 years to meet an exponential rise in both passenger and freight traffic. To help meet this growth, India will need 1,320 new single-aisle aircraft and 430 wide-body aircraft valued at US\$255 billion.

While much of the air traffic growth is expected to be driven by the fast expanding economy, rising wealth and urbanisation, ambitious government backed regional connectivity programmes are also set to enhance demand for air travel.

By 2036, Indians will each make four times as many flights as today. As a result, traffic serving the Indian market is forecast to grow 8.1 per cent per year over the next 20 years, almost twice as fast as the world average of 4.4 per cent.

Domestic Indian traffic is expected to grow five-and-half times over the next 20 years (2017-2036) reaching the same level as USA domestic traffic today, making it one of the world's fastest growing markets, according to Airbus' latest India Market Forecast for the period.

"Make in India is at the heart of our strategy. Airbus has the largest footprint in India of any International aircraft manufacturer, nationwide across all aircraft programmes. Our sourcing volume has grown 16 times over the past ten years and it is currently at more than US\$550 million annually," said Srinivasan Dwarkanath, President Airbus Commercial Aircraft in India

India is set to become the world's third largest aviation market by 2019/20 and Airbus is well positioned to partner its growth with backlog orders of over 530 aircraft to date.

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NEWS

HAL invites Indian partner for Licence Manufacturing of ALH-Dhruv

FOR THE FIRST TIME in Indian history, as a major boost to defence manufacturing and Government's 'Make-in-India' initiative, HAL has offered the indigenous 'Advanced Light Helicopter-Dhruv' (Civil version) for manufacturing to potential Indian private companies through Transfer of Technology.

HAL is looking for the Indian Partner, who has the capability of having five years of experience in engineering/aerospace industry (in-



cluding manufacturing and assembly), having net worth of Rs 2000 crore and minimum turnover of Rs 2500 crore, possessing skilled and qualified

manpower, registered in India or having majority holding by Indian stakeholders and willing to enter strategic collaboration with HAL.

Accordingly, the Company has invited Expression of Interest (EOI) for identification of Indian Partner. "Considering the increasing need of helicopters in civil operations of the country, this will be a mega deal from HAL which is the OEM and Licensor", said T. Suvarna Raju, CMD, HAL.

Hyperloop between Pune-Mumbai route



VIRGIN HYPERLOOP One has announced the State of Maharashtra's intent to build a hyperloop between Pune and Mumbai beginning with an operational demonstration track.

The hyperloop route will link central Pune, Navi Mumbai International Airport, and Mumbai in 25-minutes, connecting 26 million people and creating a thriving, competitive megaregion. The high-capacity passenger and cargo hyperloop route eventually will support 150 million passenger trips annually, saving more than 90 million hours of travel time, and providing citizens with greater opportunities and social and economic mobility. The hyperloop system will also have the potential for the rapid movement of palletized freight and light cargo between the Port of Mumbai and Pune, creating a robust backbone for on-demand deliveries, supply chains, and next-generation logistics.

The Pune-Mumbai route could result in USD \$55 billion (INR 350,000 crores) in socio-economic benefits (time savings, emissions and accident reduction, operational cost savings, etc.) over 30 years of operation, according to an initial pre-feasibility study completed by Virgin Hyperloop One. The 100% electric, efficient hyperloop system will ease severe expressway congestion and could reduce greenhouse gas emissions by up to 150,000 tons annually.

Make in India Action Plan

UNDER THE "MAKE IN INDIA" action plan 21 key sectors have been identified for specific actions under: (i) policy initiatives (ii) fiscal incentives (iii) infrastructure creation (iv) ease of doing business (v) innovation and R&D and (vi) skill development. This was informed in the Rajya Sabha today by the Minister of State of Commerce and Industry, C.R. Chaudhary while replying to a question.

Under this, the FDI policy and procedure have been simplified and liberalised progressively. Key sectors have been opened up for FDI: defence manufacturing, food processing, telecom, agriculture, pharmaceuticals, civil aviation, space, private security agencies, railways, insurance and pensions and medical devices.

In 2015-16, FDI inflow crossed the USD 55 billion mark in one fiscal year, for the first time ever. Total FDI inflow was USD 198.48 billion between April 2014 and October 2017, representing 38 percent of the cumulative FDI in India since April 2000. In 2016-17, FDI inflow stood at a record of USD 60 billion, highest ever recorded for a fiscal year ever. According to IMF World Economic Outlook (April 2017) and UN World Economic Situation Prospects 2017, India is the fastest growing major economy in the world and is projected to remain so in year 2018.



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A list of key events happening between April 2018 to January 2019, both nationally and internationally.

<p>SIMTOS April 03–07, 2018 Seoul, South Korea www.simtos.org</p>	<p>Die & Mould India International Exhibition April 11–14, 2018 Mumbai, India www.diemouldindia.org</p>	<p>Hannover Messe April 23–27, 2018 Hannover, Germany www.hannovermesse.de/home</p>	<p>CeMAT April 23–27, 2018 Hannover, Germany www.cemat.de</p>
<p>ACMEE June 21–25, 2018 Chennai, India www.acmee.in</p>	<p>AMTEX 2018 July 06–08, 2018 New Delhi, India www.amtex-expo.com/amtex_delhi</p>	<p>Busworld India 2018 August 29-31, 2018 Bengaluru, India www.india.busworld.org</p>	<p>IMTS 2018 September 10–15, 2018 Chicago, USA www.imts.com</p>
<p>Wire India Show November 27–29, 2018 Mumbai, India www.wire-india.com</p>	<p>Metallurgy Show November 27–29, 2018 Mumbai, India www.metallurgy-india.com</p>	<p>TechIndia 2018 August 29 –31, 2018 New Delhi, India www.techindiaexpo.com</p>	<p>IMTEX 2019 January 24 –30, 2019 Bangalore, India www.imtex.in</p>

OUR INHOUSE UPCOMING EVENTS

Super 
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Awards

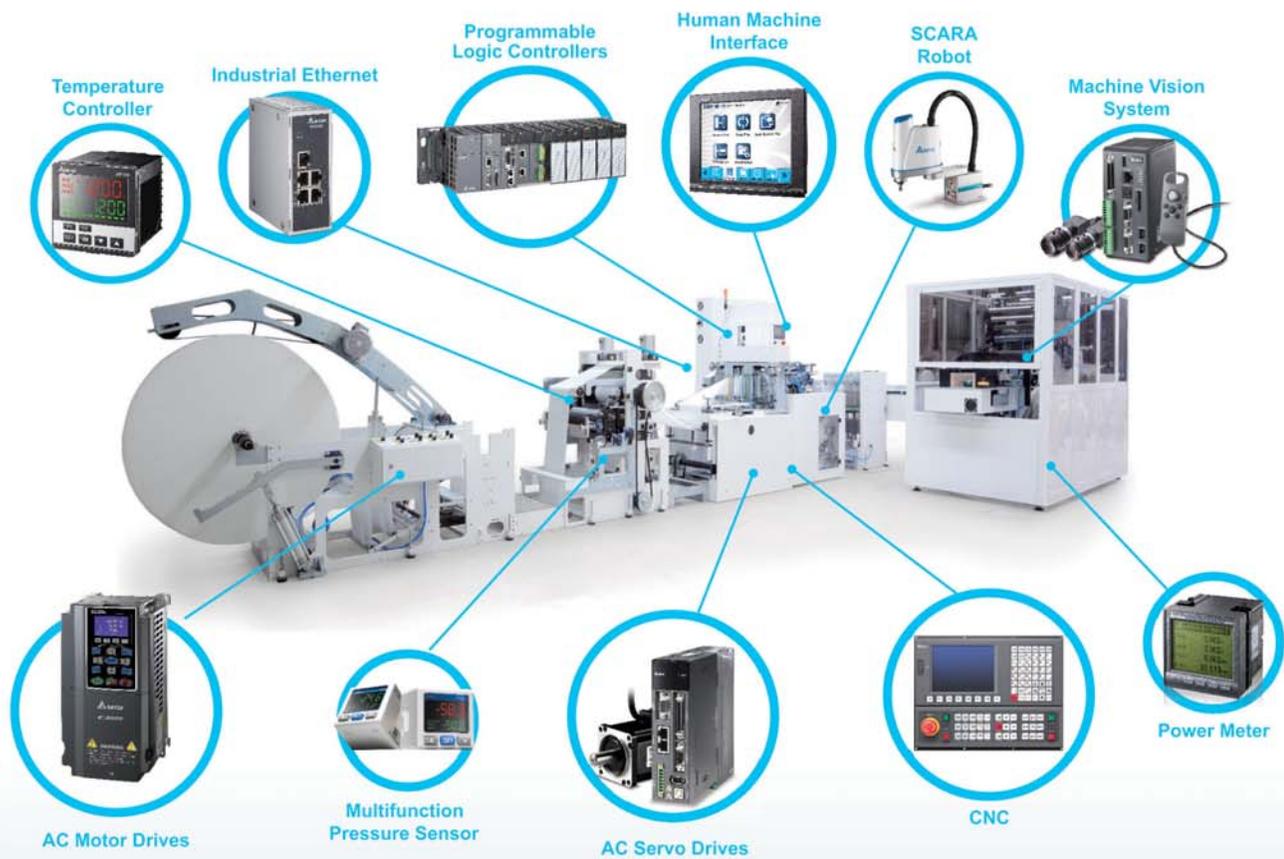
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THE ECONOMIC TIMES
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For the next India

Tomohiko Okada, Managing Director, Toshiba India Pvt Ltd says the company will contribute to India's growth.

By Swati Deshpande

Q How has been the last year for Toshiba Group in India? The manufacturing industry seems to have recovered from tremors of GST and performed well during second half of 2017. What has been your observation in this regard?

Toshiba has established India as its manufacturing hub and export base for power and infrastructure businesses. We have multiple manufacturing and marketing bases in India for high quality power generation, high-efficiency energy transmission and distribution, long-lasting and energy efficient electrical equipment for railway systems, complete vertical transport solutions for building, and water and wastewater solutions. We have made a lot of progress in the recent period in our various business operations, in sync with the key objectives of the Government of India.

Looking ahead at the era of electric vehicles, Toshiba is playing an important role in contributing the stable supply of lithium-ion batteries in India for promoting sustainable cars in the country and will support 'Make in India' initiative.

In December 2017, Toshiba Energy Systems & Solutions Corporation (Toshiba ESS) and Toshiba JSW Turbine and Generator Pvt. Ltd. (Toshiba JSW) reached a major milestone in its power systems business: the shipment of turbines with a cumulative of 200,000 megawatts output capacity

Toshiba's endeavour to manufacture and supply superior quality products that are made in India has resulted in securing many overseas orders. Recently, TTDI also delivered transformers to Kenya Power to help curb



To further support India's railway network overhauling plans and 'Make-in-India' initiatives for railways, Toshiba established a new production facility for electrical equipment for railway systems in Hyderabad in 2016.

T&D losses in Kenya's national grid. With strong alignment between India, Japan and many other countries, we are in a unique position to serve as a gateway to countries globally, especially Middle-East and Africa from our Indian base.

Overall, the manufacturing industry in India has been benefitting from the policy mobility and action, and GST was another step in this direction. Like any new policy or guideline, implementation of GST too had its own teething troubles but those have mostly corrected. With a focus on the development of Power and Infrastructure businesses, Government of India is initiating policy action, accompanied by enhanced efforts to bring investment in the sector through various schemes.

Q Toshiba continuously works on making thermal power technologies environment-friendly and efficient. Please tell us about it.

Thermal power in India continues to be the main source of energy. To offset the biggest challenge that thermal energy pose, Toshiba has been continuously striving to develop technologies that can reduce the carbon footprint by not only reducing the emission levels, but also improve efficiency. One such technology is the Advanced Ultra-Super Critical (A-USC) that uses steam at temperatures above 700°C.

A two-stage, reheat steam A-USC plant is expected to achieve a 46 percent plus increase in net thermal efficiency (by

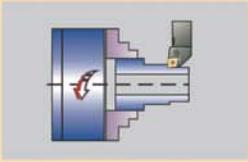
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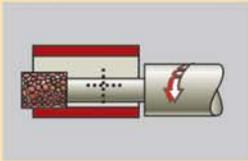


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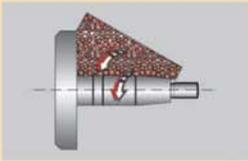


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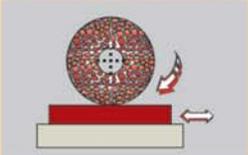


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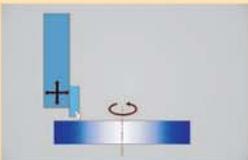


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HHV standard). Toshiba has been a part of a national project for research and development into the underlying technologies needed in an A-USC plant that was launched in 2008. At Toshiba we are working on a variety of development aimed at implementing A-USC.

Toshiba Group is also developing technologies such as the Post Combustion Capture (PCC) technology that separates, captures, and sequesters CO₂ emissions from the flue gas of thermal power plants, can help curb the emission of the gases, which would otherwise be released to the atmosphere. CO₂ is continuously separated from the flue gas of the thermal power plant. The PCC technology can be applied not only to coal fired power plants, but also to all other CO₂ emitting plants, such as oil fired, gas fired, gas combined cycle, biomass fired plants.

But like most developed nations, India too needs to balance its energy dependence between traditional fuel source and renewable energy. Toshiba's technology innovation and implementation expertise in the renewable energy space and help India achieve this equilibrium.

Toshiba offers a complete range of solutions in hydropower systems ranging from small to large capacity. In addition to the conventional machineries, Toshiba has a strong edge in terms of advanced technologies like adjustable speed pumped storage system, which works like a rechargeable battery that acts as a utility-scale grid storage system. The key benefit of the system is its support for tuning the electric grid's frequency to secure its stability. This is becoming a more important concern in India, with increasing installations of renewable energy systems that may cause frequency fluctuations in the grid network.

Toshiba also offers its solutions to Indian Railways. Can you please tell us about your association with Indian railways?

Toshiba's first association with India's quest for an efficient and safe transport network was when it first received an order from Indian Railways for 15 electric locomotives in the 1960s. Since the early 2000s, Toshiba has kicked its railway system business into gear. To further support India's railway network overhauling plans and 'Make-in-India' initiatives for railways, Toshiba established a new production facility for electrical equipment for railway systems in Hyderabad in 2016.

Toshiba, with over 115 years of R&D in railway technology, has worked to improve every requirement of railway transportation, such as environment adaptation, safety, punctuality, comfort and reliability. Toshiba with its advanced energy-saving solutions promotes technologies that contribute in reducing electricity consumption and greenhouse gas emission, leading to improved city environment.

Toshiba has a long history of manufacturing and supplying rolling stock systems, information systems and power supply systems for customers in Japan and in rest of the world too.



The high-speed train in India is no more a distant future. Does the company have in role to play in the upcoming Mumbai – Ahmedabad High Speed Rail project?

Looking to the future, concerns over depleting fossil-fuel reserves, climate change, overcrowded airports, delayed flights and congested roads have birthed the need for high-speed railway technology alternative. In 2015, India and Japan signed a MoU on cooperation and assistance in the Mumbai – Ahmedabad High Speed Rail (HSR) project, also known as the Bullet Train project. The project is based on Japan's Shinkansen famed for its outstanding safety record, punctuality and relatively low emissions, which are highly desirable technology for many countries.

Toshiba holds significant experience in delivering a high-speed rail system to Taiwan, which is based on Shinkansen, becoming the first Japanese company to export a high-speed rail system. With its electrical and electronic systems for the high speed rail, including train traffic management system with signalling system, power supply system, communication systems and all electrical equipment for rolling stock Toshiba can play a significant role in realising India's plan for high-speed rail projects.

With its total solution capabilities in constructing transportation infrastructure, which is indispensable for India's further economic growth and people's better life, Toshiba will continue to contribute to the growth of industries FOR THE NEXT INDIA. 

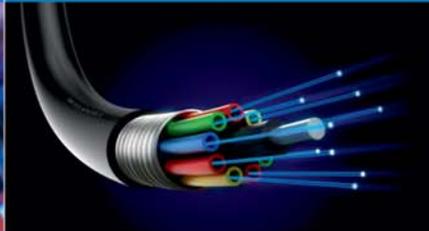
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Tata Boeing Aerospace inaugurates its Apache fuselage facility in Hyderabad

Tata Boeing Aerospace (TBAL), a joint venture between Boeing and Tata Advanced Systems (TASL) recently inaugurated its state-of-the-art facility in Hyderabad. Spread over 14,000-square meters and employing 350 highly skilled workers, the facility will be the sole global producer of fuselages for AH-64 Apache helicopter delivered by Boeing to its global customers including the U.S. Army. The facility will also produce secondary structures and vertical spar boxes of this multi-role combat helicopter. The delivery of the first fuselage is expected in 2018.



“I congratulate Tata and Boeing for taking this bold step towards Make in India and making this substantial investment in the defence space,” said Nirmala Sitharaman, Minister of Defence, Government of India. “The manufacturing of advanced defence platforms and being integrated with the complex global supply chain will help our aerospace industry

acquire technology, build local capability, provide employment and become a global exporter.”

TBAL, Boeing’s first equity joint venture in India, is the result of a 2015 partnership agreement with TASL. Construction of the manufacturing facility began in 2016 and was completed on schedule. In addition, Boeing and TASL have worked closely to develop a pool of highly skilled aerospace talent through

skill development initiatives.

“TBAL is just the beginning of Boeing’s future journey of partnership with India,” said Pratyush Kumar, president, Boeing India. He further added, “As we progress, we see this as a major step towards future opportunities to pursue the co-development of integrated systems in aerospace and defence. Our partnership with Indian industry fulfils the goals of the ‘Make in India’ initiative and results in mutual growth and productivity growth for both India and Boeing.”

Mahindra to make an investment of over Rs. 500 crore at its Chakan plant

Mahindra & Mahindra Ltd has announced in the presence of the Government of Maharashtra, that it would make an additional investment at its Chakan plant in Maharashtra. As part of its expansion plans, the company will invest over Rs. 500 cr in its Electric Vehicle (EV) Project under the new EV Policy of the Government of Maharashtra.



The investment for EV and EV Components is in addition to its ongoing expansion plan in Chakan which includes an initial investment of Rs. 6,500 cr. This additional investment of Rs. 500 cr will be utilized towards product development and capacity enhancement for electric vehicles and related components.

The MoU was signed by Sunil Porwal, Additional Principal Secretary (Industries), Government of Maharashtra and Dr. Pawan Goenka, Managing Director, Mahindra & Mahindra Ltd. in the presence of Shri Devendra Fadnavis, Hon’ble Chief Minister, Government of Maharashtra and other dignitaries present at the Magnetic Maharashtra Conference currently underway in Mumbai.

Cummins opens state-of-the-art Technical Center in Pune

Cummins in India has recently inaugurated its new state-of-the-art technical center. Located at the Kothrud campus in Pune, Maharashtra, Cummins Technical Center India is equipped with world-class laboratories, engine test cells and engineering facilities.

“We see real opportunities for continued growth in India,” said Tom Linebarger, Cummins Inc.

Chairman and CEO. “The investments we made here decades ago also help us weather the cyclical nature of our industry, and we expect continued growth here as well as the more stringent emission norms – the move to BSVI – present significant opportunities for Cummins to provide our customers with technologies that will help them succeed in their businesses.”

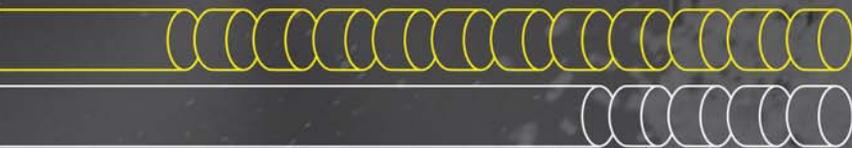
The four-story building is impressive with seating capacity for 2,500 professional engineering staff.

The new office features collaborative workspace that will support diverse work styles, preferences and backgrounds for all employees. It will promote employee well-being through the use of light, art and design and productivity through amenities and technology. The office space includes a flexible learning center to support education, training and team building.

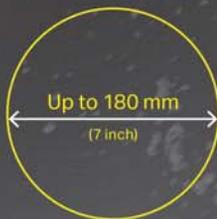
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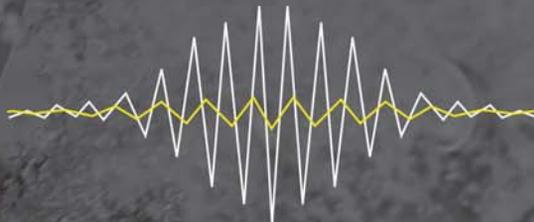
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Atlas Copco opens expanded innovation center in Germany

Atlas Copco has inaugurated an expanded innovation center in Bretten, Germany. The center will meet growing customer demand for testing and developing innovative joining technologies.

In the new high-tech facility customers from the automotive and general industries get the opportunity to develop and test different advanced joining methods under one roof.

“The innovation center gives us an increased capacity to drive innovation and create solutions together with our customers,” said Henrik Elmin, Business Area President, Indus-

trial Technique. The German facility is one of ten Atlas Copco innovation centers worldwide, from China to the U.S. The expansion of this facility increases the number of possible customer projects tested at the innovation center from about 250 to 500 annually. Increased space was also needed for customer and employee training, a new logistics system and more office space for existing and new employees. Atlas Copco invested about MEUR 6.8 (MSEK 70) in the upgrade. Over 400 employees work at the center that will mainly serve central and the south west of Europe.

Mazda, Toyota establish JV, to have manufacturing plant in Alabama

Mazda Motor Corporation and Toyota Motor Corporation have established their new joint-venture company “Mazda Toyota Manufacturing, U.S.A., Inc.” (MTMUS) that will produce vehicles in Huntsville, Alabama starting in 2021. The new plant will have the capacity to produce 150,000 units of Mazda’s crossover model that will be newly introduced to the North American market and 150,000 units of the Toyota Corolla. The facility is expected to create up to 4,000 jobs. Toyota and Mazda are investing \$1.6 billion towards this project with equal funding contributions.

“We hope to make MTMUS a plant that will hold a special place in the heart of the local community for many, many years,” said Mazda’s Executive Officer Masashi Aihara, who will serve as President of MTMUS. “By combining the best of our technologies and corporate cultures, Mazda and Toyota will not only produce high-quality cars but also create a plant employees will be proud to work at and contribute to the further development of the local economy and the automotive industry. We hope that cars made at the new plant will enrich the lives of their owners and become much more than just a means of transportation.”

“The new plant, which will be Toyota’s 11th manufacturing facility in the U.S., not only represents our continuous commitment in this country, but also is a key factor in improving our competitiveness of manufacturing in the U.S.,” said Hironori Kagohashi, executive general manager of Toyota and MTMUS’s Executive Vice President. “We are committed to realizing a highly competitive plant and producing vehicles with the best quality for customers by combining Toyota and Mazda’s manufacturing expertise and leveraging the joint venture’s synergies. Based on this competitiveness, we will make every effort to becoming a best-in-town plant that will be loved by our hometown,” he added.

UL opens new Centre of Excellence



UL has inaugurated an 80,000-sq.ft. laboratory in Gurugram to enhance access for their existing and potential customers in the North and East India markets. This cutting-edge facility is UL’s second ‘Centre of Excellence’ in India after Bengaluru and is in line with the company’s ambitious ‘In India, for India’ strategy to support domestic manufacturers’ need to meet regulatory compliance to access the domestic and global markets.

The investment is aimed to facilitate the country’s growth drivers of rapid urbanization and domestic manufacturing. While India’s LED and energy efficiency programs have won international recognition, there is increasing thrust for the smart cities mission. Greater impetus for manufacturing with economic recovery and structural reforms is boosting the prospects of sectors like textiles, toys and consumer goods.

The simultaneous policy initiatives to strengthen the domestic standards ecosystem has led to an increased demand for testing facilities that can match global standards.

Replete with the latest and best in class equipment and talent, the Gurugram Centre of Excellence offers customers in north and east India easy approach to UL’s renowned third-party end-to-end testing, inspection and certification services to accelerate time-to-market.

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Nurturing innovations

Ashok Minda, Group CEO, Spark Minda speaks to The Machinist about the company's new Technical Centre and plans for the future.

By Swati Deshpande

Q Congratulations on inauguration of Spark Minda Technical Centre. Can you please tell us more about this centre?

Thank you so much for your warm wishes. SMIT is the first Spark Minda, Ashok Minda Group's Technical centre dedicated to R&D though our all business group companies have their own one also. We have brought in the best of engineers and manufacturing, testing machines from world over for creating a breakthrough tailored solutions for the group and our clients. SMIT is spread across 40,000 square feet with manpower strength of more than 100 people. We foresee a huge pool of talent in SMIT where future will develop and nurture only on electronification of our products. SMIT has attracted world class automotive talent and many of the team members have a rich global experience. SMIT team has already started interacting with prospective customers from world over at various automotive forums and technology shows. Quite a few potential international clients have visited SMIT centre and expressed their wish to explore joint opportunities. This will definitely widen our business horizon to a global level, covering many more customers.

EV is a sunrise sector with a very good potential in coming 3 years due to govt., push & technology improvement leading to increase in affordability, and attractiveness to end consumer. We are coming-up with various EV subsystem solutions like DC-DC converters, chargers and motor controllers, etc.

Q This is one of the first centres opened by the company for R&D purpose. Can you please tell us about importance of R&D for the company?

SMIT is totally and entirely dedicated for research and development services prevailing in the group and market. SMIT is equipped with latest test and measurement equipment, development tool chains and environment and fully operational laboratory for supporting development of embedded software and hardware. Development centre also marks state-of-the-art EMI-EMC (Electromagnetic interference & Electromagnetic compatibility) test facility to cater to complete suite of design and product validation tests.



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Looking at the market and industry pace, research and development is an obvious prerogative for Spark Minda Group. We can our customers expanding leaps and bounds in the market with bigger and better portfolio of consumer products.

Looking at the market and industry pace, research and development is an obvious prerogative for Spark Minda Group. We can help our customers expanding leaps and bounds in the market with bigger and better portfolio of consumer products. In order to suffice such crucial technological and mechanical demands it is our prime objective to develop things effectively and timely in the given frame of products and demands. The Centre will nurture innovations to create breakthrough solutions tailored to address the market requirements. It will actively pursue opportunities in the area of new generation technologies like Connected, Autonomous, Electrified Mobility Solutions, Body Control and Multi-function Controllers, Smart Security and Vehicle Access Solutions etc. It would also explore incubation of future technologies like Deep Learning, Artificial Intelligence, Internet of Things, Smart Vehicles technologies, Prognosis and Diagnosis, etc.

Q This centre is opened in the automotive hub of the country. How will close proximity to customers help the company to grow?

Chakan is growing as an industry hub now and SMIT is just at the centre of Chakan Industrial area. We never had an objective of initiating or developing SMIT for any prospective customer or market player. DNA of SMIT runs on research and development so the developments, findings and services conducted under this roof will be addressed to everyone in the market.

Spark Minda has a global presence where SMIT can be recognised as a milestone and will strive to strengthen and expand the Group's presence in automotive systems area as a complete System Solution provider.

Q The automotive industry is in the phase of transformation. How is your company getting ready for the upcoming trends?

Yes, transformation in automotive industry now days are happening overnight. Spark Minda is evolving day and night to suffice each and every need and demand of our customers and after sale market. SMIT is a flagship centre under the hood of group which will ease and solve our major purposes of product researches and technological advancements.

Establishment of Spark Minda Technical Centre is a significant step to propel us towards attaining technology leadership in Automotive Sub Systems domain. SMIT will lead the technology journey of our business apart from steering the Group towards generation of new and future technologies. Our Group is committed to further expand this centre in the next 3 to 4 years to further enhance the R&D and to bring the products faster to the market.

It is clear from the forecast that the electronics content in every vehicle is going to increase and hence a strong presence of embedded technologies will secure our future. Intelligent mobility is need of an hour and we will strive our best to meet requirements of upcoming industry.

Q Bharat Stage VI is proposed to be come into effect by 2020. How do you look at implementation of Bharat Stage VI?

We have already started testing and manufacturing of certain products which restricts to the norm of Bharat Stage VI. We have implemented internal processes to cope up to Bharat Stage VI. New emission norms will anyhow contribute to the better and sustainable environment for coming generations and coming of Bharat Stage VI will set a stage for upgraded products and technological expansion.

Q Hybrid and E-vehicles seems to be an emerging sector. How do you look at it?

EV is a sunrise sector with a very good potential in coming 3 years due to govt., push & technology improvement leading to increase in affordability, and attractiveness to end consumer. We are coming-up with various EV subsystem solutions like DC-DC converters, chargers and motor controllers, etc.

We at Spark Minda investing in this sector aggressively and are ready to cater our customers; we have established strong R&D team for EV and state of the art manufacturing line at our southern location. Many prospective customers across the automotive industry have approached us for EV subsystem solution.

EV suppliers will need reliable technology partners for development of EV subsystems for power management, vehicle control and traction control. For tier-1 suppliers like us we see a world of opportunities in this area given the lack of adequate expertise currently existing in our country. We have already formed an EV project team at SMIT and started relevant project and development activities. 

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Siemens completes commissioning of steam turbine

Siemens Ltd completed the supply, installation and commissioning of an 8.5 MW steam turbine, gear box and related control panels for Kolkata-based Shakambhari Ispat & Power Limited, one of the leading manufacturers of steel and supply of power. This installation is in addition to an 8 MW steam turbine that was delivered in a record time of three months.

“Being part of a steel producing plant, continuous operation has always been a concern for us. The association with Siemens has given us access to a wide variety of technically superior solutions which address our primary concern. The use of efficient turbines has already reduced consumption of coal. Moreover, solutions such as Remote Diagnostic System, Combustion Optimizer and new-age control systems will definitely reduce the downtime of the plant and turn it into a more profitable unit,” said Deepak Kumar Agarwal, Chairman and Managing Director, Shakambhari Ispat & Power Limited.

“Growing energy demand and rising energy prices make investment in turbines economically viable. The modular design concept of the installed steam turbines ensures high flexibility, availability and a reduction of time-to-market. Implementation of such cost-efficient solutions can lead to a gradual



transformation of existing plants, helping manufacturers secure operational benefits over the long term, The state-of-the-art Siemens technology is also supporting in reducing the carbon footprint of our customers,” said Prashant Jain, Head, Power Generation Services, Siemens Limited.

The industrial power sector has witnessed a remarkable growth in the last couple of years. The demand for power and energy continues to rise and related energy costs have kept pace. The efficient utilization of available energy sources has become essential and many industrial companies are prospecting for opportunities and solutions for improving efficiency or reducing costs. Siemens Steam turbines can be instrumental in meeting targets of improved efficiency or reduced costs in industrial power plants.

Vikram Solar opens office in Massachusetts

Vikram Solar has opened a new office in Framingham, Massachusetts, United States. This decision advances the goal of minimizing barriers like time zone differences and enhances the ease of doing business through quicker responses in business communication.

In addition to the corporate headquarters in West Bengal, and branch offices across India, the company has international offices in Germany, Latin America, Africa, Japan, Singapore and China. This is Vikram Solar’s second office in the US, as the company also has a presence in New York.

“In today’s world, having an international presence helps companies align themselves with the local customer’s expectations. Our decision to further expand our presence in the US market is not only to help build up the global image of Vikram Solar,

but it also speaks volumes towards our commitment as a long term player in the US market,” said Gyanesh Chaudhary, MD & CEO, Vikram Solar.

Jay Sharma, Head- Business Development, USA said “The new office will help in further strengthening Vikram Solar’s presence in the USA market and towards expanding into the Canadian market as well. A physical office facilitates smoother logistics through easier communication in production updates and eases the placing of orders for USA buyers with multiple choices of delivery.”



Generation, Transmission & Distribution Market Report

ResearchAndMarkets.com’s has recently released “Generation, Transmission, and Distribution Market Global Briefing 2018” report. Generation, Transmission and Distribution market. Consumers are switching to more cost-effective and controlled distributed generation networks, therefore electric power generation companies should now focus on distributed generation rather than a centralized electricity generation model. Also, many companies are using new revenue models and incentives instead of traditional cost-of-service models.

Asia Pacific was the largest region in the generation, transmission, and distribution market in 2017, accounting for around 40 percent market share. This was mainly due to presence of a large number of households, industries and power generation companies in the region. The region is expected to lead the power distribution market due to the wide-ranging development in the region. India and China are expected to be the fastest growing markets for distribution panel boards in this region from 2017-2023.

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Tata Power achieves 4647million units of gross power generation

Tata Power has registered the highest ever gross electricity generation of February 2018 at 4647million units. This increase in generation capacity marks the company's preparedness to meet the spurt in demand as the economy gathers steam, as well as the approaching summer season. Tata Power has demonstrated a 3 percent increase in gross generation capacity when compared to the same month last year where it generated 4518million units.

Tata Power along with its subsidiaries registered strong operational performances across its plants to achieve this remarkable feat. All of its power generation stations, including Trombay, Jojobera, Haldia, Maithon, IEL, CGPL, TPREL, WREL, Cennergi, ITPC, Dagachu, Hydro, and TPCL Wind witnessed higher availability.

Commenting on this achievement, Anil Sardana, MD and CEO, Tata Power, said, "At Tata Power, we are committed to

delivering value to our stakeholders and the nation at large. Our increased generation in the month of February 2018 is yet another testimony to the importance we place on driving operational efficiencies, thereby improving our performance on a year on year basis. We are confident that our efforts in implementing world class technologies and processes in this direction will benefit the company in the years to come and enable us to achieve better generation consistently."

Tata Power has been focusing on building a healthy energy mix within its portfolio as well as augmenting its operational processes to ensure a sustainable future for the company and the nation. In line with this commitment, Tata Power will continue to work towards ensuring its renewable business maintains its position of being India's largest renewable energy company, while also implementing cutting edge technologies to improve its operational efficiency.

EIB sign loan for large and small clean energy projects in India



Werner Hoyer, the President of the European Investment Bank- that is the public Bank of the European Union -will be participating in the first summit of the International Solar Alliance (ISA) in Delhi.

In parallel, President Hoyer will be signing a new loan for large and small clean energy projects all over India. This is part of a EUR 800m EIB investment in renewables in India – most of which will be solar - announced last year.

This is the initiative from PM Modi and President Macron to spread solar and provide affordable energy to the 121 countries in the ISA by improving financing, sharing technology and crowding in the private sector.

Last year the EIB signed a partnership with the International Solar Alliance aimed at supporting the initiative with EIB financing and expertise – in particular the experience of crowding in the private sector. Werner Hoyer is in Delhi at the Summit to lay out how that support can work and pledge the EU Bank's commitment.

BHEL wins Rs.11,700 Crore order

Amidst stiff international competitive bidding (ICB), Bharat Heavy Electricals Ltd (BHEL) has won a Rs.11,700 Crore order for setting up a 3x800 MW supercritical thermal power plant in Jharkhand.

The order for setting up the 3x800 MW Patratu Super Thermal Power Station Expansion, Phase-I (3x 800 MW) has been placed on BHEL by Patratu Vidyut Utpadan Nigam Limited (PVUNL-a subsidiary of NTPC Ltd. in Joint Venture with Jharkhand Bijli Vitran Nigam Limited). Significantly, this is the single largest order ever placed by NTPC or its subsidiaries and the second largest order ever won by BHEL. Located at Patratu in Ramgarh district of Jharkhand, the project will be executed by BHEL on Engineering, Procurement and Construction (EPC) basis.

The project will significantly contribute to the nation's quest for clean and eco-friendly power in multiple ways. It will reduce fuel consumption by employing high efficiency equipment working at higher operating parameters. The commissioning of the project would also lead to phasing out of the old fleet of sub-critical units presently installed at Patratu, enabling a quantum leap in efficiency of the station. The project will further limit emissions by utilizing state-of-the-art Flue Gas Desulphurization (FGD) and Selective Catalytic Reduction (SCR) systems to capture pollutants like SOx and NOx. Significantly, the project is the largest of its kind in the country to be based on Air Cooled Condenser technology, which will result in conserving a large amount of water.

BHEL has been a major partner in the power development programme of Jharkhand and is also currently executing the 3x660 MW North Karanpura Super Thermal Power Station located in Chatra district. Significantly, over 80% of the installed power generating capacity in the state of Jharkhand is equipped with BHEL sets.



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Accelerating growth!

Volvo Cars is aiming to double its market share in the Indian luxury car segment to ten percent by 2020 while placing electrification at the core of its future business, says **Charles Frump**, Managing Director, Volvo Auto India.

By **Niranjan Mudholkar**

Charles Frump took charge as the Managing Director of Volvo Auto India in October 2017. It's not really a long duration of time. But given the fact that Volvo Cars has seen quite a few things happening in this short period, it has given Frump an opportunity to get acclimatised to the market quickly. And that's why, he calls this short journey 'very exciting so far'. "Commencement of local assembly, expansion of dealership network in Ludhiana and launch of our next-generation XC60 - we have seen a lot of action in such a little time. In addition to all of this, it was very satisfying to see Volvo cars ending 2017 with a record 28 percent growth," he shares.

Throughout his career, Frump has worked in many different markets including Japan, China, the US, and Sweden. Of course, every market is different and so is India. "India is one of the most promising luxury car markets in the world

"The year 2019 will also see the global launch of the first All-Electric Volvo which will also be launched later in India. Volvo Cars will introduce a portfolio of electrified cars across its model range, embracing full electric, plug-in hybrids and hybrids."

"The last three years have been good for us in India and we noticed a positive and encouraging growth in terms of increased segment share, world-class product and new dealer appointments."

and thus, extremely important for us. Though the luxury car market here is still at a nascent stage, the recent industry sales performance has shown that potential for growth is huge. Our plan here is very simple. It is to continue and accelerate the robust growth for Volvo cars in India," Frump believes.

The roll out of the first 'Made in India' Volvo Car is a significant milestone for the Company. And for Frump personally, it is even more significant since it coincided with his taking charge. He says: "The rollout of our first locally assembled Volvo Car speaks volumes for the company's commitment to grow further in India. The last three years have been good for

us in India and we noticed a positive and encouraging growth in terms of increased segment share, world-class product and new dealer appointments."

From the business point of view, the milestone means a lot and has come at the right time. "With global standards in quality, we reckon we are a formidable luxury car company in India and on-track to gain a bigger share of the segment," Frump says.

Volvo Cars is using the Volvo Group's assembly line in Bengaluru to assemble its cars in India. However, as of now, there are no short-term or mid-term plans to have a standalone assembly line for cars. Currently, Volvo Cars is assembling its flagship XC90 in India. It is also exploring options of assembling other cars in India based on Volvo's Scalable Product Architecture (SPA) platform that includes the S90, V90 Cross





Our segment share is five percent and we intend to double the share by 2020. We are very much on track to achieve this having registered record sales and a robust 28 percent growth in 2017.



Country and the New XC60.

Volvo Cars India had a record year in 2017 with 28 percent growth. This has been fuelled by product launches like the New XC60 and V90 Cross Country. "Our SPA-based products, commencement of local assembly and introduction of country's first plug-in hybrid SUV XC90 T8 and getaway car V90 Cross Country are some of the key factors that have been contributing to the growth. I am elated at the business performance as the numbers indicate that we are heading in the right direction. Also, I believe we have a lot to do going forward. It is not about just keeping up with the existing growth rate but to up the game and then take it to the next level," Frump shares.

Currently, the market share of Volvo Cars is hovering around the five percent mark in the premium cars segment. Where does Frump see it by 2020 and what is the strategy to achieve that? "Yes, our segment share is five percent and we intend to double the share by 2020. We are very much on track to achieve this having registered record sales and a robust 28 percent growth in 2017. Intuitive technology, radar-based active safety features and Scandinavian design are the hallmarks of Volvo Cars and will continue to take the brand upwards on the growth trajectory," he explains.

The roadmap for 2020 is very clear. "We want to bring in exciting products to the market; ensure enhanced brand engagement and experience for our customers and spread our

dealership network to increase our reach substantially. Also, our Game Changer electrified products will help us achieve our 2020 targets. We are intending to be leaders in the eLuxury (electric luxury) space," Frump says.

Volvo aims to sell one million electric vehicles worldwide by 2025. "Yes, electrification indeed is going to be the next big evolution in the global automobile sector. Volvo Cars has been a pioneer in the space. We were the first to have a diesel plug-in hybrid earlier this decade and a big step Volvo has taken is that from 2019, every new Volvo introduced globally will have an electric motor, marking the historic end of cars that only have an internal combustion engine (ICE). We are placing electrification at the core of our future business."

The year 2019 will also see the global launch of the first All-Electric Volvo which will also be launched later in India. Volvo Cars will introduce a portfolio of electrified cars across its model range, embracing full electric, plug-in hybrids and hybrids. This means all Volvos in the future will have some kind of electrification. "At present we are the only ones capable of executing this across our current and future range. We believe India would play a key role in contributing to our ambition of putting one million electrified Volvo cars on the streets globally," he shares.

"Currently, Volvo Cars is assembling its flagship XC90 in India. It is also exploring options of other cars based on Volvo's Scalable Product Architecture (SPA) platform that includes the S90, V90 Cross Country and the New XC60."

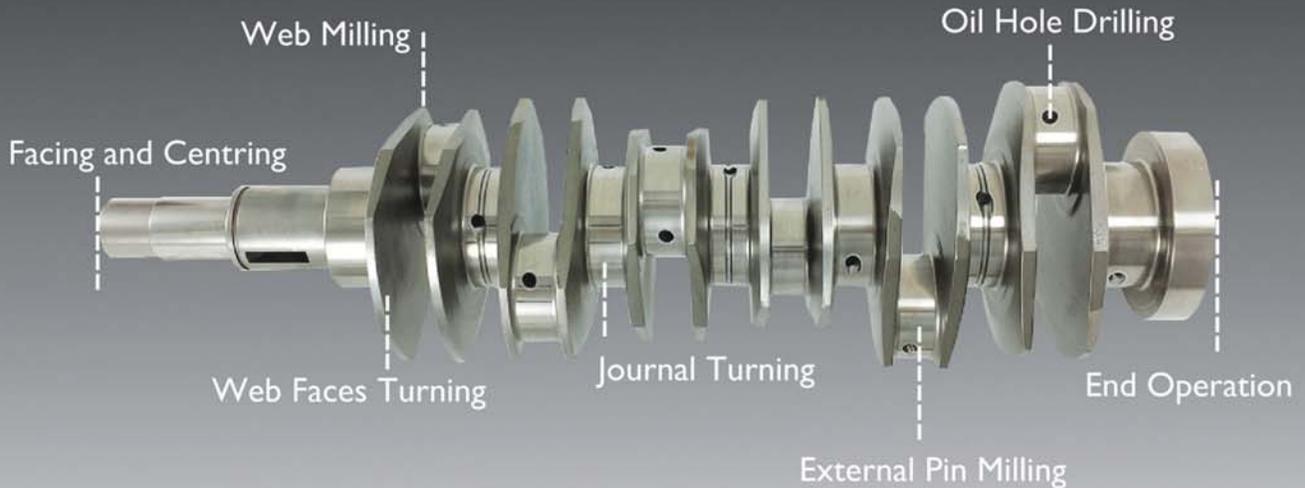
With regards to the India portfolio, Volvo cars' strength has been SUVs and Cross-Country vehicles. "But with the S90 we have upped the ante in the sedan segment. We launched our next-generation XC60 recently. In 2018, we are all set to launch the New XC40 - a compact luxury SUV - that boasts of an edgy design and a host of intuitive technology that makes life less complicated," Frump says.

Frump believes that the 'Game Changer' element for Volvo Cars would be an array of electrified cars that would be propelled by Hybrids, Plug-in Hybrids and even a Full Electric which the Company plan to launch in India soon after its global launch in 2019. "By 2020, our portfolio will be complete with our SUV, Cross Country, Sedans and Luxury Hatchbacks."

And while Frump's professional journey has been quite fulfilling so far, he has also found the personal experience of being in India quite wonderful. He is quite enamoured by the cultural diversity and culinary delights India has to offer. In fact, he's a travel enthusiast but has been keeping really busy of late because of work commitments. "But I look forward to many years of exploring this fantastic country," he says, as he signs off.

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Tailored to meet market requirements

Radhakrishna Somayaji, Chief Sales Officer, Liebherr Appliances India Pvt Ltd speaks to The Machinist about the company's entry in the Indian market.



The decision to construct the plant in India was outcome of 'Make In India' project of Govt. of India and further decision on constructing it in the Shendra industrial park in Aurangabad was based on the area's central location and its good logistical connections.

By Swati Deshpande

Q Tell us about Liebherr Appliances' current business in India.

We are catering Indian market since almost a decade with our products manufactured from various factories in Europe and Malaysia. With more than 60 years of expertise in refrigeration and freezing, we are bringing our commitment to Indian market by introducing new range of products which will specifically cater to Indian needs.

Liebherr Appliances India Pvt Ltd is a wholly owned subsidiary of Liebherr-Hausgeräte GmbH in Ochsenhausen (Germany). With an aim to produce high-quality refrigeration appliances tailored to suit the Indian market & nearby countries, we are setting up a manufacturing plant which will occupy around 35,000 square meters and will produce approximately 500,000 cooling appliances each year (from 2018 onwards).

Q The company plans to invest Rs. 500 cr in the manufac-

ting facility. Can you please tell us about upcoming manufacturing facility?

Liebherr is the world leader in premium refrigerators. Headquartered in Germany, Liebherr's engineering excellence provides the widest range of refrigerators, freezers and wine cabinets. And now, we are all set to redefine refrigeration in India. To achieve this goal with élan, we have built superbly equipped manufacturing unit in Shendra MIDC, Aurangabad, Maharashtra. Our new state-of-the-art manufacturing unit will occupy around 35,000 sq mtr and will produce approximately 500,000 cooling appliances each year, specifically for India and its neighbouring countries. Currently, more than 150 Liebherr employees are working in the new facility in various departments such as R&D, Quality, Production, Finance, Sales & marketing, etc. Appliances, specifically tailored to meet market requirements in India and its surrounding regions, will be produced at this plant. Targeted market analyses have already been undertaken. More than 1,000 jobs will be created in first phase of this project.

In order to completely satisfy our own impeccably high quality demands, all components undergo rigorous service life testing right from the earliest stages of product development, to guarantee durability. All Liebherr refrigerators offer wonderfully innovative concepts and impressive user convenience. When developing new appliances, we are particularly concerned that energy efficiency is optimised without compromising amenity and without sacrificing convenience technologies.

Q Liebherr Appliances is making conscious efforts of being part of 'Make in India'. Can you please tell us how do you look at this initiative and how it has been beneficial to an MNC like Liebherr?

The decision to construct the plant in India was outcome of 'Make In India' project of Govt. of India and further decision on constructing it in the Shendra industrial park in Aurangabad was based on the area's central location and its good logistical connections. We have evaluated other countries also including Europe, Brazil, China and Russia before finalizing our India investments. The policies and procedures which have been defined by Govt. of India under this initiative were instrumental in taking our decision on this investment.

Q There have been multiple Indian and foreign players in the refrigerator segment in India. What is your roadmap to capture significant market share in the coming years?



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There are lot of opportunities in Indian market that makes us confident about success in India. India's rising household income, improving living standards and low product penetration of refrigerators which is around 35 percent, to name a few. The Indian refrigerator market increased at a CAGR of 20 percent from 2010 to 2016, and it is expected to grow further in upcoming years. Rising household income, improving living standards, rapid urbanization, large untapped market, and environmental changes are major growth drivers for the refrigerator industry.

The Indian refrigerator market increased at a CAGR of 20 percent from 2010 to 2016, and it is expected to grow further in upcoming years.

company plans to launch in the Indian market?

Thanks to innovative technologies, high quality materials and processes which we follow during manufacturing which make our products durable and energy-efficient. We

have developed entirely new range of products from scratch to fulfil varied needs of Indian consumers from all regions. Those products will be targeted towards Mass Premium Segment which a new category evolving globally. Our refrigerators are specifically tailored to meet market requirements of this new consumer trend in India which are going to be available in various capacities.

Q Can you please tell us about the product range that the

MARKET

Business conditions improved further in February 2018

Manufacturing operating conditions improved for the seventh straight month in February. The overall upturn was driven by increasing output and new orders, but both registered at slightly slower growth rates. In response to greater production requirements, firms raised their staffing levels and purchasing activity. On the price front, cost inflation accelerated to the fastest since last February.

Meanwhile, manufacturers raised their output charges as part of attempts to pass through higher cost burdens to clients.

The Nikkei India Manufacturing Purchasing Managers' Index® (PMI®) fell from 52.4 in January to 52.1 in February. The PMI registered above the neutral 50.0 threshold for the seventh consecutive month and indicated a modest improvement in operating conditions. That said, the headline PMI Index reported below the long-run average (54.1).

Indian goods producers raised their manufacturing output for the seventh consecutive month during February. Despite easing from the preceding month, the rate of expansion was marked overall. Panellists attributed the increase in output to new client wins and favourable economic conditions. Output growth was recorded across all three broad market groups, led by consumer goods.

Total new orders rose for the fourth successive month during February. Companies that registered higher new orders reported on improved underlying demand. That said, the rate of growth was modest and the lowest in the current upturn. At the same time, new export orders rose for the fourth consecutive month in February. Despite softening from January's 16-month high, the rate of expansion was marked overall.

In response to greater production requirements, firms raised their staffing levels during February. Although modest, the pace of job creation was slightly faster than at the start of 2018. Panellists commented on stronger improved demand conditions.

Reflecting improved demand conditions, Indian

Nikkei India Manufacturing PMI



Sources: Nikkei, IHS Markit.

manufacturers raised their purchasing activity during February. However, the rate of expansion eased to the weakest since October's fall and was marginal.

Amid reports of delayed payments from clients, outstanding business rose during February. Though modest, the rate of backlog accumulation quickened to the fastest since October 2016.

Input costs increased for the twenty-ninth month during February, with panellist reporting higher prices paid for steel, chemicals and fuel. Furthermore, input cost inflation accelerated to the sharpest in a year.

Manufacturers raised their output charges during February, thereby extending the period of inflation to seven months. Where selling prices were raised, there were reports of passing on higher cost burdens to clients. Although modest, output price inflation was the sharpest since last February.

Finally, Indian Manufacturers remained optimistic towards the 12-month outlook for output during February. Company expansion plans and forecasts of improvements in demand conditions were the key factors behind optimism.



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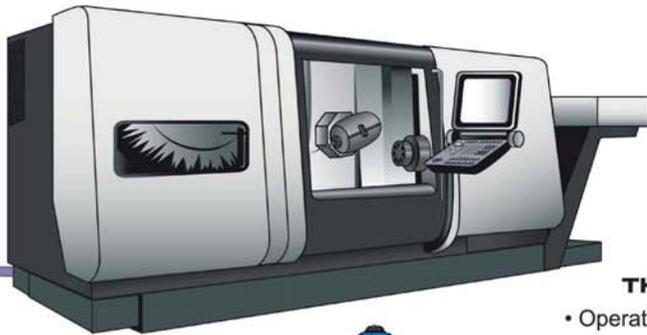
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Hyundai showcases fuel cell EV

Hyundai Motor showcased the Next Generation Fuel Cell Electric Vehicle (FCEV) – Hyundai NEXO and Global Electric Vehicle – IONIQ (Battery Powered) during the India Korea Business Summit 2018 held in New Delhi.

Present at the India Korea Business Summit, S H Kim, Vice President, Namyang R&D Centre, Hyundai Motor Company, said, “We are glad to participate in the 2nd India-Korea Business Summit 2018. Hyundai has a long term commitment towards Make-in-India for the past 20 years and today we are proud to showcase the Next Generation Fuel Cell Electric Vehicle - HYUNDAI NEXO SUV, for the first time along with Global EV - IONIQ at the India Korea Summit 2018.”

“The creation of Fuel Cell Electric Vehicle - HYUNDAI



NEXO SUV and Global EV - IONIQ is a significant leap forward for Hyundai Motor as it intensifies our efforts to produce highly efficient, eco-friendly vehicles. Hyundai as a caring brand is continuously innovating in Clean and Connected Mobility Solutions to make a long-term positive transformation for our future generations,” he added.

Comprehensive action plan needed to drive Electric Vehicles uptake

Conducive policy environment for market creation, technology development and setting up of a vibrant manufacturing ecosystem for electric vehicles can drive electric mobility in India, noted a recent ASSOCHAM-Nomura Research Institute (NRI) joint study.

The paper titled, ‘Electric Mobility - Making it happen,’ jointly brought out by ASSOCHAM and NRI stressed upon the need for a comprehensive action plan in place to work on three pillars of EV (electric vehicle) promotion - consumer acceptance, cost reduction and charging infrastructure.

The study noted that comprehensive action plan would undertake various aspects like - awareness creation, value proposition, promoting local manufacturing, technology evolution, time taken for charging and others.

“A long term and sustainable policy framework is necessary for creation of a vibrant EV ecosystem in India,” said the report which has derived the policy recommendations based on India’s EV vision together with study of global EV developments and peculiarities of India’s EV ecosystem.

Government support along with need to secure raw material supply independent of China, indigenised manufacturing of EV components, enabling regulations to expand charging infrastructure, dedicated focus on skill-development of large workforce, proper lithium recycling mechanism and regulations are certain key components of EV ecosystem that need detailed focus.

“A vibrant manufacturing ecosystem needs to be developed to provide scale and localise manufacturing, thereby leading to reduced costs of EV components,” noted the ASSOCHAM-NRI joint study.

Besides, a pan-India charging infrastructure, consisting of home and public charging stations, will provide the necessary push to stimulate EV demand. Deployment of slow and fast chargers at various locations based on usage and charging requirement along with participation of different stakeholders will enable the creation of a viable model for charging infrastructure.

Mahindra and LG Chem collaborate on EV batteries

Mahindra & Mahindra Ltd and LG Chem, Korea’s leading manufacturer of advanced batteries, announced a collaboration in the field of advanced Li-ion battery technology. Under the aegis of this collaboration, LG Chem will develop a unique cell exclusively for India application and will also supply Li-ion cells based on NMC (nickel-manganese-cobalt) chemistry with high energy density. These cells will be deployed in the Mahindra and SsangYong range of Electric Vehicles. LG Chem will also design the Li-ion battery modules for Mahindra Electric, which in turn will create battery packs for the Mahindra Group and other customers.

Commenting on this announcement, Hemant Sikka, President & Chief Purchase Officer, Mahindra & Mahindra Ltd. said, “The EV revolution is taking the country by storm and at Mahindra we are happy to be at the forefront of this change. This association with LG Chem will give us the requisite access to advanced battery technology and will also enable us to deliver globally competitive products. We are preparing to scale up in accordance with our expansion plans in order to meet demand expected in the near future. We look forward to a fruitful association with LG Chem.”

According to JH Kim, LG Chem’s Executive VP in Energy Solution Company “In the field of advanced Li-ion battery technology, LG Chem expects this collaboration will be one of the memorable moment for putting the commercialization of EV forward in India market.”

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First ever BMW 6 Series rolls-out of the company's Chennai plant in India

The first-ever BMW 6 Series Gran Turismo has rolled-out of BMW Group Plant Chennai. Dr. Jochen Stallkamp, Managing Director, BMW Group Plant Chennai said, “BMW Group Plant Chennai is proud to roll-out the first-ever BMW 6 Series Gran Turismo in India. The BMW 6 Series Gran Turismo is not only a unique concept but also makes a significant mark through its advanced engineering, technology and innovations. Now locally-produced in India, it will create a novel segment and set new benchmarks in the Indian luxury car segment. As always, BMW Group Plant Chennai is committed to deliver the best-in-class products for discerning customers who value the highest level of quality in every detail.”



Series, the BMW 3 Series Gran Turismo, the BMW 5 Series, the BMW 6 Series Gran Turismo, the BMW 7 Series, the BMW X1, the BMW X3 and the BMW X5. BMW Plant Chennai will start the local production of MINI Countryman in 2018.

Following the approach ‘Production follows the market’, BMW Group India has systematically accelerated its localization program in India. It has already

strengthened its long-term commitment to the Indian market by increasing the level of localization at BMW Group Plant Chennai up to 50 percent.

Recently launched at Auto Expo 2018, the first-ever BMW 6 Series Gran Turismo has been rolled-out in a locally-produced petrol variant, the BMW 630i Gran Turismo Sport Line.

BMW Group Plant Chennai locally produces the BMW 3

ABB installs EV fast charger station at NITI Aayog



NITI Aayog, the Indian government’s premier policy think tank has installed an ABB Terra 53 fast charging station for electric vehicles at the organization’s office in the heart of New Delhi.

The installation by ABB supports recent proposals by the Ministry of Highways and Transportation and NITI Aayog, which include a pilot project in electric vehicle (EV) charging infrastructure in New Delhi, India’s capital. This shows a way forward for other EV aspirational states around the country. The unveiling ceremony was led by Nitin Gadkari, Indian Minister for Highways and Transportation at the NITI Aayog’s premises in the presence of Amitabh Kant, CEO NITI Aayog and other dignitaries.

ABB’s 50kW fast charging station can provide a full charge to an electric vehicle in only

30 minutes.

“We are thankful and honoured to support Indian Government's thought leadership and drive to systematically transform the nation's transportation base to electric vehicles. ABB reinforces its commitment to the nation's future of renewable power generation and clean electric transportation with our global technologies made in India,” said Sanjeev Sharma, Managing Director of ABB India. “We will continue to deploy and leverage the next level of global, open standard technology to provide the best-in-class reliable and cost effective EV charging experience for Indian citizens living in smart cities. We believe that smart cities are made of smart elements and ABB EV Charging technology is one such important element,” he added.

Chinese billionaire Li Shufu acquires stake in Daimler

German luxury car manufacturer, Daimler AG has confirmed that Chinese entrepreneur Li Shufu has acquired 9.69 percent (103,619,340 shares) of the company. Well-known Chinese Entrepreneur Li Shufu is the chairman of Zhejiang Geely Holding Group Co. Ltd. and Volvo Cars.

In an official statement released recently, the company said that it ‘is pleased to announce that with Li Shufu it could win another long-term orientated shareholder, which is convinced by Daimler’s innovation strength, the strategy and the future potential’.

Daimler knows and appreciates Li Shufu as an especially knowledgeable Chinese entrepreneur with clear vision for the future, with whom one can constructive discuss the change in the industry, it added.

Daimler AG’s statement further said that it has got a broad-based portfolio as well as footprint in the Chinese market and with BAIC a strong partner on site.



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Viewing success in HD

To differentiate itself in the crowded market, Daiwa is targeting the mid-age band of customers who desire smart TV features at affordable prices, says **Arjuun Bajaj**, the Company's CEO & Founder

By Niranjan Mudholkar

Q Tell us about your entrepreneurial journey as the founder of Daiwa. What motivated you to take this plunge when your father was already running a well-established business with Videotex India?

Daiwa began its journey in 2016. The journey began on the pathway to sync the ongoing problem in the TV Industry. We realized that the TV Market was going through a very troubled time period as most brands were sourcing final products from China and assembling in India and calling it 'Make in India'. This is where we felt the need to build a brand which truly resonates the 'Make in India' philosophy not only in terms of its design and performance but also with functionalities designed as per the needs of the audience. Daiwa comes from the parent company Videotex, a popular ODM brand which has been in the industry for over 33 years. Today, Daiwa brings the complete backend integration for manufacturing LED TVs in India. With new and innovative yet smart technology in hand, the brand offers an excellent quality and affordability in one.

Q What is the genesis of the name Daiwa?

Actually, the name has been registered way before the company came into being. At that time, we had not thought of launching our own brand. When we were all set to launch, we felt this brand name suits perfect to us, as it gives an international feel to an Indian brand.

"We felt the need to build a brand which truly resonates the 'Make in India' philosophy not only in terms of its design and performance but also with functionalities designed as per the needs of the audience."

Q We understand that Daiwa is a completely Indian enterprise. Then how come its R&D centre is located in Shenzhen, China?

Although India is moving towards 'Make in India', a lot of material is still strongly supported from China such as components, led bars etc, where the Chinese brands have a strong foothold. We work there to design the components used in the TV for the India market with our team as China has more resources. But, India is moving towards it.

Q Tell us about Daiwa's overall manufacturing capabilities and capacities.

Currently, we have three manufacturing units in Greater Noida, Ludhiana and Himachal Pradesh. And as you know, our R&D centre and design house is in Shenzhen, China. We are further planning to invest more in factories.

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

Daiwa's main objective is to break the myth that the best products only come at a hefty price. The company prides itself on offering state-of-the-art technology at low price points. The reason Daiwa's TVs are top sellers could be that they are 50 percent cheaper than big brands and offer the same technology. The company is able to maintain low prices because its production facility is located in India. The R&D team sits in China, but all televisions are designed in India. The factory in Greater Noida has the capacity to manufacture 2,000 television sets in a day. The reason we are investing heavily in infrastructure is to take advantage of the economies of scale as domestic manufacturing reduces cost.

Q How many TVs are you currently manufacturing every month and how many are getting sold?

To be precise, Daiwa sold 10,000 LED TVs in the first year of operation; that one milestone has been significant yet unpredictable achievement for us. The LED TVs were sold through the online portals. Daiwa has progressed four times more in the second year if compared with the starting year of operation. An average sale of Daiwa is 3800 TVs a month this year, while manufacturing around 50,000 TVs as an OEM.

Q At present, what is your turnover and what kind of growth targets have you set for the next two years?

Our consistent efforts to escalate the brand to create a distinct name that stands out of the crowd are progressing. As far as



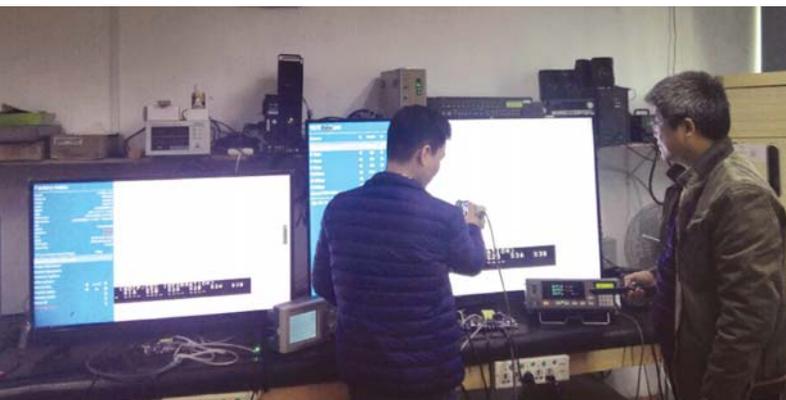
“Currently, we have three manufacturing units in Greater Noida, Ludhiana and Himachal Pradesh. And as you know, our R&D centre and design house is in Shenzhen, China. We are further planning to invest more in factories.”

our targets in terms of revenues are taken into account, the brand will be registering a turnover of more than Rs.45 crore this year. We expect the upcoming years to be more positive for the market. Moreover, with the amassing advancements, we envision the sector to be omnipresent at the global platform by 2020.

We are going to increase our sales base in different states since business today is all about a mix of technology, innovation, quality and cost. Also, with the aim and commitment to provide our customers with state-of-the-art products, we have envisioned being available across India within a span of few months.

Q The Indian television market – which is pegged at Rs 75,000 crore currently as per EY – is flooded with many big and well-established names. How do you plan to compete with these mega brands?

This TV segment of the market is highly glutted with not just emerging brands but also with already established brands which have a firm foothold in the market. However, the competition in this market is channelled to hunt for a perfect blend of technology, trend and quality in the televisions offered by electronics majors. But we are not competing with these companies as we're targeting the mid-age band of customers who desire smart TV features at affordable prices. Daiwa is backed by its parent company and manufacturer Videotex, which is now a Rs. 200-crore company. Nonethe-





less, in a few years, the brand could become bigger than the manufacturing company.

Will you also consider diversification into other product segments beyond television?

Being in this industry for more than three decades, we are aware of the numerous domains. Likewise, our strategies and implementations are clear throughout for expansion as well. For the moment, we are oriented to manufacture user-friendly 4K TVs and washing machines.

Rurbanisation or transformation of India's rural landscape is creating a new breed of customer who is economically still evolving and yet is aspirational. Do you plan to innovate to address the needs of this customer?

Yes, we too are trying to leverage the transformation, which is why we have a complete range of TVs starting from 24" to 55"

4K which can meet the demands of such customers and also shift them from using those old CRT or LCD TVs to LED TVs and Smart LED TVs.

Manufacturing is not an obvious option when it comes to entrepreneurship in India. You are one of the successful exceptions following the footsteps of your father. What advice would you share for budding entrepreneurs?

Entrepreneurship is an exciting journey, to say the least. It is filled with highs and lows that can put even the world's best roller coaster to shame. While your journey to the top is bound to be a remarkable one, it is sure to sap all your energy too. I wouldn't like to tag my learnings as advice, but I would

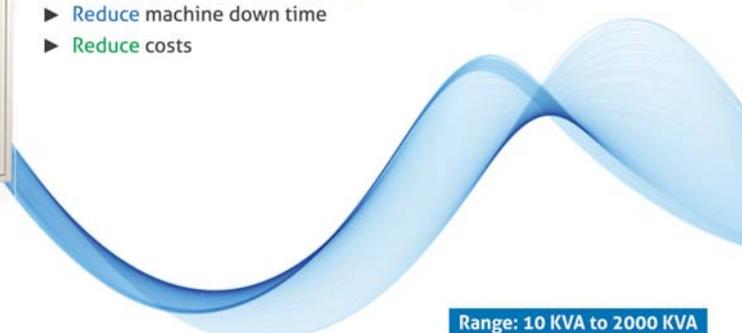
"Don't create products to sell, but rather create products for consumers to use. There is a difference in both the ideology and for Daiwa it's the latter one."

say a few things to note – "Don't create products to sell, but rather create products for consumers to use." There is a difference in both the ideology and for Daiwa it's the latter one. Next being, customer satisfaction should be the utmost priority. And lastly, 'Take Calculated Risks and steps – Never get carried away'.

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Making a difference

Human resource is now considered as part of entrepreneurial capability in the expanding diverse market, says **Nirmala Behera Udgata**, Executive Director – Group HR, RSB Group

By Niranjan Mudholkar

Q Congratulations on being promoted as the Executive Director – Group HR in the RSB Group. How do you see this enhanced role in contributing towards the overall progress of the Group?

I thank you for your congratulatory greetings. As an Executive Director, functions of HR now “stand with a difference” and forms integral part of Business Strategy. Hence, every strategy now needs to visit HR. Today, finance, material and capital alone cannot give desired deliverables unless human resource puts them into a right mix and direction.

Now I have the privilege of being part of strategic decision making and an added responsibility of being a business manager too. Human resource is now considered as part of entrepreneurial capability in the expanding diverse market where innovative HR approach gives an edge. Right talent acquisition, management, retention and career progression get synchronized with business strategies through HR.

Our HR function is constantly upgraded or modified to align with business goals and is continually correlated with business outcome through monitoring and measurement at planned intervals. It is now more of a function with business sense where value addition of every working colleague takes the precedence and HR systems are aligned. The digitized

error-free measurement of individual performance aligned with business strategy ensures value addition at every stage and synchronized with appraisal/rewards.

Q You have been with the RSB Group for over 18 years. How has the Group evolved in this time with regards to its human resources policies?

When I joined this group, HR was a conventional administrative work and routine legal compliances, which was an order of industry practices at that point of time. Emphasis on the technical training was a mandate for the precision manufacture of component on the state-of-art machines and heavy fabrication to boost productivity, quality and service. As expansion made way to functioning of 11 plants pan India with diverse local culture, practices and statutes prevailing at different locations, I embarked upon bringing “Unity in Diversity” for HR domain. Our entire HR process went through changes after participative consultation with colleagues across India and I finally put in place a HR bible with policies, procedures, grievance address, appraisals, rewards, training & development, career progression, on-the-job training, e-learning of critical operations, monthly performance review of value addition made by every colleague,



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“HR is now more of a function with business sense where value addition of every working colleague takes the precedence.”

On-line Performance Management System, Self-Appraisal, Greet-and-Meet Sessions at planned intervals at every location and finally introduced “Heart-to-Heart” sessions with Chairman.

Q How would you describe RSB Group’s recruitment policy?

RSB recognizes people as its most valuable assets and hence attaches great importance to their selection. It is done with extreme care to match them with organizational requirements, i.e matching their skills, qualifications and experience with existing and potential vacancies. We strive to attract right people at every stage, create opportunity for their development and advance the best.

Manpower planning is done in the beginning of the year along with finalization of budget and business plan of the organization.

For any recruitment we start the process from Online PRF (Personnel Requisition Form), which is approved by concerned Plant Head and Vertical Heads. Thereafter, HR, on the basis of job description and job specification, starts sourcing the candidates and arrange CVs. This is followed by written test, aptitude test and interviews with HR, Departmental Heads, Vertical Heads and in case of senior or specialist positions, final interview is taken by Chairman/VC & MD. In case of selection of senior personnel. We also have a process of interview by Independent Directors as part of neutral and unbiased assessment. This process is then followed by compensation and benefits.

The recruitment cycle gets completed once the employee joins and complete the formalities.

We are an equal opportunity employer irrespective of religion cast, creed, or gender. In RSB attracting the right talent is achieved through Campus Recruitment for MTs/GETs/DETs and other Technical candidates from ITIs. While we largely achieve our recruitment plan through recruitment of freshers, we do recruit a good number of experienced candidates for niche profiles as well as to get new and innovative ideas to the organization.

Q What initiatives have you implemented to create a positive and engaging work environment?

Our HR Systems and initiatives consist of systems and procedures that have a humane connect and provide ample space for the growth. The System gives opportunity to our people to take ownership of their areas of work and responsibility.

“TQM in HR” is done through seven key measures, viz. Productivity, Quality, Cost, Delivery, Safety, Morale & Environment based on responsibility and hierarchy established for each and every level of employees keeping in mind Group’s Vision & Mission. The performance in these measures is reviewed by the Management at planned intervals. Wherever there is gap, same is analysed and appropriate actions are initiated to improve the process rather than focusing only on results. This has brought about empowerment, boost in morale, sense of oneness and belongingness, significance of every one’s contribution and laurels through awards and rewards.

The path to individual growth is open, unending and unhindered with focus on building and imbibing “Quality and Customer Service” in all respects. This has not only helped our company to emerge as a global player, but also have embedded the never-ending quest for excellence as the DNA of the organization.

We have an open-door policy with walk-in access to members irrespective of rank and file to air grievances and to offer ideas and suggestions. The grievances and ideas are respectfully and seriously evaluated and implemented according to the merit. We are proud to say that many of our organizational and business improvements have their origin in these grievances and suggestions. While all said and done, we do not measure our success only by our top and bottom lines, but also by how much we have strengthened our core values and humanistic approach.

We ensure that our counselling extends beyond the ambits of the organization to the family members of our people as well. Through annual get-togethers, we connect with the family members and also understand their wellbeing and get valuable feedback. The Chairman’s interaction with the people is institutionalized in the HR process through an activity titled ‘Heart to Heart to with Chairman’ which keeps a tab on pulse of the people for gap, if any, and consequent corrective course. This activity has targets and regular review of its impact. Many improvement and new ideas owe their origin to this activity.

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This is an effective institutional tool for the top management to keep in constant connect with the rank and file. This keeps the channels of communication open and scope for surprises are eliminated.

We have annual award ceremonies at Jamshedpur plants, where colleagues who have excelled in their performance, are facilitated with their families by invited dignitaries, followed by greet-and-meet dining sessions. Besides inter-plant cricket tournaments are held regularly, where our VC & MD, Executive Director and senior colleagues part-take as players with RSBians, capped by awards and accolades to winning and runner-up teams.

We have monthly Employee-of-the-Month function at every plant where colleagues who have excelled in their areas of performance are facilitated with accolades and awards.

Q Tell us something about RSB's skill development and training programmes.

We have a structured process of Learning & Development (L&D) for various skills. The training plans are made by identifying the needs to meet organizational, functional, project role, job, statutory, quality, role-change and customer specifics. Every Plant HR Head carry out a structured exercise, identify the L&D needs of every individual and capture the same in L&D Matrix. This document is used as the primary source to map the training needs of an individual. The matrix is further validated by L&D Role-based Matrix and training calendar, month-wise/week-wise, is rolled out for every location.

The training programs are centrally monitored and measured every month to ensure that desired results are achieved through viva, written examinations and practicals. Gaps, if any, are identified and closed immediately. Periodic review ensures that effectiveness of training is achieved.

It is mandatory for every colleague to undergo training of at least four man-hours per month and is fitted in PMS.

"Human Resource & Human Relations are two sides of same coin."

Q How do you see AI and machine learning impacting manufacturing companies?

AI provides assistance across various human resource functions to automate numerous repetitive processes and work smarter by analysing big data that leads to identifying human resource needs. This makes things easier for shop floor colleagues and managers to interact with software more naturally. For example, software users often prefer to search for things rather than navigate a complex menu. AI makes the software better understand the user's intentions, which makes the system more intuitive, higher productivity and fewer errors.

Future HR strategies will be more on focussing, through AI, creating an agile, employee-focussed and digitally enhanced dynamic environment. It will cover four vital HR Pillars, viz. Attract, Engage, Retain & Develop. This will enhance the efficiency process of attracting right talent and of hiring cycle. AI has widened the scope of traditional recruiting process, introducing virtual assistants for recruiters, thereby making talent acquisition less-time consuming. AI uses massive data base to identify subtle patterns, thereby indicating the precise areas where bias crops up in the hiring process or any people related decision making.

AI will influence Productivity in allied disciplines like selling, production, customer service or any parameter of Balance score card, thereby impacting factors around greater engagement and retention. AI will also shorten the process of duration of PMS.

Q What are some of the initiatives taken by you to bring more synergy at the Pan Group level?

Our customized HR ERP system plays a major role in standardisation clubbed with our own Internal Portal which is open for all to follow policies and procedures. There is a window to give suggestions. With monthly review with every location through video conferencing, we receive feedbacks and suggestions are implemented after screening internal and local requirements. HR audit at regular intervals gives pulse of the people and valuable input for improvements. This ensures consistency and standardization with built-in flexibility.

Q What inspires Nirmala, the person?

As a person, my source of inspiration comes from listening to the voice of heart of all my colleagues with a humane touch, which solves even complicated HR issues by direct interaction. After all, Human Resource & Human Relations are two sides of same coin. As a professional, I get inspired with all successful people as each of them have different set of traits. This is evident when we look at renowned global leaders where each display different leadership qualities. Learning to inspire begins with discovering and cultivating the latent talents each of us already possess. 

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Plug & play for power applications

Read on to know more about why connector-based wiring is beneficial in the power applications.

By Philip Harting

The Power Generation, Transmission and Distribution sector (PGTD) faces various challenges. Due to the large sums of data and signal transmissions required for monitoring all the equipment in the generation and distribution process, reliable connection is critical.

Hardwiring does not always present itself as an efficient solution to such a challenge, since it is time-consuming, requiring high efforts and costs. Power networks however are calling for short reaction times; the relevant sub-systems need to run safely and smoothly. In order to meet such requirements, it is useful to utilise industrial connectors.

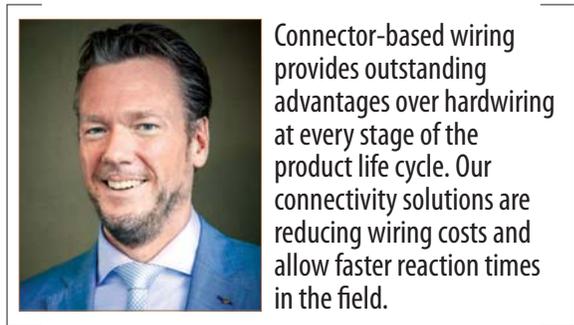
Connectors do not only reduce wiring costs, but also allow faster construction, commissioning and maintenance in the field. Connectorisation takes all the guesswork out, especially, where switching and controlling devices are required to operate side-by-side. Moreover, connectors increase safety, since they provide coding options, which guarantee that both sides of a connection only mate with their right counterpart.

Connector-based wiring instead of hardwiring is beneficial at every stage of an application's life cycle:

1. Installation time

Connected in series control cabinets or larger switchgears must be disassembled before they can be delivered to the customer's supply chains or directly to the construction sites. Often electricians or subcontractors are hired for re-assembly in the field who are less familiar with the com-

Connectorisation takes all the guesswork out, especially, where switching and controlling devices are required to operate side-by-side.



Connector-based wiring provides outstanding advantages over hardwiring at every stage of the product life cycle. Our connectivity solutions are reducing wiring costs and allow faster reaction times in the field.

ponents and the required special tools than the original manufacturer's teams. This may eventually lead to failed on-site tests and lengthy evaluation processes. Instead, it is much more promising to use pre-tested and countless times proven connectors for installing electrical components.

2. Labour costs

Hardwiring often leads to extra labour. The assembly, testing and repair of hardwired components takes time and efforts, requiring special skills. The use of connectors dramatically reduces the costs, since it increases efficiency and allows for savings in terms of time and labour.

3. Maintenance

Using connectors instead of hardwiring, power generation and transmission facilities and their subsystems are easier to maintain. In the field, the service teams simply have to uncouple parts from the application and replace them by pretested new ones.

4. Design and lead-time

Using modules, power, control, and data transmission can take place side-by-side in a single connector housing. The related contacts and inserts are designed for high-voltage/current, thermocouple, Profibus or Ethernet transmission. The modular principle increases the flexibility and saves space on the equipment, making it much easier for specialists to design their applications according to the latest technologies and trends, such as digitalisation, modularisation or miniaturisation. 

Author of this article is the Chairman of the Board, Harting.



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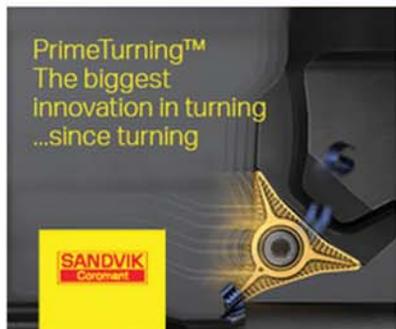
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Focusing on increasing productivity

Beng Chieh Quah, Head of Marketing – Asia Pacific – FARO Technologies speaks to The Machinist about the company business and plans ahead.

By Swati Deshpande

Q There has been immense emphasis on the infrastructure development in the country. Has it given a boost to your business?

The move by the India government to drive infrastructure development in the country is set to increase the opportunities for companies operating in the industrial manufacturing and construction segments. FARO's 3D measurement, imaging, and realization technology can offer greater support for mapping and surveying, as well as inspection processes, dimensional analysis, and 3D modelling of parts in this development process.

One example of how FARO's solutions can aid the infrastructure development in India is the company's partnership with a group of researchers, from the IIT Roorkee. Using the FARO Focus3D, IIT Roorkee conducted a study on India's railway infrastructure, to provide the Ministry of Railways with insights on India's current railway infrastructure and recommendations for improvements on the tracks, signalling, stations, and terminals. Their research results contribute to future railway infrastructure strategies for India as the government contemplates doubling existing railway lines. Apart from providing point cloud data simultaneously with every scan, The Focus3D also offered with a complete, stitched 3D map. This data can be easily integrated into a 3D smart city data file for the country. The Focus3D offers an extra-long scanning range from 0.6 m up to 330 m and has a distance accuracy of up to 2 mm, which was exceptionally useful for the team's application, given that they needed to capture minute details for the railway research. The device provided a tremendous amount of advantage as the team was able to finish their scanning and documentation tasks efficiently.



Q Tell us about one of the latest products brought out by Faro in Indian market. Also, tell us about how well it has been accepted in the market?

One of FARO's latest products is the QuantumS FaroArm. It offers best-in-class performance and durability, enhanced ergonomics, and extreme portability. The QuantumS is exceptionally rugged — passing the most rigorous international measurement quality standard in existence (ISO 10360-12:2016)

and the International Electrical Commission (IEC 60068-2) standards for shock, vibration and temperature stress relief. Also, it delivers maximum measurement consistency and improves end-user productivity by capturing more data in greater detail with the FAROBlu Laser Line Probe HD. Equipped with advanced man-machine interface and enhanced ergonomics, it is a virtual extension of the human arm and reduces operator fatigue. All these contribute to helping manufacturers stay ahead of their competitors by empowering quality assurance and ensuring greater end-customer confidence in their products. The market's reception of the QuantumS has been encouraging and we're confident of positive response ahead, especially with the rising demand for high performing measurement solutions.

Q What are Faro India's plans for 2018?

India remains a key part of our business, and we are poised to offer comprehensive support to our customers in this region. With the maturing manufacturing industry, manufacturers are increasingly adopting higher standards and demanding greater precision and speed in their operations, especially for inspections and quality checks. FARO also offers workshops to better support our customers in India. Held between April to November in various cities across India, the Measure and Inspect workshops are a series of technical workshops where FARO's staff share insights on how 3D portable metrology solutions and various other innovative platforms can solve complex engineering challenges, and also improve productivity, quality, and manufacturing processes. Customers can experience FARO solutions first-hand during the live demonstrations, as well as at the plug-and-play stations. 



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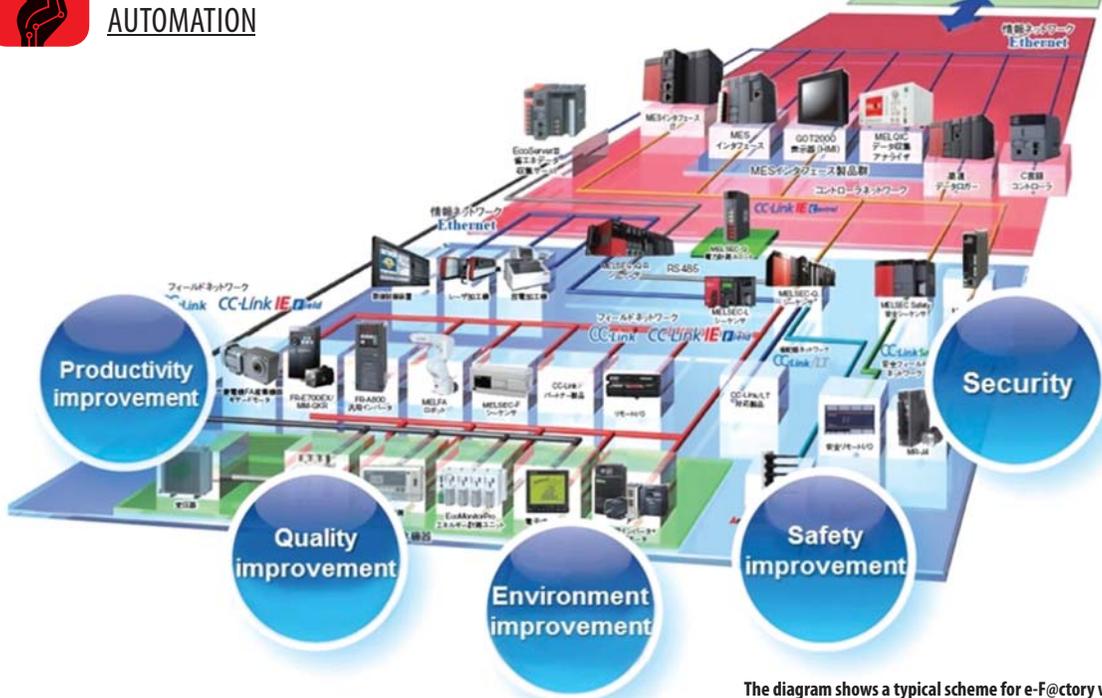


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The diagram shows a typical scheme for e-F@ctory which can be implemented and adapted as per the requirements of the End-User for varied industry verticals.

Smart Manufacturing

e-F@ctory links production equipment to higher manufacturing execution systems to allow production information to be incorporated into production plans.

By Sunil Mehta

To survive global competition, further shop-floor improvement and optimization is very essential. In today's day and age, end-to-end connectivity and digitally integrated enterprise initiatives are indispensable issues for manufacturing industries. Recognizing these two needs, Mitsubishi Electric has merged the e-F@ctory concept for optimising factory operations through 'visualization' and 'eco-F@ctory' technologies that contribute to energy conservation through 'visible management' of specific energy consumption. The two concepts have been amalgamated to create a new factory automation (FA) energy solution.

e-F@ctory promises enhanced productivity. It makes full use of leading-edge control technologies, information technologies and networking technologies to 'visualize' production information, including quantitative and qualitative production data and equipment information. It links production equipment to higher manufacturing execution systems to allow production information to be incorporated into production plans and be utilized to ensure quality traceability.

The company's experience in developing Automation Solutions for improving 'Monozukuri' which means the Art of Manufacturing, led to the foundation of the e-F@ctory Alliance, uniting a large number of equipment and service providers in a wide range of sections including electrical and auto-

mation engineering, automation and motion control systems, Software, HMIs, SCADA and MES, vision systems, industrial networking and more. The alliance has more than 450 Partners Companies (As on October 2017) from around the world working in collaboration with its founder - Mitsubishi Electric, to optimise the Factory Automation Solutions.

At the core of any solution that can be built from this large palette of products is the MELSEC iQ-R and Q-series controllers and the CC-link IE Fieldbus. The controller offers a flexible platform to develop solutions for a wide range of applications including Automotive, Pharmaceuticals, F&B, Water, Tyre etc. The connectivity is empowered via the CC-Link or CC-Link-IE Fieldbus. The latter fieldbus has 1 GB/s bandwidth that has data, control, motion, and safety profiles and can run on either copper or optic fibre. CC-Link is the most widespread fieldbus in Asia with over 2,200 member companies which come under the alliance of CC-Link Partner Association (CLPA). The CC-Link fieldbus uses Seamless Message Protocol (SLMP) that has the particular advantage of providing seamless connection from the sensor level, through the gateway control to the ERP system. The high bandwidth of CC-Link IE is designed to handle large amounts of data created by smart sensors and Factory Automation products fitted in varied equipments. Data volumes from the field are expected to continue to increase in a big way. The bandwidth



e-F@ctory enables users to integrate shop floor data to the ERP system in real-time leading to overall improvement in Productivity and Reduction in Total cost of Ownership.

enables small as well as Big Data analytics applications, which can only provide their benefits, when ample data is available.

e-F@ctory and the CC-Link Partner Association (CLPA) unify more than 3,000 partners, from which over 2,800 are at the field level, over 250 at the control level, and more than 50 at the IT layers. The list keeps growing and together they do provide a very broad palette of functionalities to build applications from. Significant names in the list, among others are 3M, Atos, Baluff, Canon Systems, Cisco, Cognex, ePlan, Festo, IBM, Intel, Microsoft, HMS, Pepperl&Fuchs, Panasonic, Sick and Wago. Once connectivity is established among equipment, automation and IT, a range of possibilities arise, empowering a wide variety of roles in the manufacturing industries with real-time actionable information. An 'e-F@ctory-based plant' incorporates a system that is capable of addressing various issues by collecting shop-floor data such as production performance, operating performance and quality information from production equipment and devices 'directly' and in 'real-time', and directly interfacing with enterprise applications such as ERP and SCM. In other words, the e-F@ctory platform substantially improves quality, work schedules and productivity by having significant vertical data integration from shop-floor to enterprise.

With advanced features of FA products, the high-performance HMI applications built for individual machines/equipments can be viewed on your Mobile phone or Tablet using GOT Mobile Function. The OEE and Energy Management Control Packs from e-F@ctory alliance partners are available to facilitate the support for activities in these domains. Maintenance has an instantaneous view on the health and efficiency of the equipment, providing support in troubleshooting and scheduling maintenance or repair. Effective predictive maintenance can be realised using intelligent sensors to get feedback for corrective measures and also to predict the next maintenance cycle realising optimal resource usage.

With connected applications in the manufacturing operations management domain, the full scope of ISA-95 functionality becomes available; ranging from production operations, through quality and maintenance operations, to inventory operations and providing production control to operations managers. Within the Supply Chain Management (SCM) and Enterprise Resource Planning (ERP) domains, the transpar-

ency assists in many ways. A good example of this would be how it enables planners to determine the liberty to adapt production plans to demand variations and analyse supply chain performance. The e-F@ctory platform scales extremely well. It can be used for monitoring, operation and maintenance of a single equipment instance, fulfilling the same function for a distributed network of machines and equipment, but also for production assets of several lines, factories or sites, that can be considered to be a 'production cloud'. It can feed local IT applications, for example a line-specific MES, as well as complex software applications globally coordinating operations, such as in the case of ERP or SCM. It can be used to create very lean as well as very elaborate systems, adapting to companies' priorities and needs. The platform is ready for extensions of the network to connected products, as well as to a supply chain network linking production, logistics, service providers, clients, and other stakeholders through wired and wireless connections that IIoT generates.

MC Works64 - the SCADA solution from Mitsubishi Electric is seamlessly compatible to the e-F@ctory concept and it can provide small or Big Data coming from wide range of equipment to analytics is a fast growing domain and applications like AX Energy, AX Quality, AX Facility etc. can benefit the industries in decision making to improve the overall efficiency and productivity. Basic analytics like MC Historian provide graphical representations of historical information with context, enabling fast understanding and decision-making. The next level applications are capable of forecasting and enabling proactive measures. The ultimate level is providing recommendations on how to run the process or the equipment, to fulfil production goals best. One such example of e-F@ctory is the Intel IoT pilot project implemented in the Malaysia plant which includes the integration of both quality and asset analytics application in the cloud. The application uses various third party analytical tools like R and Hadoop for Data Mining & Analytics. The Mitsubishi Electric C language controllers of MELSEC-Q series were used. The pilot involved close collaborations between the factory engineers, the IT department and industry experts from Cloudera, Dell, Mitsubishi Electric, and Revolution Analytics. The team started leveraging existing machine performance and monitoring data, then proceeded to leverage Big Data analytics and modelling to ingest the data to predict potential excursions and failures. Being able to predict the machine component failures allows engineers to repair and prevent the excursion, hence reaping tremendous savings from wasting production units, time to repair and machine components. For Intel, this pilot project has been forecasted to save about \$ 9 Million annually.

e-F@ctory enables users to integrate shop floor data to the ERP system in real-time leading to overall improvement in Productivity and Reduction in Total cost of Ownership. 

The author is GM, Automotive Business Development Department Factory Automation & Industrial Division, Mitsubishi Electric India Pvt. Ltd.



New Economy – New Rules

Addressing the Economic Times Global Business Summit in New Delhi, PM says that change in the economic and social content represents the essence of the New Rules for the New India and the New Economy.

Prime Minister Narendra Modi addressed the Economic Times Global Business Summit in New Delhi recently, on the theme: New Economy – New Rules. Noting that the Union Government is going to complete four years of assuming office in a few months, he said that a definite change is now visible. He said this change in the economic and social content, represents the essence of the New Rules for the New India and the New Economy.

The Prime Minister said that within the last four years, the discourse has changed from India being a “Fragile Five” economy, to the target of India becoming a “Five Trillion Dollar” economy. The Prime Minister presented facts and figures to indicate how India is playing a key role in the entire world’s growth. He said that in nominal terms, India’s share of the world GDP has risen from 2.4 percent in 2013, to 3.1 percent in 2017. He said India is performing better on various macro-economic parameters.

The Prime Minister said that this change has come about due to a new approach and a new work culture. He said India’s competitiveness is being validated by the entire world today.

PM Modi recalled that when he last attended this Global Business Summit, GST was still, just a possibility. Today, he added, it is a reality, which has delivered a better tax



Speed, scale and sensitivity are important to ensure the success of the Government’s initiatives.

compliance system and a better revenue system. The Prime Minister mentioned other reforms such as the Insolvency and Bankruptcy Code.

Prime Minister Narendra Modi said that speed, scale and sensitivity are important to ensure the success of the Government’s initiatives. He gave some examples of the increase in pace in the infrastructure sector.

The Prime Minister said that there is unprecedented investment being made today in infrastructure, agriculture, technology, health sector, and education sector.

Prime Minister Modi mentioned the initiatives taken in the health sector, such as Mission Indradhanush, Jan Aushadhi Stores, and the Ayushman Bharat scheme.

Talking about the Digital India Mission, the Prime Minister said that the trinity of 100 crore bank accounts, 100 crore Aadhaar cards and 100 crore mobile phones, would create a

unique ecosystem, not seen anywhere else in the world. He also spoke of initiatives taken for the MSME sector.

The Prime Minister recalled that in his last address at the Economic Times Global Business Summit, he had spoken of Housing for All, Power for All, Clean Cooking for All, Health for All, and Insurance for All. He outlined the steps that have been taken in this regard in house construction, Saubhagya Yojana, Ujjwala Yojana, and insurance. Saying that the Government’s initiatives are aimed at empowering the poor, the Prime Minister also mentioned the construction of toilets, distribution of loans through the Mudra Yojana, and distribution of soil health cards.

The Prime Minister mentioned the announcement in the recent Union Budget, on MSP.

The Prime Minister appealed that those entrusted with the responsibility of ensuring rules and ethics in various financial institutions, should work with full dedication – especially those who are responsible for supervising and monitoring. He made it clear that the Government would take strict action against irregularities in financial matters. He said that the illegal accumulation of people’s money is unacceptable, and this is the basic mantra of ‘New Economy – New Rules.’ 



LVD bags an order for new Synchro-Form Press Brake

LVD Company nv has announced it has been awarded an order from Japanese technology company, Kawasaki Heavy Industries (KHI), via its sales agent ITOCHU MACHINE-TECHNOS CORPORATION, for its unique Synchro-Form adaptive bending technology for large-profile bending. Synchro-Form was named the most innovative new metal forming product at EuroBLECH, the world's largest sheet metalworking technology exhibition.

The Kawasaki Heavy Industries (KHI) order is for a custom-built, 1000-ton class of Synchro-Form press brake equipped with special tooling to produce large panels for the fuselages of commercial aircraft. Forming such XXL parts to a desired contour is a challenging task and one that will be significantly simplified with Synchro-Form, which maintains an-



The Kawasaki Heavy Industries (KHI) order is for a custom-built, 1000-ton class of Synchro-Form press brake equipped with special tooling to produce large panels for the fuselages of commercial aircraft.

regular consistency and the required geometric profile and enables an in-process automatic quality control when handling, positioning and bending large parts with multiple bends.

Kawasaki Heavy Industries (KHI) in Japan is a key production partner for the production of the Boeing 777X, the

successor to Boeing's popular 777 aircraft. The 777X will be the largest and most efficient twin-engine jet in the world, unmatched in every aspect of performance.

LVD's Synchro-Form press brake meets the tight tolerance requirements demanded of the Kawasaki Heavy Industries (KHI) application and the need for complete automation. The order was awarded to LVD after several bending trials and strict accuracy measurements were satisfied.

The Synchro-Form press brake will be manufactured at LVD's world-class production facility at its headquarters in Belgium. 

UPDATE

The future of solar energy spotlights Graphite

Graphite is a mineral that is quietly fuelling the future of clean technology, and its applications in the battery market just keep growing and growing. Graphite grabbed investors' attention when Tesla CEO Elon Musk, determined to provide the world with clean battery power for cars and homes, identified Graphite and Nickel as key elements in the lithium-ion battery cell mass. Musk even said that lithium ion batteries "should be called Nickel-Graphite." Minerals like these are vital to the growth of clean tech. Mining companies like SunPower Corp. (NASDAQ: SPWR), Global X Lithium (NYSE: LIT), First Solar Alcoa Corp. , and Graphite Energy Corp. know this, and are strategically mining the minerals of the future.

Tesla's electric vehicle (EV) batteries have captured plenty of headlines, but the automotive sector is not necessarily going to be the largest consumer of lithium ion batteries. The big use will come in the home batteries sector, and solar panel roofs, powered with Tesla battery packs, require even more graphite. Battery powered homes will be the way of the future, and are projected

to increase demand for graphite over 1,000 times. The North American hotbed of graphite production is actually in Québec, Canada, where junior mining companies Mason Graphite Inc. and Graphite Energy Corp. are rapidly assembling operations.

Technology that transforms the future of grid power

Of all the strategic minerals in play, graphite offers the greatest opportunities for growth in the evolution of solar power technology. Solar roofing and battery storage systems are transforming the future of grid power, and graphite technologies are making materials stronger. Graphite Energy Corp. will be pivotal in providing the natural grade mineral needed to support the supply chain demand.

Graphite will be needed to store the power generated from Tesla's new solar roofs, which are already on the market. Tesla has even started selling solar panels at Home Depot. The company is reportedly going to start selling the panels at nearly 800 retail locations, bringing the technology to consumers via the bricks and mortar market. 



The secret behind y-axis parting

While conventional parting off tools align with the X-axis of the machine tool, the Y-axis tool has simply been rotated 90° anti-clockwise to align with the Y-axis.

The Y-axis option has broadened the possibilities to use rotating tools in multi-task machines and turning centres. Now this capability has inspired a great innovation in one of the original missions of these machine tool types: Y-axis parting. Implementing this new tool and method brings significant machining improvements in potentially any parting operation.

Adding rotating tools to turning centres means you can combine several set-ups in a single machine for a more streamlined and productive machining process. To accomplish this, turn-mill machines were introduced in the 1990s. The initial idea was to enable driving a milling cutter, drill or threading tap on one or more tool positions in the turret to eliminate limitations of polar interpolation and other related programming difficulties. To improve reach, an extra set of ways was added to move the rotating tool across the spindle face. This was accomplished by mounting the tools on revolver sides or on its face, by installing the Y-axis ways on a slanted bed or by using an independent milling head. Both machine tool makers and manufacturers soon recognized the benefits of integrating both milling and turning operations. Today, the Y-axis option has become a standard feature in most multi-task machines and optional in many new turning centres.

As a potential tool breakage risks leading to costly machine downtime or scrapped components, parting off is a stage of the machining process where manufacturers don't compromise on security. To meet the high demands put on these type of tools, the system CoroCut® QD was developed by Sandvik Coromant in 2013. While considering how to improve this high-performing system even further, the tool developers started looking at these modern machines with Y-axis capacity. This resulted in an innovation that involved more than just the tool design but also a completely new method: Y-axis parting.

The y-axis parting principle

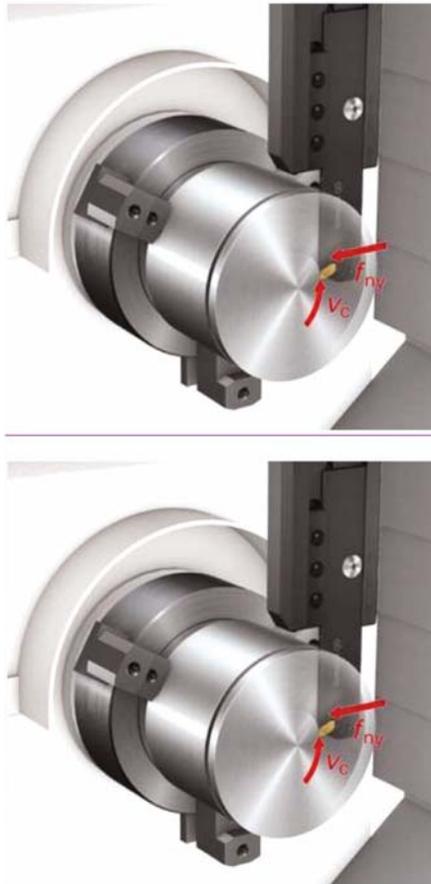
The principle behind Y-axis parting

FEM analyses performed by the Sandvik Coromant R&D team confirmed that the new solution eliminates critical stresses and increases the blade stiffness by more than six times compared to conventional blade design.

is incredibly simple. While conventional parting off tools align with the X-axis of the machine tool, the Y-axis tool has simply been rotated 90° anti-clockwise to align with the Y-axis. In a conventional tool configuration, the relatively long and slender parting blade and holder is fed at a 90° angle into the rotating workpiece. The largest cutting force is generated by the cutting speed and the rest by feed motion. The consequence is a resultant force vector that is directed diagonally into the tool at an angle of roughly 30°, in other words across a very weak section of the blade. To avoid tool breakage, this is compensated by reducing the blade overhang and by increasing the blade height, which in turn sometimes compromises the usability of the tool. By turning the tip seat 90 degrees and utilizing the Y-axis, the tool can cut its way into the workpiece essentially with its front end, which nearly aligns the resulting cutting force vector with the longitudinal axis of the blade. FEM analyses performed by the Sandvik Coromant R&D team confirmed that the new solution eliminates critical stresses and increases the blade stiffness by more than six times compared to conventional blade design.

To put it short; when switching to parting in the Y-axis plane you get a beneficial direction of the cutting force resulting in less instability and vibration. This means you can ramp up feed rate without losing stability or breaking the tool for an extremely secure and productive parting process. Simple as that.

For more info about y-axis parting with CoroCut QD, visit www.sandvik.coromant.com/corocutqd





Cable Bushing System

The system allows cables of different diameter sizes to be fitted into a single platform

The rapid growth of industrialization has given rise to a mounting demand of cables across Indian sectors. As manufacturing units are getting automated, there is a constant need for machines to be more interconnected, with use of multiple cables, especially in power, control and data applications. Proper organisation and management of the numerous cables will ensure seamless maintenance of these interconnected cables. There is always a demand for harness and then reconfiguration of these harnessed cables which may involve hours of effort.

SKINTOP CABLE BUSHING SYSTEM allows cables of different diameter sizes to be fitted into a single platform safely and in an orderly manner. It simplifies cable management for various applications and helps save manpower hours and costs at every stage of the installation process.

LAPP being the leading supplier of integrated solutions and branded products of wires and cables, introduces SKINTOP CABLE BUSHING SYSTEM which turns chaos into order. SKINTOP CABLE BUSHING SYSTEM allows cables of different diameter sizes to be fitted into a single platform safely and in an orderly manner. It simplifies cable management for various applications and helps save manpower hours and costs at every stage of the installation process. The newly



introduced SKINTOP CABLE BUSHING SYSTEM is faster, easier and better. It has user-friendly design with expandable modules which helps in quick assembly. Innovative gel technology helps in effortless installation and offers a high degree of protection and long lasting safety. The product is available in 3 variants, SKINTOP CUBE, SKINTOP CUBE MULTI and SKINTOP MULTI.

SKINTOP CABLE BUSHING SYSTEM is an ideal solution for:

- Customised and non-customised cables and wires
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- Maintenance, service and reconfiguration of components that require quick and easy changing or removal of customisations
- Flexible modular systems in keeping with Industry 4.0
- International use in accordance with UL50, UL508A, UL50E and CSA C22. Enclosures for Electric Equipment/ Industrial Control Panels.

UPDATE

Microsoft signs renewable energy deal in India

Microsoft Corp. has announced the completion of its first renewable energy deal within the Karnataka state of India. The agreement will see Microsoft purchase 3 megawatts of solar-powered electricity from Atria Power to help power its new office building in Bangalore.

This will meet 80 percent of the projected electricity needs at the new facility. This deal is part of a state government of Karnataka program to encourage investments in local solar energy operations, in line with the larger Indian government goal to ramp up solar power generation to 100 gigawatts by 2022, as part of India's efforts to mitigate the effects of climate change.

"Investing in local solar energy to help power our new Bangalore office building is good for Microsoft, good for India and good for the environment," said Anant Maheshwari, president, Microsoft India.

"We are proud to be deepening our long history of partnership and investment in India with this agreement. This deal will help us grow sustainably and supports the growth of the Indian solar energy industry, so that the entire country can more easily and reliably access clean electricity," Maheshwari added.

"Microsoft, like India, has ambitious commitments to use more renewable energy," said Rob Bernard, chief environmental strategist, Microsoft. "By purchasing local solar power to meet some of our local electricity needs, we're not only meeting our goals but also supporting the growth of local clean energy industries. This growth leads to more clean electricity capacity, which will help India meet its targets for the Paris Agreement, reduce carbon emissions and provide clean electricity to its growing population. We're proud to play a small role in this Indian energy transformation."



High-precision, flexible 5-axis grinding centre

The new PROFILE LINE from EWAG is a solution for efficient and flexible machining of indexable carbide inserts. The machine is built in close partnership with sister company Walter Maschinenbau GmbH and enhanced with Ewag AG's tooling and software expertise. This partnership has produced an extremely efficient grinding centre for advanced grinding of highly complex interchangeable insert geometries, including interfaces.

The innovative technology of the PROFILE LINE has set new standards of production efficiency for these applications. For example, an intelligently integrated 6-station changer for grinding wheel sets and coolant supply manifolds ensures optimum wheel selection, thereby maximising the machin-



PROFILE LINE from EWAG

ing volume for sintered blanks. Another outstanding feature for autonomous multi-shift operation is the intelligently integrated, flexible automation with a 6-axis Fanuc robot. Customer-specific pallets can be accommodated in the user-friendly robot cell. A high-resolution CCD-HD vision system is available for loading grid pallets using magnetic grippers. Cleaning, re-clamping and centring stations can also be integrated and adapted to the customer-

specific product range.

Perfect software is required to create perfect geometries of interchangeable inserts on the machine. But the PROFILE LINE offers even more by combining ProGrind software from EWAG with Helitronic Tool Studio from Walter. The machine is totally unprecedented thanks to this unique combination of expertise and know-how from the two machine tool manufacturers.

This dramatically expands the range of applications for an extremely wide variety of interchangeable inserts. In drilling or milling applications, even complex geometries can be ground in one set-up thanks to the ultra-precise interfaces of the indexable inserts. This boosts precision and productivity enormously.

Furthermore, the Fanuc control unit ensures maximum reliability, availability and ease of use for the user.

Highlights

- For indexable inserts
- Intelligently integrated 6-station wheel changer
- Accommodates customer-specific pallets
- Vision system for part recognition
- Innovative ProGrind and HELITRONIC TOOL STUDIO software
- EWAG tooling expertise (Smart chuck ®)

Walter launches flow assembly line in Czech Republic

Walter s.r.o. in Kuřim recently celebrated the launch of its flow assembly line with numerous invited guests. Jürgen Schock, CEO of Walter Maschinenbau GmbH, welcomed the group of about forty invited guests followed by a short speech from project manager Markus Schulze about the flow assembly line project, before kicking off the official opening ceremony. Together, the entire project team pressed a start button to symbolize the official launch of the flow assembly line.

Construction work for the new line at the Czech production facility took about 14 weeks after which the system was installed. The new flow assembly line is a multi-million-euro investment that represents an important milestone for Walter s.r.o. in Kuřim. A 90-meter-long, continuously moving conveyor belt now spans the assembly facility and runs directly into the shipping department. Once a machine has passed through the eighteen assembly stations, it is immediately



Flow assembly line at the WALTER plant in Kuřim

packed in the shipping facility and sent to the customer. Workflows have been streamlined thanks to this increase in process stability and customers benefit from shorter delivery times as a result of the shorter lead times. Currently, the Helitronic Power and Helitronic Mini Power models are produced on the belt and it is planned that the Helitronic Vision 400 L will be added before the end of the year. Overall, the line

will dramatically increase flexibility. Component assembly is also arranged according to a fishbone diagram in order to feed the line directly.

The supply of materials to assembly was also reorganised and adjusted to suit the new flow assembly line. Various activities to improve the supply of materials to the flow assembly line, such as a pick-to-light system, were simultaneously implemented. Further measures are already in planning for the logistics area.



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Pressure maintenance valve with manual ventilation

In the case of a sudden drop in pressure the build-up pressure in the piston area of pneumatic gripping, swivel, linear and quick-change modules will not get lost, due to the SCHUNK SDV-P pressure maintenance valves. They are often used grippers, which cannot be equipped with a mechanic gripping force maintenance. With the SDV-P-E, SCHUNK, the competence leader for clamping technology and gripping systems presents for the first time a pressure maintenance valve, where both air channels are equipped with integrated quick ventilation. For setting up the system again using pressure maintenance valves, the modules which are fixed in a defined end position can be manually activated by a ventilation button without having to remove the pressurized pneumatic hoses. The compact SDV-P-E is equipped with standard threaded connectors, and can be com-



bined with pneumatic actuators from many different manufacturers. Already existing SDV-P pressure maintenance valves can be replaced 1:1 with the new SDV-P-E. The modules made of stainless steel, are available in three sizes for flow rates of 200 l/min up to 600 l/min. They ensure a maximum pressure drop of 0.1 bar per hour (at a defined reference volume and constant temperature), and cover a pressure range from 2 to 10 bar. The switching time

is about 10 ms.

For more information, contact:

Satish Sadasivan

SCHUNK INTEC INDIA PRIVATE LIMITED

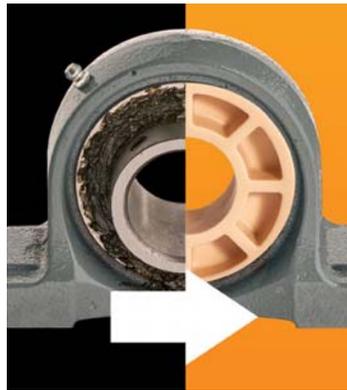
info@in.schunk.com

www.in.schunk.com

Retrofit bearing housing with the new spherical balls

Pillow blocks and flange bearings are exposed to extreme loads such as dirt and dust. Be it in construction machines or conveyor systems for glass and clay products. At the same time, machine and plant operators must ensure reliable lubrication. With the new igus spherical balls made of the high-performance plastic iglidur J, customers can now rely on a lubrication-free and maintenance-free solution that can be used in seconds.

Heavy dirt accumulation, dust and chips - such conditions are often an extreme load for pillow blocks and flange bearings. To ensure that metallic bearings do not fail in these scenarios, they must be regularly serviced and lubricated. That is why the motion plastics specialist igus has spherical balls made from the high-performance plastic iglidur J in its product range. The special feature of the material is that the bearing no longer needs to be lubricated and is therefore maintenance-free. The narrow igubal spherical balls come directly from the injection moulding process and can be inserted into existing metallic pillow block and flange bearing housings within a few seconds. Another advantage is that due to the absence of lubricant, dirt and impurities can no longer adhere to the bearings, which further minimises wear. Thus, there is no long downtime of the machines and plant. The long service life of the igubal spherical balls has already been proven in a biomass chipper. Whereas the metal bearings on the conveyor



belt of the machine had to be lubricated each month, the retrofitted flange bearings with igubal spherical ball stayed wear-free for more than a year, without lubrication and maintenance.

iglidur J ensures lubrication-free operation even under extreme conditions

The spherical balls made of iglidur J are not only cost-effective, but also have a very low coefficient of friction in dry operation. The material absorbs only little moisture, so that the use of the spherical balls is also suitable for outdoor use. Due to the

chemical resistance of the high-performance plastic, the use of exchangeable spherical balls is also suitable for use in chemically demanding applications such as agricultural technology. iglidur J displays its advantages especially in soft shafts. The igubal spherical balls are currently available in six dimensions for housing number 204-210. On request, igus also manufactures spherical balls made of other iglidur materials. As an alternative to injection moulding, igus offers its customers the option of machining spherical balls from their desired material from the iglidur bar stock product range.

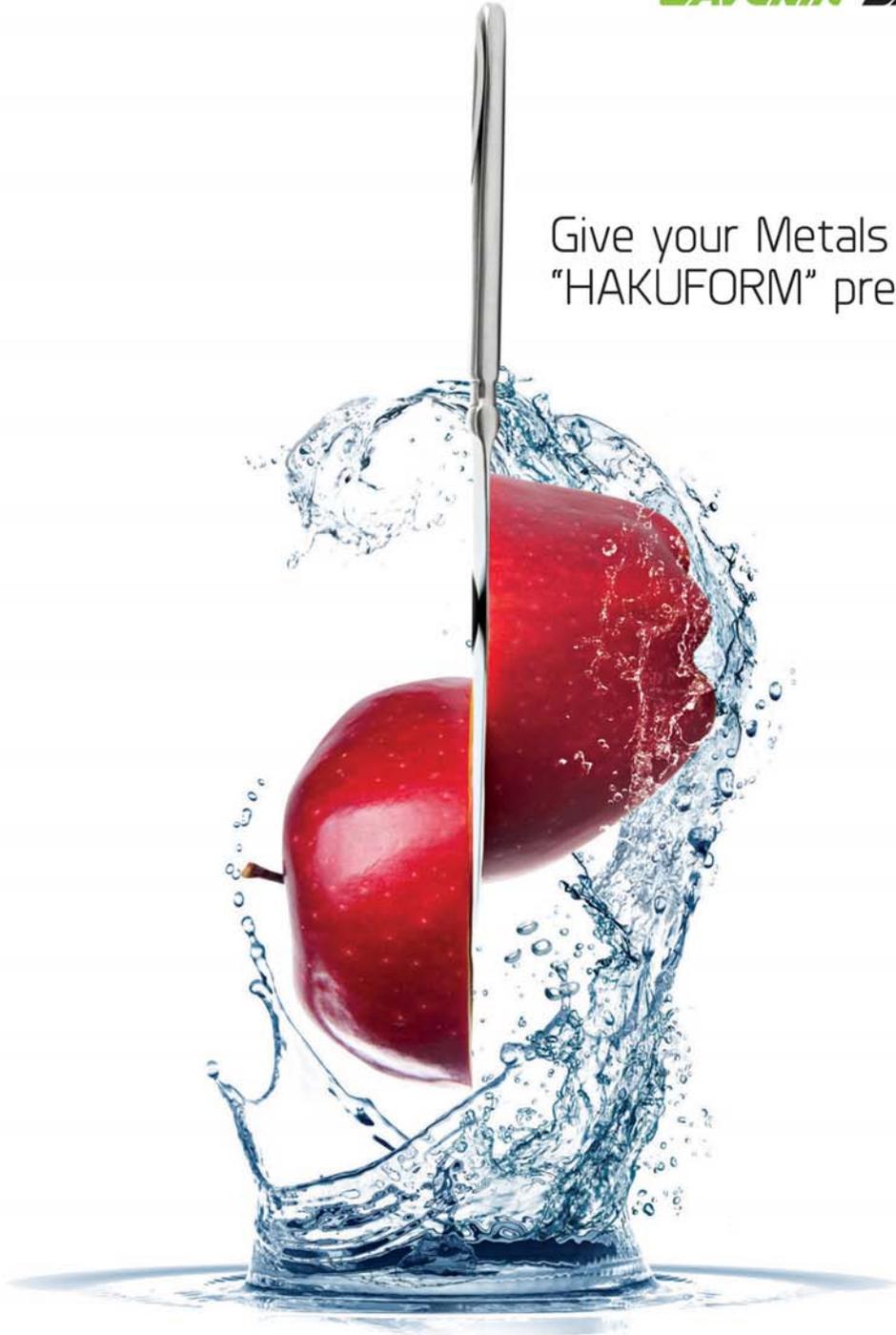
For more information, contact: Ragesh Kumar

Product Manager - iglidur®, igubal®, xiros®

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