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Electric Vehicles
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'Track'ing India's Growth

Jean-Francois Beaudoin,
Senior Vice President, Alstom Asia Pacific,
says India's growth trajectory is set and
various infrastructural projects will take
the country to new heights.

CoroDrill® 870 – Exchangeable tip drills

Revolutionary design: optimized tip, interface and drill for improved machining economy

APPLICATION

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Benefits with CoroDrill® 870

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10.00–26.99 (0.394–1.063)	Cylindrical with lat according to ISO 9766	10

Drill tips

Diameters, mm (inch)	Geometry	Grade	Application
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10.00–33.00 (0.394–1.299)	-KM	GC4234	K
10.00–33.00 (0.394–1.299)	-MM	GC4234	M
10.00–33.00 (0.394–1.299)	-GP	GC4234	P K M

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P M K H

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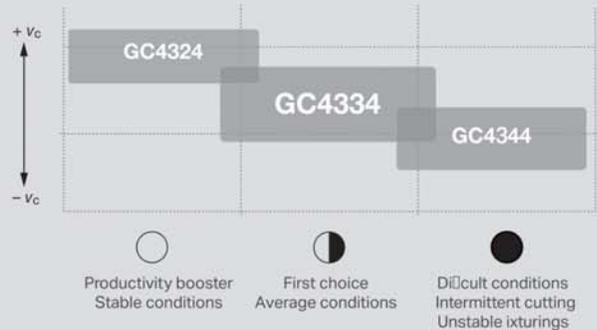
- Great edge-line security
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More info www.sandvik.coromant.com/zertivo

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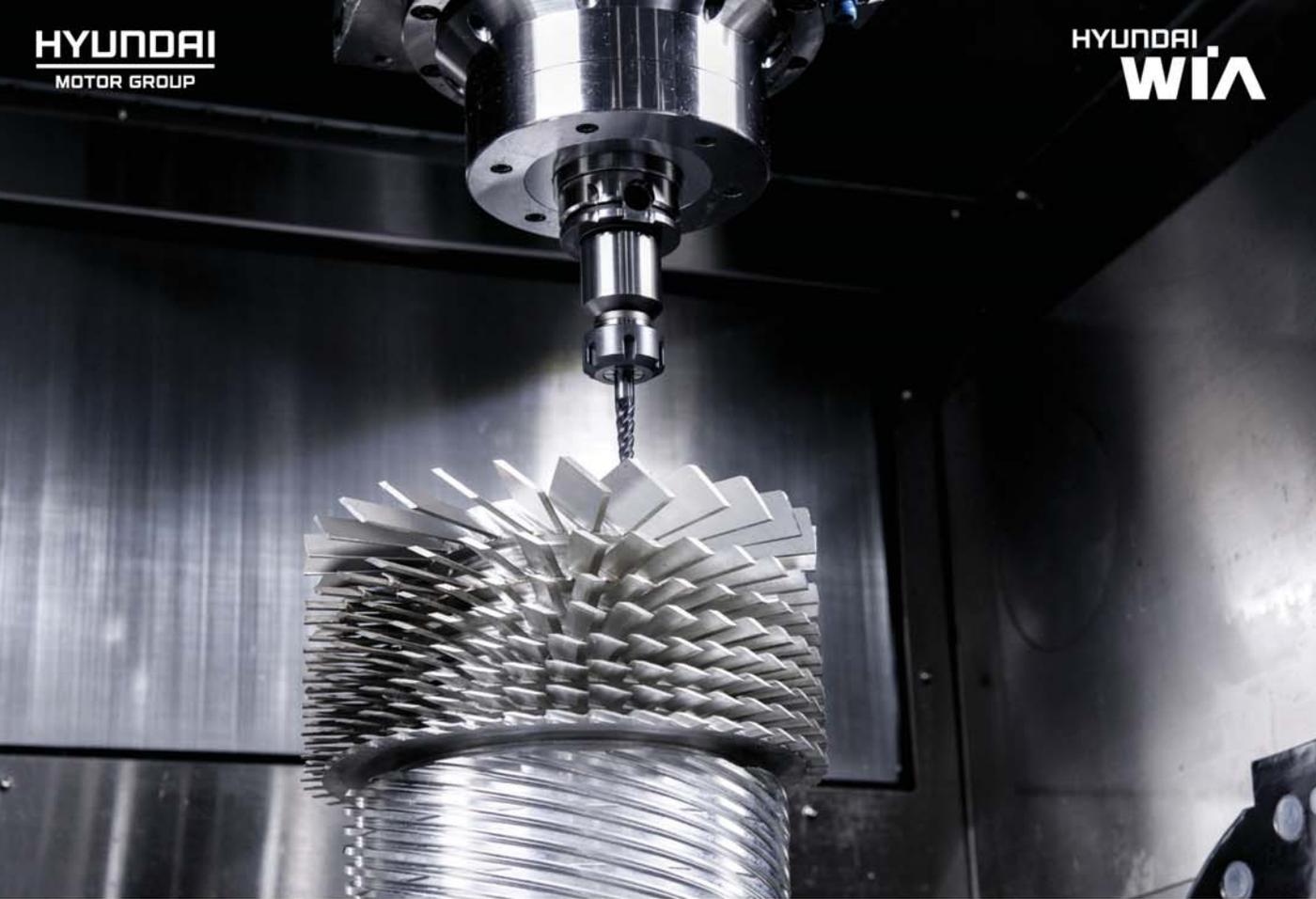
More info www.sandvik.coromant.com/inveio



Grade	insert size	Geometries	Supplement chapter
GC4324, GC4334 and 4344	1	GR, LM	E
GC4324, GC4334 and 4344	2-9	GM, GR, LM, GT	E

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The Rise of New India!

India's jump in the 'Ease of Doing Business' ranking is a significant milestone in the nation's journey. And hopefully, this jump in ranking should also have a direct and positive impact on the nation as a whole. Today, everybody recognises the importance of business in improving the socio-economic fabric of a country. Businesses are the true engines of growth that create wealth, generate employment and raise the standards of living. In that sense, the improvement in 'ease of doing business' is also a step towards improvement in 'ease of living'.

In its report, the World Bank has identified India as one of the top reformers and this indeed is a huge achievement for the administration as well as for

“THE PM HAS SAID THAT HIS GOVERNMENT’S MANTRA IS ‘REFORM, PERFORM AND TRANSFORM’. IT NEEDS TO DILIGENTLY STICK TO THIS MANTRA. AND WE SHOULD SEE FURTHER IMPROVEMENTS IN OUR RANKINGS IN THE YEARS TO COME.”

the entire nation. While we are far from where we should be, the good thing is that we have started and have also gained momentum. To quote PM Modi, 'we have achieved critical mass for a swift takeoff'.

The PM has said that his Government's mantra is 'reform, perform and transform'. It needs to diligently stick to this mantra. And we should see further improvements in our rankings in the years to come. (Parallely, the industry also needs to adopt this mantra and rise to the occasion.)

Of course, the challenges are humungous. More so because India is a very complex and difficult nation. It's volatile diversity (yes, you read it right!) is something that aggravates the problems. Also, in a federal democracy like India, it is never easy to take on board every stakeholder. Will, consensus is a rare commodity on our market. But our history is witness to the fact that we have always come on top whenever we have stuck together with a common agenda.

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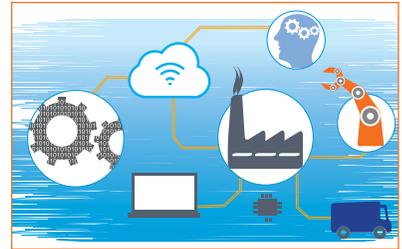


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Insight

Industry 4.0

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Innovation

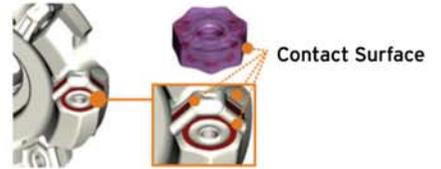
'Engineering' the future! **58**

Face mill cutters for various depth of cuts

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- Economical heptagonal double sided insert.
- Double positive cutting edge geometry offers lower cutting resistance for improved machining efficiency. (MP, MM, MK, HK breakers)
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AHX440S

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Heptagonal double sided insert

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Improves chip discharge and prevents chip welding



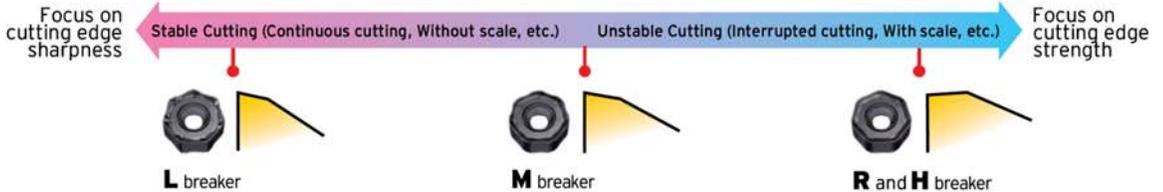
AHX640S

New 14 corner inserts for Steel and Stainless Steel machining



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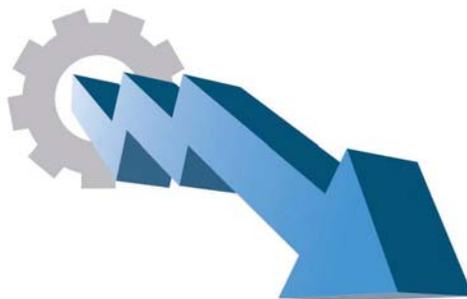


NEWS

India Inc reduces its 31 million tonnes of carbon emissions: BEE

OVER 400 INDUSTRIES

reduced their emissions by 31 million tonnes of CO₂, approximately 2 percent of annual CO₂ emissions, during the first implementation cycle of Perform, Achieve & Trade Scheme (PAT) by the Bureau of Energy Efficiency (BEE) between 2012 and 2015. The first cycle of PAT implementation (2012-15) covered 478 Designated industries (DCs) from 8 energy-intensive sectors - Aluminium, Cement, Chlor-alkali, Fertilizer, Iron and Steel, Pulp and Paper, Textiles and Thermal power plant. Together, these sectors account for about 33 percent of India's primary energy consumption. The scheme resulted in saving of energy equivalent to 8.67 million tonnes of oil, exceeding the target of 6.86 million tonnes by about 30 percent. This also resulted in avoided generation of about 5,635



MW, resulting in monetary savings of Rs. 37,685 crore. At the same time Rs 9,500 crores have been saved due to reduction in energy consumption.

PAT is one of the most important initiatives under the National Mission on Enhanced Energy Efficiency (NMEEE), which is a mission under National Action Plan on Climate Change (NAP-CC) in 2012. PAT is a market-based mechanism focused on reducing the specific energy consumption (SEC), i.e. energy used per unit of production, in large energy-intensive industries. The scheme facilitates these large, energy-intensive industries to achieve their legal obligation under the Energy Conservation Act, 2001, while also motivating them with necessary market-based incentives to reduce their SEC and hence surpass their individual energy saving targets.

MHA opens up 'Arms Rules' to boost 'Make in India'

THE MINISTRY OF HOME Affairs has liberalised the Arms Rules to boost "Make in India" manufacturing policy of the Government as also to promote employment generation in the field of manufacturing of arms and ammunition.



The liberalisation of the Arms Rules will encourage investment in the manufacturing of arms and ammunition and weapon systems as part of the "Make in India" programme. The

liberalised rules are expected to encourage the manufacturing activity and facilitate availability of world class weapons to meet the requirement of Armed Forces and Police Forces in sync with country's defence indigenization programme. The liberalised rules will apply to licences granted by MHA for small arms & ammunition and licences granted by Department of Industrial Policy and Promotion (DIPP), under powers delegated to them, for tanks and other armoured fighting vehicles, defence aircrafts, space crafts, warships of all kinds, arms and ammunition and allied items of defence equipment other than small arms.

India jumps doing business rankings

INDIA for the first time moved into the top 100 in the World Bank's Ease of Doing Business global rankings on the back of sustained business reforms over the past several years. This was announced by the World Bank Group's latest Doing Business 2018: Reforming to Create Jobs report. Last year the report had ranked India at 130.

The report also recognizes India as one of the top 10 improvers in this year's assessment, having implemented reforms in 8 out of 10 Doing Business indicators. India is the only large country this year to have achieved such a significant shift. On the "distance to frontier metric," one of the key indicators in the survey, India's score went from 56.05 in Doing Business 2017 to 60.76 in Doing Business 2018. This means last year India improved its business regulations in absolute terms – indicating that the country is continuing its steady shift towards best practice in business regulation.

Solar Industries bags orders worth Rs. 1144 crore

SOLAR INDUSTRIES INDIA LTD has bagged orders worth Rs. 1144 cr from Coal India Ltd. Solar Industries won Coal India's recently concluded tender for supplying 375,412 MT Bulk Explosives to the subsidiaries of Coal India Ltd. amounting to Rs. 1143.63 cr. The order is to be executed between Nov 1, 2017 and Oct 31, 2019. The share of Solar Industries in the tendered quantity was 28 percent in the previous order, which has now increased to 36 percent. Commenting on the development, Roomie Dara Vakil, Executive Director, Solar Industries India Ltd said, "We are glad to receive orders from Coal India Ltd., which is the world's largest consumer of explosives in India. This is the biggest order we have received recently. We are confident that we will execute the orders within the stipulated period."

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NEWS

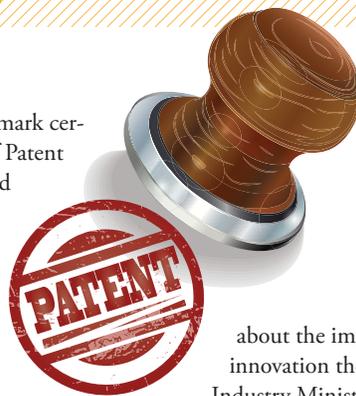
Government to streamline IP processes

THE MINISTER FOR COMMERCE AND INDUSTRY, Suresh Prabhu took a review of the Intellectual Property Rights (IPR) related initiatives taken by the Department of Industrial Policy and Promotion (DIPP), Ministry of Commerce and Industry, for strengthening the IPR regime in the country.

The Government of India has been working to streamline IP processes and modernisation of IP offices through steps such as comprehensive e-filing facilities made available for patents and trademarks, auto-allotment of patent applications to ensure uniformity and utilization of the specialised expertise of all examiners and controllers and by

auto generation of trademark certificates. Examination of Patent applications has increased over three times in the last six months compared to the same period last year.

To reduce the pendency, 458 Patent and 59 Trademark examiners have been appointed in addition to the existing manpower. Pendency in Patent examination is targeted to be brought down from the present 7 years to 18 months by 2019. The pendency of Trademark applications at the examination stage has been reduced drastically – the time



taken for examination has been brought down from 13 months to less than one month.

Talking about the importance of IPR and innovation the Commerce and Industry Minister said, “India is now at the forefront of innovation and developing new ideas. In such scenario, protection of IPRs becomes extremely important.” On this occasion, Secretary DIPP Ramesh Abhishek provided the details of how recent initiatives by the Government of India are transforming the IP landscape in India.

EESL receives \$454 million GEF funding

RECOGNIZING INDIA'S EFFORTS towards a low emission-economy and focusing on energy efficiency programs, the Global Environment Facility (GEF) has now partnered with Energy Efficiency Services Limited (EESL) for the project ‘Creating and Sustaining Markets for Energy Efficiency’.

The project will receive a composite funding of \$454 million comprised of the GEF grant of \$20 million and Co-financing of \$434 million in the form of loans and equity, including a USD 200 million loan from the Asian Development Bank. EESL further proposes “Energy Efficiency Revolving Fund” (EERF) for sustainable funding mechanism of energy efficiency projects.

The GEF project further brings together many technical and financing partners including United Nations Environment (UN Environment), Asian Development Bank (ADB) and Kreditanstalt für Wiederaufbau (KfW) which aims to mitigate 60 million tons of CO₂eq (carbon dioxide equivalent), that will enable a total direct energy savings of 38.3 million GJ by 2022 and 137.5 million GJ by 2032.



Index of 8 core industries 5.2 percent up in Sept 2017

THE EIGHT CORE INDUSTRIES

comprise 40.27 per cent of the weight of items included in the Index of Industrial Production (IIP). The combined Index of Eight Core Industries stands at 122.5 in September, 2017, which was 5.2 per cent higher as compared to the index of September, 2016. Its cumulative growth during April to September, 2017-18 was 3.3 per cent.

Coal: Coal production (weight: 10.33 per cent) increased by 10.6 per cent in September, 2017 over September, 2016. Its cumulative index increased by 1.5 per cent during April to September, 2017-18 over corresponding period of the previous year. **Steel:** Steel production (weight: 17.92 per cent) increased by 3.7 per cent in September, 2017 over September, 2016. Its cumulative index increased by 5.5 per cent during April to September, 2017-18 over the corresponding period of previous year. **Electricity:** Electricity generation (weight: 19.85 per cent) increased by 5.2 per cent in September, 2017 over September, 2016. Its cumulative index increased by 6.0 per cent during April to September, 2017-18 over the corresponding period of previous year.

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• MARK YOUR DIARY •

A list of key events happening between November 2017 to July 2018, both nationally and internationally.

<p>CeBIT India November 30– December 02, 2017 Bengaluru www.cebit-india.com</p>	<p>ArabiaMold Sharjah December 11–14, 2017 Sharjah, UAE http://www.arabiamold.com/</p>	<p>ExCon December 12–16, 2017 BIEC, Bengaluru http://excon.in</p>	<p>IMTEX 2018 January 25–30, 2018 BIEC, Bengaluru http://imtex.in</p>
<p>Auto Expo Components February 8–11, 2018 New Delhi www.autoexpo.in</p>	<p>ELECRAMA March 10–14, 2018 India Expo mart, Noida http://elecrama.com/</p>	<p>SIMTOS April 03–07, 2018 Seoul, South Korea http://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 http://www.cemat.de/</p>	<p>ACMEE June 21–25, 2018 Chennai Trade Centre, Chennai http://www.acmee.in/</p>	<p>AMTEX 2018 July 06–08, 2018 New Delhi, http://www.amtex-expo.com/amtex_delhi</p>

OUR INHOUSE UPCOMING EVENTS



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January 2018, Mumbai



May 2018



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D. K. SHARMA APPOINTED AS PRESIDENT OF TAGMA

In a recently held Annual General Meeting at Bangalore, the Tool & Gauge Manufacturers Association of India (TAGMA India) elected D. K. Sharma as its new President.

Sharma is the Executive Vice President & Business Head of Godrej Tooling, which is a leading Tool Room in the country.

The new Executive Council is quite upbeat about pursuing major initiatives such as setting-up of TAGMA Centre of Excellence and Training (TAGMA CET) and TAGMA Common Engineering Facility Centre (TAGMA CEFC), at Chakan-Pune, with requisite support from the Department of Heavy Industries- Government of India. Once the maiden project is put in place, the GOI has encouraged TAGMA to set-up such Centres, pan India.

TAGMA India is a Non-Profit Organisation, actively promoting the tooling industry, since its inception in 1990. In 2015, TAGMA completed its Silver Jubilee – 25 years of successful functioning.



T. V. NARENDRAN APPOINTED AS NEW CEO AND MD OF TATA STEEL

The Board of Directors of Tata Steel Ltd has elevated T. V. Narendran as the CEO and Managing Director, Tata Steel globally. He was appointed as Managing Director from November 1, 2013. During his tenure in last four years Tata Steel successfully executed and commissioned one of the largest Greenfield projects in India – the Kalinganagar steel plant and also enhanced its ability to deliver to higher value segments like steel for automobiles.

A mechanical engineer by training, Narendran joined Tata Steel after completing his MBA from IIM Calcutta in 1988. His career in the company spanned many areas in India and abroad – including Marketing & Sales, International Trade, Supply Chain & Planning and Operations and General Management.

GM APPOINTS PAMELA FLETCHER AS VP – GLOBAL ELECTRIC VEHICLE PROGRAMS

General Motors Co. has appointed Pamela Fletcher, who led the team that successfully launched the Chevrolet Bolt EV and created the plan to accelerate us along the pathway to our vision of a zero emissions world, to the newly created position of vice president, Global Electric Vehicle Programs.

In this new role, Fletcher will lead the vehicle program execution for GM's entire global electric vehicle portfolio, including the commitment to launch more than 20 all-electric vehicles globally by 2023. She will report to Doug Parks, vice president, Autonomous and Electric Vehicle Programs.

"Nobody is more prepared to help us lead the way to a zero emissions future than Pam Fletcher," Parks said. "Under Pam's leadership, GM will continue to deliver electric vehicles that delight our customers and exceed their expectations."



VIRGIN HYPERLOOP ONE APPOINTS NEW CO-EXECUTIVE CHAIRMAN AND VICE CHAIRMAN

Following a strategic partnership with the Virgin Group, Virgin Hyperloop One, the company in the world that has built and successfully tested a full-scale Hyperloop system, recently announced the appointments of a new Co-Executive Chairman, Ziyavudin Magomedov, Chairman of the Summa Group, and Vice Chairman, Jim Rosenthal, the former COO of Morgan Stanley, to its board of directors.

"We're privileged to have Ziyavudin appointed as Co-Executive Chairman and Jim join as Vice Chairman of the board of directors of Virgin Hyperloop One," said Shervin Pishevar, co-founder and Co-Executive Chairman of Virgin Hyperloop One. "In addition to Richard Branson joining the board, we have attracted and commanded the greatest minds to guide us as we position ourselves for global growth. Their proven leadership in their respective industries adds another dimension in helping us achieve our dream of bringing Virgin Hyperloop One technology to the world."

Magomedov brings vast expertise in logistics and infrastructure, which will be beneficial as Virgin Hyperloop One works with government and private sector partners to build out its freight and shipping capabilities. Rosenthal brings his extensive experience in the financial sector, funding high growth companies, establishing solid governance and security policies.



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JAYAKUMAR DAVID TO HEAD RENAULT-NISSAN HR IN INDIA

The Renault-Nissan Alliance announced the appointment of Jayakumar David as Alliance HR Director, India, effective November 1, 2017.

Previously David served as Vice-President HR RNTBCI (Renault Nissan Technology and Business Centre India) and will continue with this role as well.

In his new role, David will be responsible for all the Alliance HR operations in India, ensuring optimum effectiveness, while driving efficiencies of HR delivery to strengthen the Renault-Nissan synergies in India.

Announcing the new appointment, Dominique Dumoulin, Alliance Global Director HR, Africa-Middle East-India (AMI) Region said, "We are pleased to welcome Jayakumar David in his new role and extend our full support to him in successfully executing his mandate, as we aspire to strengthen the Renault-Nissan Alliance in India. At the same time, we are grateful to Christophe Dalby who has been instrumental in implementing and developing the Alliance HR in India for the past four years, and will now move to the headquarters. The Renault-Nissan Alliance will continue to grow its presence in India, fostering and nurturing the best talent."



DR. R.P. SINGH JOINS AZURE POWER'S BOARD OF DIRECTOR

Azure Power announced that Dr. R. P. Singh, former Chairman and Managing Director (CMD) of Power Grid Corporation, a Government of India Enterprise and India's largest electric transmission utility, was appointed to Azure Power's Board of Directors as an independent non-executive Director.

Dr. Singh is known for his contributions in the Indian power sector, particularly the establishment of the national power transmission grid and modern load dispatch centers. During his tenure as CMD of Power Grid, he was responsible for establishing several high profile projects, especially building a 2,100 km transmission system in 33 months with an investment of Rs. 33 billion, which was well ahead of schedule and under budget.

His expertise in grid management and recovery is widely recognised and he was invited by the US Department of Energy and Federal Energy Regulatory Commission (FERC) following the grid issues in the US Northeast in 2003. He was responsible for restoration and normalization of grid operation during natural calamities in India. He is the recipient of many national and international awards including from the World Bank, Electric Power Research Institute (EPRI, USA), and the SCOPE Excellence Award. He is a respected author and has published several books and was conferred with a Doctorate Degree in Science (Honoris Causa) from Banaras Hindu University.

SANDVIK MATERIALS TECHNOLOGY APPOINTS NEW PRESIDENT

Sandvik has appointed Göran Björkman as new President of business area Sandvik Materials Technology and member of the Sandvik Group Executive Management Team. He succeeds Petra Einarsson who is leaving the company for an external assignment. The change is effective as of 1 November 2017.

"Göran Björkman has with his extensive experience the right capabilities to lead Sandvik Materials Technology going forward. As we all know, this business area is experiencing a challenging situation. I am convinced that Göran Björkman will add the strategic, business oriented focus that the business area now requires," says Sandvik's CEO and President, Björn Rosengren.

Göran Björkman, age 51, has been with the company since 1990 of which almost 20 years at the materials technology operations. Currently he has the position as Vice President Production at Sandvik Coromant and Vice President Production Strategy, Sandvik Machining Solutions.

"I want to take the opportunity to express my gratitude to Petra Einarsson for her devoted contributions to Sandvik during almost 30 years and I wish her all the best in her new position as President and CEO for the packaging industry group BillerudKorsnäs," says Björn Rosengren.



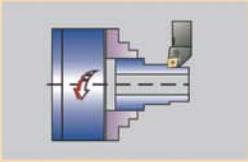
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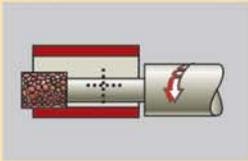


FIG-200 SPL CNC
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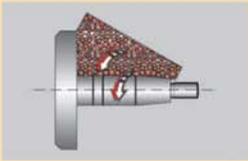


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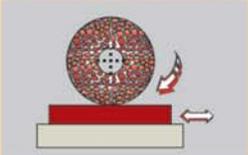


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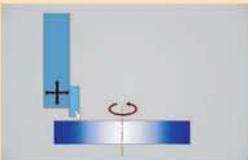


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Daimler invests in energy services company The Mobility House AG

Daimler AG has acquired a minority interest in energy services company The Mobility House AG (TMH). As Europe's leading provider of vehicle charging solutions and installation services and an operator of stationary battery storage units, The Mobility House spans a bridge between the automotive industry and the energy sector. With its strategic commitment Daimler is expanding existing cooperation activities with The Mobility House even further and is taking another important step forward in the implementation of "CASE" – in particular with regard to its new EQ product and technology brand, under which in future the company plans to focus its entire know-how in all aspects of electric mobility from Mercedes-Benz. EQ plans to offer a comprehensive electric mobility ecosystem comprising products, services, technologies and innovations. The spectrum ranges from electric vehicles and wallboxes to charging services and home energy storage units. The investment forms part of the latest round of financing entered into together with Japanese



trading company Mitsui, and as such supplements its investments in the energy sector.

A close business relationship has existed between Daimler and The Mobility House since as early as 2012. Since then, The Mobility House has been providing Mercedes-Benz electric vehicles and plug-in hybrid vehicles plus fleet operators a comprehensive service supporting the individual charging infrastructure. The two companies are also cooperating intensively in the field of stationary energy storage units and recently launched the world's largest 2nd-life battery storage unit to be connected to the grid as part of the joint venture Enbase Power GmbH.



Global auto giants form joint venture for High-Power Charging

BMW Group, Daimler AG, Ford Motor Company and the Volkswagen Group with Audi and Porsche today announced joint venture IONITY that will develop and implement a High-Power Charging (HPC) network for electric vehicles across Europe.

Launching approximately 400 HPC stations by 2020, IONITY will make long-distance journeys easier and marks an important step for electric vehicles. Based in Munich, Germany, the joint venture is led by Chief Executive Officer Michael Hajesch and Chief Operating Officer Marcus Groll, with a growing team, set to number 50 by the start of 2018.

"The first pan-European HPC network plays an essential role in establishing a market for electric vehicles. IONITY will deliver our common goal of providing customers with fast charging and digital payment capability, to facilitate long-distance travel," said Hajesch.

Magna forms joint venture in China

To expand its global electrified powertrain offerings and strengthen its local footprint in China, Magna has entered into a joint-venture agreement with Huayu Automotive Systems Co., Ltd., a subsidiary of SAIC Motor.



The JV will initially produce an electric-drive powertrain system for a German automaker. A signing ceremony was held today with executives from both JV partners. Magna designs and manufactures a portfolio of versatile and innovative products that bring power to the wheels of passenger cars and light trucks. For the initial customer order, the JV will leverage Magna's innovative, highly integrated e-drive system with a focus on the production of the system mainly for the Chinese market. Both partners will give the JV full support to develop localized core competencies in terms of market development, R&D, advanced manufacturing and key parts supply such as gearboxes, inverter components and e-motors, which are key to delivering advanced powertrain technologies and a stronger product portfolio to customers.

"The new-energy vehicle (NEV) market will continue to grow at a rapid speed in China. With this trend, SAIC Motor is developing the New Four Modernization strategy focusing on car electrification, connectivity, intelligence, and sharing economy," Chen Zhixin, President of SAIC Motor.



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Flash-charging connection technology

ABB has won a \$20 million order from Swiss bus manufacturer HESS to supply its flash-charging technology for 20 e-buses and related infrastructure for the French city of Nantes. The buses will be operated by public transport operator, Société d'Economie Mixte des Transports de l'Agglomération Nantaise (Semitan).

Batteries mounted on the roofs of the Nantes buses will be charged in 20 seconds with a 600-kilowatt boost of power at selected stops while passengers are embarking and disembarking. It takes less than one second to connect the bus to the charging point, making it the world's fastest flash-charging connection technology. A further 1 to 5 minutes charge at the terminus at the end of the line enables a full recharge of the batteries.

ABB's flash-charging technology and on-board traction equipment, which make the flash-charging possible, are part of its innovative TOSA (Trolleybus Optimisation Système Alimentation) solution, which is the world's leading technology



of its kind.

The fleet will run on the Busway Bus Rapid Transit (Line 4) route connecting the historic center of Nantes with municipalities on the southern side of the river Loire. The new bus system will increase passenger capacity by 35 percent enabling sustainable transport for about 2,500 commuters every hour. Since the route's inauguration in 2006, passenger numbers have increased, leading to overcrowded buses. The 24 meter long, fully electric buses from HESS will be the first of their kind in the world to be equipped with the flash-charging technology, enabling a higher passenger capacity, emission-free public transport and noise reduction. The buses are expected to be operational by the end of 2018.

ABB drives the expansion of e-mobility fast charging infrastructure



ABB has received another major order from energy supplier EnBW for the expansion of the fast charging stations network on German motorways. By the end of 2017, ABB will have delivered an additional 117 fast charging stations at the locations of service station operator Tank & Rast.

The latest generation of fast charging stations is connected to the Internet via a cloud solution, enabling cashless payments, among other things.

Last year, EnBW awarded an order to ABB for 68 such rapid-charging stations with a high-charging capacity of 50 kilowatts (kW). With this latest order, ABB is further expanding its market leading position in the charging infrastructure for electric mobility in Germany. In Europe and the US, ABB is already the market leader, with no other company having such a large installed base. "This latest major order demonstrates that ABB is also the preferred partner in the charging infrastructure sector for electric and hybrid vehicles in Germany," says ABB CEO Ulrich Spiesshofer.

JLR, Tata Motors European Technical Centre and WMG to build R&D Centre

The National Automotive Innovation Centre, at the University of Warwick, saw a construction milestone hit, with the completion of the external grounds. WMG's Professor Lord Bhattacharyya, Jaguar Land Rover's Professor Dr Ralf Speth and TMETC's John O'Connor, along with Leo Quinn, Balfour Beatty group chief executive, and Rosie Drinkwater, University of Warwick marked the milestone with a specially engraved stone.

The Centre, which will open in summer 2018, will become the driving force behind the future of UK's automotive sector. It will be the largest automotive R&D facility in Europe and is a long-term commitment between Jaguar Land Rover (JLR), Tata Motors European Technical Centre (TMETC) and WMG. A unique, state-of-the-art centre of excellence (COE) and innovation for the automotive centre, housing approximately 1,000 scientists, engineers, academics, technicians and support staff working on the automotive technology of the future, including: Electric Vehicles (including energy storage and e-drives), Carbon Reduction (including hybrids, light weighting and composites) and Smart and Connected Vehicles (on-vehicle competence, driver assist, and cyber security).

Professor Lord Bhattacharyya commented, "The National Automotive Innovation Centre will provide a critical mass of research and development capability combining automotive expertise nationally and internationally in ways that will turn Coventry into the UK's first smart motor city and will also significantly contribute to the delivery of the UK's national industrial strategy."



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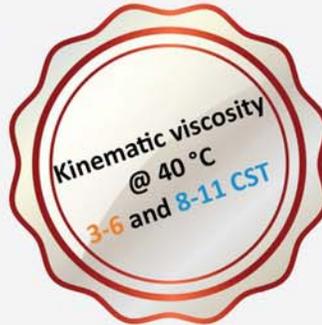


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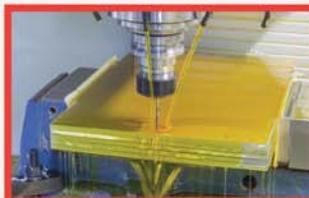
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Industry 4.0 – People as key players

The consideration being given to skill development is immense as the people factor is at the core of every industrial revolution.

By Dr. Andreas Wolf, Joint Managing Director, Bosch Limited

The fourth phase of the industrial revolution or Industry 4.0 is fundamentally changing the way a wide variety of industries are working. From procurement to distribution, through manufacturing and till the finished products, processes are being automated to be more efficient, lean, agile and with higher quality. It is indeed a revolution, since it has come very fast, is changing the entire industry and it is a global activity.

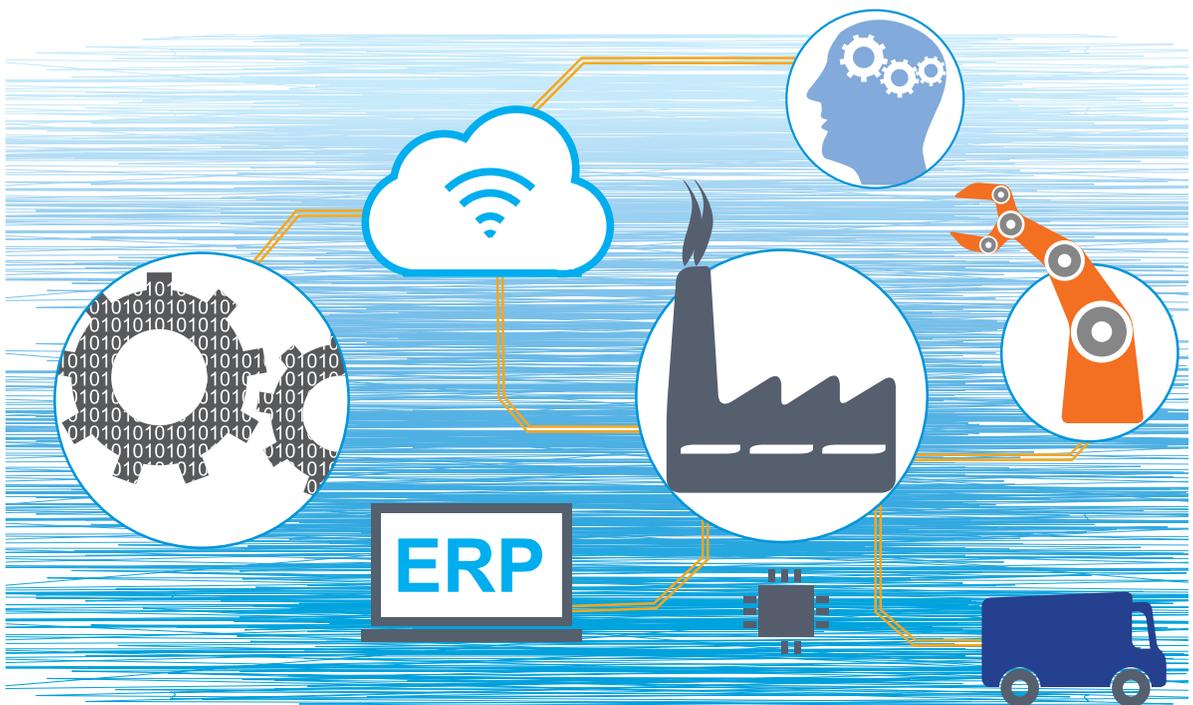
The first industrial revolution was the shift to new manufacturing processes and mechanization. Moving from hand tools to machines, mechanised textile production, and the rise of the factory system. The second industrial revolution, also known as the technological revolution, was a period of rapid industrialization with advancements in manufacturing and production technology. It came in the early 20th century, when Henry Ford mastered the moving assembly line. This ushered in an age of mass production. The third industrial revolution was the advent of the digitalisation and green electricity that resulted in laying out the basis for a sustainable

global economy.

The overtaking of people-centric roles by robotics, automation and intelligent sensors leads to faster and better ways of working, limited or no errors in production and highly durable systems that increase production output. This may seem like it leaves no room for individuals to participate in industrial activities anymore. Labour seems questionable in these circumstances. Some sources expect disruptive improvements in terms of quality, productivity and customer orientation; others are concerned with job losses, high costs for investments and data security.

Industry 4.0 – An invitation to be part of the future

Rather than just being driven by industries, Industry 4.0 is the transformation that consumers benefit from. It is the development of technology in manufacturing systems, increased intelligence of various components, and synchronisation of systems with rapid data transfer that defines this new era. Processes don't produce only components or products, but data too. By intelligent algorithms data is transformed into know-



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“Industry 4.0 is the development of technology in manufacturing systems, increased intelligence of various components, and synchronisation of systems with rapid data transfer that defines this new era.”

how and using available technology, it is used to influence and improve processes in real time.

One project initiated by Bosch, for example, a single inspection bench would check machines that carried out spark erosion of spray holes on nozzles. With the addition of intelligent sensors and RFID technology, real time analytical solutions were made available. It was now possible for the operator to closely examine the quality level of the nozzles. This real-time transparency increased efficiency and the risk of a defective part reaching the customer was reduced by predictive estimation. Industry 4.0 initiatives have not only yielded in cost saving but also quick decision support systems for people on the shop floor.

For the industry in India it is very important, that local solutions are affordable, easy to use and robust. Bosch India aims for a payback period of less than two years for such projects and is focusing on areas such as digitalisation of shop-floor management, usage of M2M connectivity, energy management, and implementation of manufacturing executing systems (MES). This will enable manufacturing to not only improve the productivity, but also create best practice solutions that can be used across diverse locations. For instance, the MES Pro Master implementation has enabled transparency among all Chassis systems plants in the international production network. At the Bosch Chakan plant this has led to an increase in OEE from 81.5 percent to 90.5 percent, thus solidifying its status as a benchmark for OEE productivity among other plants with manual lines.

But the key point is that – Before machines talk to machines, people should talk to people. While automation may deem some jobs redundant, it creates jobs of higher value where there is a need for highly skilled individuals with advanced problem-solving metrics. The anticipation of the transition of Industry 4.0 has pushed organisations and governments to skill or reskill individuals to equip them to function in a technologically advanced environment. The consideration being given to skill development is immense as the people factor is at the core of every industrial revolution. If industry uses the opportunity of Industry 4.0, it will definitely gain competitiveness, so that this promises even more jobs in the future, but these jobs will look differently. IT skills even for shopfloor operators and line managers are mandatory, but will not replace process know how.

The concern about the loss of jobs may not be as wide-

spread as previously thought. The truth is that as smart manufacturing and automation spreads further, new jobs that look nothing like previous ones might be born. This has been the case with every major industrial transition and the fourth industrial revolution will be no different. The associates need to be prepared for this change. To tackle this an intensive training program called the Industry4.0 academy has been launched in Bosch India. People thus will arise as key players in Industry 4.0 with advanced intelligence, multifaceted skill sets and higher flexibility.

The Industry 4.0 journey is a leadership task as well. Since most of the leaders/managers don't usually belong to the “digital native” community, like Gen Y or Gen Z, a clear focus has to be given to their training as well. Without basic understanding of cloud solutions, open source software etc. they will be neither convinced nor enabled to drive the digital transformation. That's why Bosch India has conducted the first I4.0-training exclusively for the senior leaders.

“While automation may deem some jobs redundant, it creates jobs of higher value where there is a need for highly skilled individuals with advanced problem-solving metrics.”

Another important task and challenge is developing I4.0 at the local supplier's base. Unlike other regions, the supplier's base in India is fragmented and does not always have the capacity and necessary competencies in terms of connected industry. The solution is to develop I4.0 maturity together with the business partners.

Standards are very beneficial for this, e.g. energy management standard solutions etc. These standards/solutions must be developed and adapted in a network, where the industry, IT teams and universities work together. This is another area for improvement, especially collaboration between universities and industry.

Last but not the least, a new working culture is required. Hierarchical leadership does not work in the connected world, since with IT and manufacturing two different worlds come together with different innovation cycles, different methods (SCRUM vs. Value stream) and revolution meeting evolution. People need to work in a matrix structure with new responsibilities and flexible working styles, promoting failure culture. In an agile, connected industry learning from failures is an asset and needs to be cultivated as a habit. This too requires a systematic approach.

Smart Automation, combined with connectivity, can lead to more transparency, real-time data analysis and continuous improvements results in quality and environmental performances. Organisations need to strike the right balance between the levels of automation and the degree of human interface. 



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Driving to the future

We have garnered valuable experience with Indian customers and conditions which gives us the confidence that EVs are definitely going to be the future of mobility, says Mahesh Babu, CEO – Mahindra Electric

By Niranjan Mudholkar

How does it feel to be in your position given the excitement and buzz around the electric vehicles segment both globally as well as in our country?

In 2010, propelled by a vision of an electric future for mobility, M&M invested in EVs. We are very happy that this belief is now being reinforced. The world is not just acknowledging, but also appreciating the need for all of us to switch to a greener form of mobility. Globally the last few years have been very encouraging for EVs. Last September in fact saw the highest ever sales of EVs across the world. Several countries, including India, have declared their intention to go all electric within the next two decades, and in line with this, multiple OEMs are now working aggressively on their EV plans.

Being positioned as the pioneer of EV industry in one of the world's fastest growing economies puts us right in the middle of all the excitement. You can feel the energy flow through our teams, the enthusiasm is almost contagious.

Over the last seven years, we have garnered valuable experience with Indian customers and conditions which gives us the confidence that EVs are definitely going to be the future

“With investments in new technologies, ecosystem development and economies of scale, EVs will achieve parity with conventional vehicles by 2025 and that is when the flood gates will really open.”

of mobility. In fact, recently our e2o and e2o-Plus customers together covered over 50 million electric kilometers, the first of its kind for the country. That's as good as going around the world over 1000 times.

Along with the experience, we have had the opportunity to work really closely with our customers. We follow a tight feedback loop which helps us create, test, learn and refine very quickly; and deliver products and solutions which best suit the situation. But this is just a beginning, India has now embarked on a journey that the world took on a few years ago. Being the pioneers of the Indian EV industry, what makes it even more special for us is that we are a part of a homegrown auto-giant, Mahindra & Mahindra. It reinforces our belief that Indian

EVs are here to make a mark in the global economy!

Do you see this excitement translating into sales numbers and revenue growth for the industry in general and Mahindra Electric in particular?

India as an economy is at very nascent stages as far as EVs are concerned. The total contribution of electric vehicles to total



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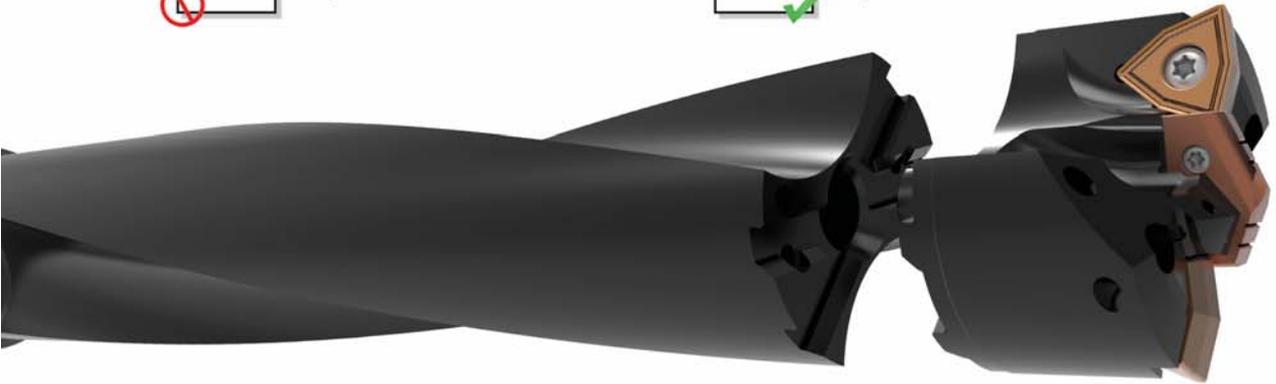
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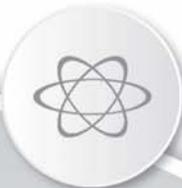
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vehicle sales, at the moment is a measly single digit. Within the EVs sold in India, the market is dominated by electric two wheelers. Having said that, the healthy signs of growth that the sector is showing, cannot be ignored. The CAGR of the industry (across all types of electric vehicles) is at ~58 percent, a very healthy indicator of growing adoption of EVs. The four-wheeler segment in particular has been our focus till now and has seen a CAGR of ~41 percent.

However, Government has put in place a very definitive target for electrification with the help of NITI Aayog to have 40 percent EV penetration by 2030. Government is also trying to roll out various incentives, which will help India move towards these targets. Mahindra is competitively placed to take advantage of this opportunity, given its first mover advantage in the industry.

We strongly feel that a substantial growth phase will come from the 2020 to 2025 time period. With investments in new technologies, ecosystem development and economies of scale, EVs will achieve parity with conventional vehicles by 2025 and that is when the flood gates will really open.

Q How do you see the market and the business growing in the next two years?

While two years is a very short time for the industry to show exponential changes, we at Mahindra Electric are hopeful that the current buzz in the market will work positively for Electric

“The most immediate impact of EVs can be in the last mile delivery and public mobility space. Both the segments have much higher running requirements than an individual alone, which makes EVs more economical and the business more viable.”

vehicles in general and particularly for us.

The most immediate impact of EVs can be in the last mile delivery and public mobility space. Both the segments have much higher running requirements than an individual alone, which makes EVs more economical and the business more viable. In general market the early adoption will come from fleet operators, who are also able to better utilise Electric vehicles, given the lower operating expenses involved. In the next two years the government will lead by example and a majority push for electric vehicle sales is going to come from Government tenders for two-wheelers, three wheelers, four wheelers and buses as part of procurement. The market will also experience an overall increment in the demand for EVs resulting from this.

Q When it comes to electric vehicles, the role of the OEM doesn't simply end with developing, manufacturing, selling and servicing the products. The OEMs also need to educate the customers and facilitate the development of the ecosystem. How are you going about it?

As pioneers and the only OEM in the EV space in India, our role spans beyond the mere development and production of EVs. We invest considerable time and energy towards educating customers. In addition to Test Drives, we undertake several other initiatives. For example, we organised an all-electric expedition from Kashmir to Kanyakumari to add to the visibility that EVs have in India. We also participate in several events,

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auto shows as well as technology based events, to showcase our EVs to the attendees. But I think the biggest contributor to awareness creation for us are our digital campaigns. Through digital advertising, interesting content marketing campaigns as well as our digital properties – websites, social handles etc., we reach out to the new age Indian urban audience.

We also appreciate the urgent need of EV ecosystem development in the country for EVs to make a real difference in our lives. And with this in mind, we ensure our active participation in all discussions on ecosystem development with all relevant stakeholders. It is heartening to see that the governments at the center as well as state level are also coming forward to develop pro-EV policies. We support these policies in the best way we can by working on developing technology based ecosystem solutions, for example the e2oPlus app, through which a customer can remotely control the charging of his/her car. Charging Infrastructure, is another very important piece of the jigsaw puzzle for EVs and is something we actively collaborate for with interested parties.

How good is the revised FAME scheme for encouraging manufacturers to take up EVs? What more is required from the Government in terms of policy reforms?

We are grateful to the government for introducing the FAME program in 2015 and giving the much needed support to bridge the current viability gap in terms of capital investments required for EVs and conventional vehicles. The program has been now extended to March 2017 and we are very happy about same.

Globally, similar incentive programs have been in place, even in countries where EV sales have been high. We believe this support is very encouraging for manufacturers and EV adopters and incentivizing EVs in India for at least 2-3 years more will prove to be very beneficial. We believe within this time period, technology development and economies of scale will make EVs at par with conventional vehicles, specifically in terms of cost.

Tell us about Mahindra Electric’s overall product portfolio as of now and the NPD pipeline for passenger vehicles.

“The CAGR of the industry (across all types of electric vehicles) is at ~58 percent, a very healthy indicator of growing adoption of EVs. The four-wheeler segment in particular has been our focus till now and has seen a CAGR of ~41 percent.”

Today we have a portfolio of four vehicles across different segments, launched with the idea of making it easy for everyone to adopt electric mobility. We have the e2oPlus, a four-door hatchback, perfect for the CitySmart commuter of today’s Indian urban cities. We also have the eVerito, an all-electric sedan which is currently getting a lot of interest from the fleet segment for executive movement. In the commercial segment we have the eSupro Cargo, aimed at solving last mile delivery in our cities and the eSupro passenger which caters to last mile transportation.

Recently, we also announced the roadmap to our future: EV 2.0. This is going to be the next phase of electric mobility in India. It is based on three broad pillars that we would be working on, and these will guide the way to the exponential growth in EV adoption. These three pillars are: Technology, New Products and Mobility Solutions.

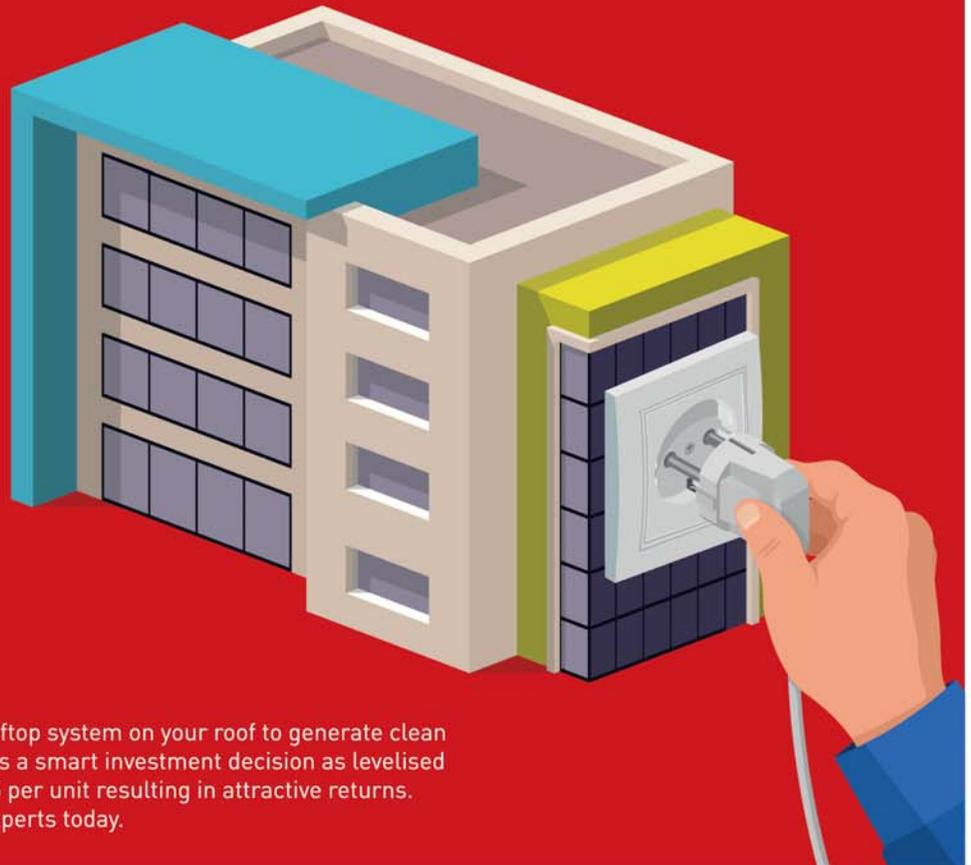
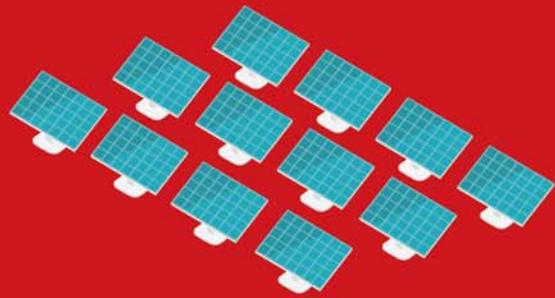
Under the first pillar of ‘Technology’, we at Mahindra Electric will work in-house as well as with third parties to develop the EV technology that India has today. This will include aspects like the drive train (150kW and higher efficiency of ~ 95 percent), battery (380 V – 650 V systems) and power electronics (improved charging times of less than 1 hour), all of which will be taken up a notch to help us deliver the next pillar of ‘New Products’. Under this pillar, we are looking to develop and launch products essentially to cover two broad segments – one of mass transportation and the other of high performance vehicles. So, one can expect the likes of electric three-wheeler or an eBus to address the mass mobility segment and some high performance ‘objects of desire’ to address the other segment. If we focus on the passenger segment alone, we will be first looking to electricity some of the existing products from the Mahindra stable and also work with different stakeholders to develop vehicles for the luxury segment. The third

Mahindra Electric product portfolio

EVs	E20Plus	eVerito	eSupro	eAlfa Mini
Type	Four door hatchback	Four door sedan	Mini-van (passenger)	ERickshaw
Seating Capacity	Four adults	5 seater	D+7 / 600 kgs	D + 4
Power	30 KW @ 3500 rpm	30.5kW (41 hp) @ 3500 rpm	25kW @ 3000RPM	1 kW Rated
Torque	91 Nm @ 2000 rpm	91 Nm @ 3000 rpm	90Nm @ 1500 RPM	32 Nm @ 300 rpm
Top Speed	85 kmph	85 kmph	60 kmph	23 kmph
Range	140 km in one full charge	110 km in one full charge	112 kms	80 km in one full charge
Battery	72V, 210 Ah (Lithium ion)	72 V, 200 Ah (Lithium ion)	72V, 200Ah (Lithium ion)	48 V, 120 Ah

Source: Mahindra Electric

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and last pillar of EV 2.0 is 'mobility solutions'. Our efforts will go beyond just developing products, but also towards connecting the different elements of our mobility system which currently operate independently. These will include elements like charging stations, traffic management system, vehicles, drivers etc. Through technology, we will put them on a single platform increasing efficiency and getting more & more people onto EVs.

Q Tell us about your foray to get into the electric commercial vehicles segment. By when can we see some action from Mahindra Electric in MHCVs and buses?

In line with the NITI Aayog proposal, Mahindra Electric already have an electric LCV in form of e-Supro (passenger as well as cargo) available in the market. We are also actively looking at entering the Electric Bus segment, for which we already have a suitable 9m bus platform for electrification, with our group company- MTBD, making the situation conducive for us. We are presently preparing to enter the market at an appropriate time.

Q What is your current production capacity at the Bengaluru plant and how much are you utilising it?

Our manufacturing facility at Bengaluru prides itself for its state of the art equipment and processes as well as for being one of the few IGBC certified manufacturing buildings in the country. The plant has been designed to have abundant natural lighting and ventilation to keep the energy requirements to a minimal. In addition, there is 100 percent LED lighting inside and plenty of energy requirements are fulfilled through solar energy harvesting from a 75kW solar park. The vehicles manufactured inside the plant require no paint for the body panels and use solar power as their first source of energy; making them truly 'born green' vehicles.

Currently, our set up in Bengaluru has a capacity of ~400 units per month and with the expansion activity already in swing, this will go to ~ 800 – 1000 per month. We are also preparing to expand our capacity to ~5000 a month, and this will be achieved in a few years. Our intention is to be prepared to scale up to the increase in demand which will come as a

result of government's bold support for EVs.

Q Does Mahindra Electric have an independent R&D facility or is it integrated with the Group's overall efforts?

Developing inhouse R&D capability for electric vehicles was one of the main objectives of the acquisition of the current EV business by Mahindra & Mahindra in 2010. As part of this objective continuous investments have been made in developing a state of the art R&D center which has manifested itself in the form of our Electric Vehicle Innovation Center in Bangalore. This center is solely for Electric Vehicle technologies and is one of its kind in India with dedicated test labs for EV powertrain components. We now also have inhouse capabilities for technologies like drivetrain systems, battery packaging, BMS, control systems like VCU & MCUs. In these facilities we are currently developing globally competitive powertrains which will go in the next line of Electric Vehicles from the Mahindra stable.

Q How are you leveraging on the Group's experience in the Formula E space?

Mahindra Electric and Mahindra Racing teams work closely with each other as the opportunities of cross learning and implementation are definitely plenty. The teams work towards improving the technology for the Race and bringing the right technologies from there to the Road. But apart from the technology, the biggest contribution that Mahindra's formula-e team is making is in the space of consumer education. Its exceptional performance in the recent races has proven that EVs are high performance vehicles and we have the know-how to bring that performance to the roads.

We are all very proud of our team's performance and hope that the winning streak continues in our favour.

Q Mahindra Electric's foray into the UK market did not go as planned. What are the learnings from that experience?

Given the focus that the Government of India has on electric vehicles, we are currently focusing more on India as a market. 





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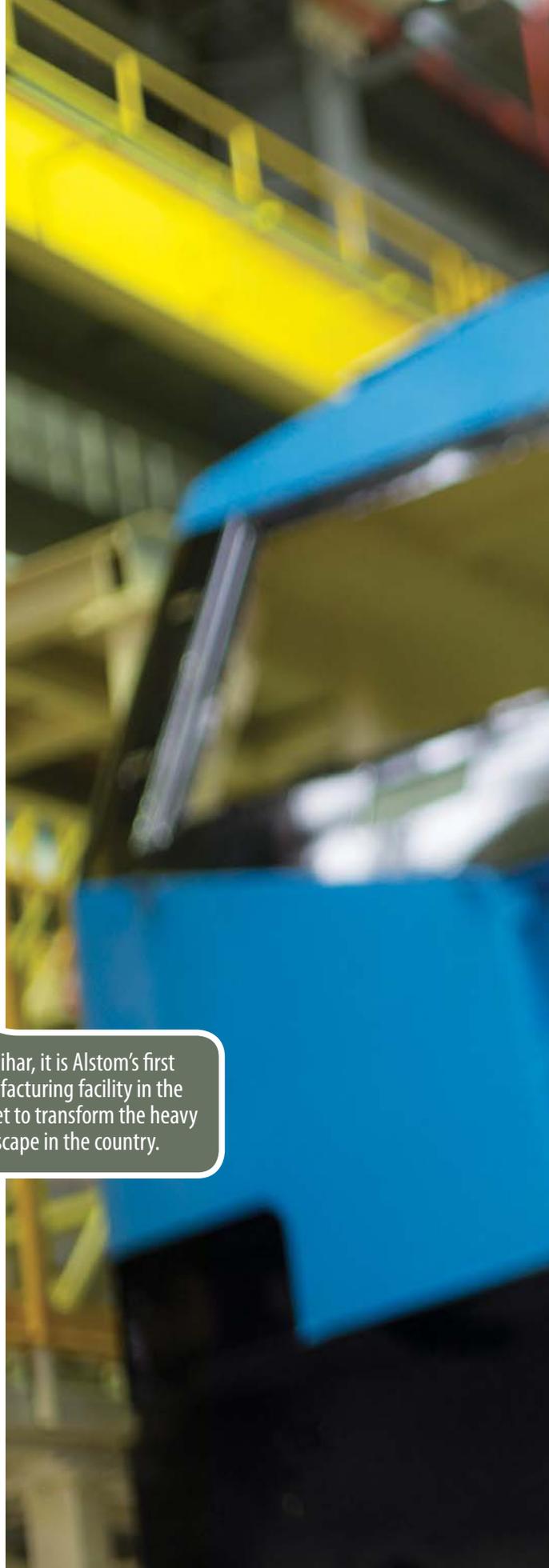
Jean-Francois Beaudoin, Senior Vice President, Alstom Asia Pacific says India's growth trajectory is set and various infrastructural projects will take the country to new heights. Alstom is helping India upgrade and modernise.

By **Swati Deshpande**

As India is on its mission of making its cities smart, there has been immense emphasis on infrastructural development. Railways modernisation plans and metro rail construction in multiple cities has created excitement. One of the companies that is helping India in achieving its dream of Smart Cities is Alstom. The company is led by Jean-Francois Beaudoin, Senior Vice President, Alstom Asia Pacific, who believes that the Indian market is extremely fecund in terms of investment right now. "The urban metro rail segment provides a vibrant space for all domestic and global companies since several metro rail projects are on the anvil. For instance, Mumbai Metro and Delhi metro will be expanded. Meanwhile, metro projects in several other cities such as Kozhikode, Guwahati, Pune, Varanasi, Trivandrum, Agra, Indore, Bhopal and Surat are being planned. The sector is poised to grow further with major technological innovations like intelligent signalling and lighter trains with better propulsion systems. As a leader in transport solutions, Alstom is well poised to tap opportunities both in urban and mainline space," Beaudoin continues.

Elaborating on various projects that Alstom is undertaking in the country, he mentions, "At present, the company is executing metro projects in several Indian cities including Chen-

Located at Madhepura Bihar, it is Alstom's first electric locomotive manufacturing facility in the country. With this we are set to transform the heavy freight transport landscape in the country.







nai, Kochi and Lucknow, where it is supplying Rolling Stock. In the Mainline space, Alstom is executing signalling and power supply systems for the 343 km section on The World Bank funded Eastern Dedicated Freight Corridor.”

In order to deliver these

projects the company has three manufacturing facilities across the country. “The Bangalore facility houses Alstom Digital Mobility, Signalling and Rolling Stock Engineering Centre. The company also has Rolling stock manufacturing unit at Sri City facility, Andhra Pradesh. It has capacity of 300 cars per year. Rolling Stock for Chennai, Kochi and Lucknow are being supplied from this facility. The manufacturing unit for Track Circuits & Traction Equipment is located at Coimbatore, Tamil Nadu,” he informs.

Alstom’s manufacturing facilities in India

Bangalore, Karnataka: Alstom Digital Mobility, Signalling and Rolling Stock Engineering Centre

Sri City, Andhra Pradesh: Rolling stock manufacturing unit at - Capacity – 300 cars per year

Coimbatore, Tamil Nadu: Manufacturing Site for Track Circuits and Traction Equipment

Madhepura, Bihar – in JV with Indian Railways; to manufacture 800 e-locos

Alstom is also working towards building the overall ecosystem to develop the indigenous capability with integration of design, prototype, testing, manufacturing, maintenance and services, thus, making India self-reliant in the engineering technology space

We are also working towards building the overall ecosystem to develop the indigenous capability with integration of design, prototype, testing, manufacturing, maintenance and services, thus, making India self-reliant in the engineering technology space.

Feather in the cap

In addition to these various cities, Alstom is closely working with Indian Railways to modernise its fleet and systems. The company recently commenced production at its greenfield electric locomotive manufacturing facility. This

facility has been opened in joint venture with Indian Railways. “Located at Madhepura Bihar, it is Alstom’s first electric locomotive manufacturing facility in the country. With this we are set to transform the heavy freight transport landscape in the country. The Prima T8 (WAG12) locomotive, which will be produced in this new factory, is part of Alstom’s Prima range of locomotives and has been specially adapted for Indian network. The first two car body shells have already arrived at Madhepura and will be soon fitted and assembled at the plant. The first locomotive will be ready for roll-out early next year. Further we look at delivering the first five locomotives by 2019 followed by 35 locomotives by 2020, 60 in 2021, and by 100 every year till the target of 800 is completed,” he asserts.

Elaborating further on the project, he explains, “As mentioned, we will be supplying Indian Railways with 800 double section freight electric locomotives with associated long-term maintenance, which will be a big step towards infrastructure modernisation and upgrade. This project is the largest FDI that Indian Railways has ever entered into and includes the set-up of a plant at and two maintenance depots at Saharanpur, Uttar Pradesh and Nagpur, Maharashtra.”

Beaudoin, who is personally proud of this project, further adds, “We are also working towards building the overall ecosystem to develop the indigenous capability with integration of design, prototype, testing, manufacturing, maintenance

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For Alstom, India is the second largest hub for innovation and manufacturing with three production facilities and 3,000 employees. Growth plans here include aiding in upgradation and modernisation of Indian Railways, freight, and so on.

and services, thus, making India self-reliant in the engineering technology space. We take great pride in our work and every project that Alstom has executed in India is done exceptionally well. Of note right now will be the Madhepura e-loco project. It is the first order of its kind. Our joint venture with Indian Railways has to be a strong statement on the benefits of public-private partnerships and will benefit sustainable freight movement immensely. Added to this is a chance for Alstom Foundation to contribute towards the social and economic needs of the people of Madhepura – an area that is wanting in terms of educational opportunities and healthcare. This project is the very showcase of all of our objectives – safety, sustainability, localisation, efficiency and commitment in our products.”

Besides JV with Indian Railways, yet another project that adds feather in the cap is Dedicated Freight Corridor. “Our work on Dedicated Freight Corridor, under the aegis of the World Bank is another project we are proud to be associated with. This corridor will decrease traffic in the mainline network and increase speed and efficiency of freight movement,” he continues.

Making it in India

Highlighting on the company’s contributions towards Make in India, Beaudoin states, “Our Kochi, Bangalore, Chennai and Lucknow metro projects were all executed out of our Sri City plant and our engineering centre in Bangalore. The Kochi Metro project was in fact the first example of a 100 per cent made in India metro project where we executed end-to-end solutions ahead of schedule - power, tracks, signalling, rolling stock, etc. The Madhepura project again is another testament towards Make in India attributed not just because of the manufacturing, localisation and skilling but also our social upliftment work there.”

He appreciated the Government of India’s initiative by saying, “The Make in India programme encourages and incentivises multinationals as well as domestic companies to manufacture their products within the country. Further, the Department of Industrial Policy and Procurement has rightly released the public procurement guidelines, which provide

for mandatory procurement of locally manufactured goods and locally provided services with a price preference clause to incentivise domestic manufacturing.

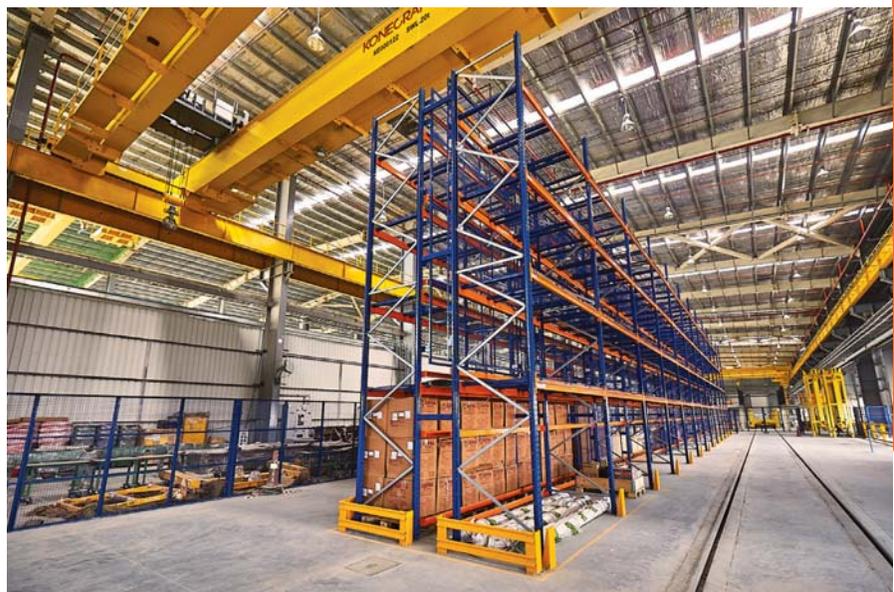
In these circumstances, India is an important market for the company. Speaking on it, Beaudoin informs, “Alstom identifies India as one of the fastest growing markets that offers immense opportunities in urban transport with the government’s push towards modernisation of infrastructure and making cities smarter and efficient. For Alstom, India is our second largest hub for innovation and manufacturing with three production facilities and 3,000 employees across its offices in the country. Our growth plans here include aiding in upgradation and modernisation of Indian Railways, freight, focus on the urban mobility solutions for the future, ease of doing business and building India as a global powerhouse for the business. In addition to this, our key focus area will be to align with government’s long term plans in the urban infrastructure sector.”

While elaborating further, he projects that over the next five years, the Indian government will modernise and expand the country’s huge but ageing rail network with investments of \$137bn.

According to Beaudoin, in five years passenger capacity will increase to 30m a day. “Also, track length will increase

Beaudoin projects that over the next five years, the Indian government will modernise and expand the country’s huge but ageing rail network with investments of \$137bn. Also in five years

- Passenger capacity will increase to 30m a day
- Track length will increase by a fifth to 138,000km
- Freight capacity will have to be raised by half to 1.5bn tonnes a year
- Corridors could be increased from 110-130kph to 160-200kph or higher (if High speed rails are successfully introduced) allowing inter-city travel to be lightning fast



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Alstom's first electric locomotive manufacturing facility in Madhepura, Bihar

by a fifth to 138,000 km and freight capacity will have to be raised by half to 1.5bn tonnes a year in this period. Also, corridors could be increased from 110-130kph to 160-200kph or higher (if High speed rails are successfully introduced) allowing inter-city travel to be lightning fast," he projects. "These are all opportunities for Alstom in terms of business growth and innovation. Several initiatives of Ministry of Railways, notably focus on signalling upgradation, upgradation of rolling stock and electrification are likely to have a positive impact for Alstom," he asserts.

While in the conversation, Beaudoin also touched upon business environment in the country. "The economic reform – GST is projected to have a positive impact on the business growth. It will help simplify and clean up some of the outdated taxation policies, giving businesses a fillip and most importantly, transform India into a single market. Businesses aligned to these programmes will find greater value in the Indian business landscape."

This right business sentiment culminates into Alstom recognising India as a leading center for APAC projects and as a design and manufacturing centre to projects worldwide. "As we scale up rapidly in the country, we plan to reach 1 million engineering hours in India by 2020 by introducing state-of-the-art technology and best engineering practices," he reveals.

The Kochi Metro project was the first example of a 100 percent made in India metro project where we executed end-to-end solutions ahead of schedule - power, tracks, signalling, rolling stock, etc.

Continuing further, he says, "As for the APAC market, I think we will see rapid innovation and development to keep up with the growing economic development in this region. We at Alstom will dedicatedly innovate to

provide solutions to solve mobility problems tailor-made to the challenges and specific needs of each area. To give you an example, our tram-bus APTIS will be undergoing a trial run in Singapore soon after having won support in Paris. This is a solution that is sustainable, clean and solves the mobility problems of the area."

In order to serve its customers better, Alstom and Siemens have recently joined hands. Speaking on the benefits that would be passed on to global markets, Beaudoin concludes by saying, "The combination of Alstom and Siemens's Mobility Business in the transport industry will result in a global entity with strong positions in all market segments. Both businesses have strong geographic complementarity worldwide in industrial footprint and customer base in each region. This deal strengthens financial capacity to boost innovation and propose best-in-class digital mobility solutions to increase differentiation vis-a-vis all competitors. Large scale standardisation and mutualisation of best practices to offer more competitive solutions to customers will be our primary focus across regions." 



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Bombardier completes delivery of metro trains for Kuala Lumpur

Bombardier Transportation and Malaysian partner HARTASUMA SDN BHD have completed the final train handover in the 2012 contract to deliver 14 new, driverless BOMBARDIER INNOVIA Metro 300 trains for Kuala Lumpur. The lightweight, aluminium four-car trains, delivered to Prasarana Malaysia Berhad, have been increasing capacity on the Kelana Jaya Light Rail Transit Line in Kuala Lumpur since the first vehicles began service in December 2016.

“Bombardier has been present in and delivering sustainable rail transit solutions to our well-established ecosystem in Malaysia for 25 years, reflecting the strength of our technology and expertise.” said Jayaram Naidu, Head of South East Asia,



Bombardier Transportation. He added, “We are very proud that our latest, additional INNOVIA trains are contributing to increasing urban connectivity across the greater Kuala Lumpur area, estimated to grow to ten million residents by 2020. This is also a further milestone in this important market for Bombardier, in which 374 cars have been ordered making it one of the largest INNOVIA fleets in the in the world.”

GE Transportation marks the arrival of first of 1,000 locomotives in India at Mundra Port



GE Transportation recently took another important step forward in its partnership with Indian Railways when the first of 1,000 diesel-electric Evolution series locomotives arrived at India’s Mundra Port. This will be the first ever diesel-electric locomotive running on Indian tracks that complies with the International standard on emissions known as UIC1. The locomotive was designed at the John F Welch Technology Center in Bangalore. It is the first of 40 locomotives that has been imported to India from the U.S. The remaining 960 will be built at GE’s Brilliant Factory, which is being constructed at Marhowra in Bihar, and will open in 2018. The Brilliant Factory marries lean principles with additive manufacturing and software analytics for the most efficient production. The partnership will also provide technical training and employment opportunities for the local community in Bihar. The milestone is the result of a \$2.5 billion agreement for 1,000 diesel-electric locomotives, signed in 2015 as part of the Government of India’s Public Private Partnership program to modernise the country’s rail infrastructure. This agreement remains one of the most promising infrastructure projects in the country and underscores the importance of the government’s ‘Make in India’ initiative.

“Our partnership with Indian Railways is a best-in-class bilateral example of how entities can work together to create jobs and drive economic development in a region,” said Vishal Wanchoo, President & CEO, GE South Asia. “Through this project, we’re creating a robust supply chain ecosystem in India, and will localize more than 70 percent of all content. We’re proud of the more than 6,000 jobs, that have been created by GE in Bihar and Uttar Pradesh, and remain committed to our work in the country.”

GE Transportation is building two locomotive models for Indian Railways.

Hyperloop One rebranded as Virgin Hyperloop One

Virgin Group has invested in the Hyperloop One to form a global strategic partnership. With this partnership, Richard Branson joined the board of directors and Hyperloop One will rebrand itself as Virgin Hyperloop One in the coming months.

“For more than 20 years, Richard and Virgin have been at the forefront of transportation innovation, and a partnership with them feels like a natural fit,” said Shervin Pishevar, co-founder and Executive Chairman of Hyperloop One. “Virgin is an iconic brand and having Richard as an ally will help strengthen our mission to spread Hyperloop One throughout the world. Josh and I could not think of a better person or brand to be our true partner in our continued quest to make our moonshot idea a reality. Onwards.”

“After visiting Hyperloop One’s test site in Nevada and meeting its leadership team this past summer, I am convinced this groundbreaking technology will change transportation as we know it and dramatically cut journey times,” said Richard Branson, founder of the Virgin Group. “Virgin has been known for investing in and creating innovative companies over the years, and I look forward to making history together as we bring Hyperloop to the world as Virgin Hyperloop One.”

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Alstom commences production at India's first electric locomotive manufacturing facility

Alstom recently successfully commenced production at its greenfield electric locomotive manufacturing facility in India. Located at Madhepura, in the state of Bihar, it is Alstom's first electric locomotive manufacturing facility in the country, set to transform the heavy freight transport landscape in the country. Commencing production on schedule, the construction of the plant is a remarkable achievement in the construction of greenfield facilities in the country. The Prima T8 (WAG12) locomotive, which will be produced in this new factory, is part of Alstom's Prima range of locomotives and has been specially adapted for Indian network. The first two car body shells have already arrived at Madhepura and will be soon fitted and assembled at the plant. The first locomotive will be ready for roll-out early next year. The first 5 locomotives by 2019 followed by 35 locomotives by 2020, 60 in 2021, and by 100 every year till the target of 800 is completed. A true embodiment of government's 'Make in India' vision and built to the highest standards of quality and safety, this facility is part of a joint venture between Alstom (74 percent) and Indian Railways (26 percent). Spread across 250 acres, it



currently employs 70 people, with plans to ramp it up at a rate of 25 percent every year till it reaches full capacity. The facility also aims to employ local youth, basis the required skill sets, to support socio-economic development of Madhepura.

Commenting on this feat, Jean-Francois Beaudoin, Senior Vice President Asia Pacific at Alstom said, "The E-loco project is one of the most prestigious projects for Alstom worldwide and this feat, therefore, is a commendable achievement for the entire company."

Siemens makes investment in Wi-Tronix

Siemens and Wi-Tronix, headquartered in Bolingbrook near Chicago, U.S. are launching a partnership to expand digital predictive maintenance for rail services. Through the integration of their technologies, and joint development of new innovations, the companies seek to move the industry toward the objective of one hundred-percent availability of safe, efficient service. Siemens has made a significant equity investment in Wi-Tronix. Both companies have agreed to maintain confidentiality regarding financial details of the deal.

Wi-Tronix is a provider of remote monitoring, video analysis and predictive diagnostic systems for rolling stock and rail infrastructure, making critical data available to operators in real time through its Software as a Service (SaaS) solution. Worldwide, approximately 12,000 locomotives – primarily in the U.S., Canada, Mexico, and Australia – are equipped with Wi-Tronix technology and connected with SaaS-based solutions. Among them are the 70 electric Siemens ACS-64 locomotives operated by Amtrak, the American passenger service corporation.

"Wi-Tronix is a leading innovator in real-time monitoring for rail," explained Johannes Emmelheinz, CEO of Customer Services at Siemens Mobility Division, "The company has profound expertise in key technologies such as video analysis, providing unique information for both real-time and predictive applications. Partnering with developers of exceptional technologies is a key part of our strategy to deliver expansive digital services for predictive maintenance."

"We were very deliberate in seeking the ideal partner to work with," stated Larry Jordan, President and Chief Technology Officer (CTO) of Wi-Tronix, "Siemens shares our commitment to improving the world by making the transportation of people and goods safer, more reliable, and more efficient. This requires rail operators to have access to critical data which supports both real-time decisions and predictive maintenance. With their global reach and resources, we will accelerate development of our products and expand our footprint to serve customers across platforms around the world."

ABB to expand traction transformer business

ABB has announced a strategic realignment of its global transformer manufacturing, engineering and service footprint. In Asia, Middle East and Africa, to serve growing market needs and enhance customer proximity, ABB will expand its traction transformer operations in India, supporting the government's 'Make in India' initiative. The company plans to invest in upgrading Datong traction transformer facility in China. "This is a testimony to ABB's long term commitment to the Indian market with continued investment and contribution to the Make In India program. With our traction transformers made in Vadodara, we have provided best in class technology for the modernisation of the Indian transportation sector," said Sanjeev Sharma, MD, ABB India. "Our 1000th traction transformer went to the Lucknow metro project while the 800 new electric freight locomotives for India Railways will also be fitted with ABB's compact traction transformers supporting modernisation and economic development," he added.



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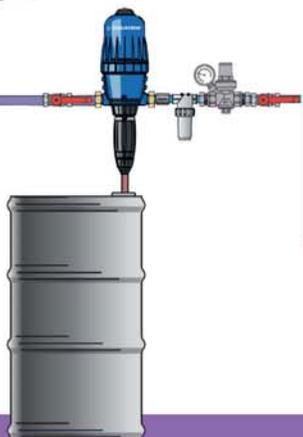
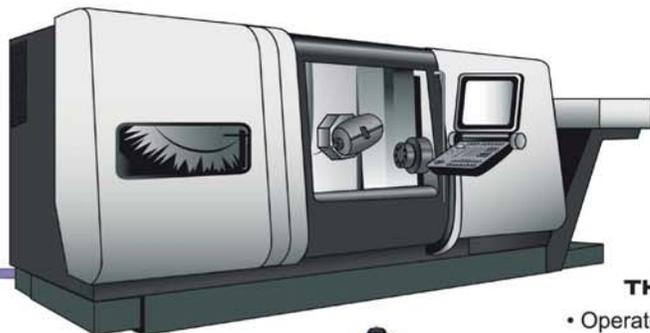
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On the top!

India, being the largest two-wheeler market in the world, offers a huge opportunity not just to helmets manufacturers but also to the manufacturers of two-wheeler accessories, says **Rajeev Kapur, MD, Steelbird Helmets**

By **Niranjan Mudholkar**

Q What is the current market size for the helmet industry in India? What is your market share?

With 1.5 lakh people dying on Indian roads in 2015, motor safety is top priority for the government. With two-wheelers accounting for a bulk of the road accidents, the use of helmets is crucial to improving safety standards.

India, being the largest two-wheeler market, in the world offers a huge opportunity not just to helmets manufacturers but equally to manufacturers of two-wheeler accessories. Over 15 million fresh two-wheelers added to the roads every year make it a huge untapped industry. As per estimates, and if we go with the regulations, 100 million helmets are required every year making it a 100 million industry.

However, it's a pity that 90 per cent of the market is still unorganised. And if you talk about the branded products there are only three companies in India i.e. Steelbird, Studds and Mega. An unbranded helmet is sold for mere Rs.100 with an ISI mark so these manufacturers are playing havoc with people's lives. The second factor which is affecting the industry is that helmet is not mandatory in all states. It is just a few cities like Mumbai, Delhi, Jaipur, Chandigarh where it is mandatory to wear helmet while riding on road. If it becomes mandatory for all then it's a huge untapped industry.

We at Steelbird Group are also geared up to capitalise on this massive opportunity. In the last five years, we have almost

tripled our production and today Steelbird is equipped to produce 21,000 helmets a day across our multiple manufacturing facilities. Steelbird holds more than 30 percent market share in the top segments.

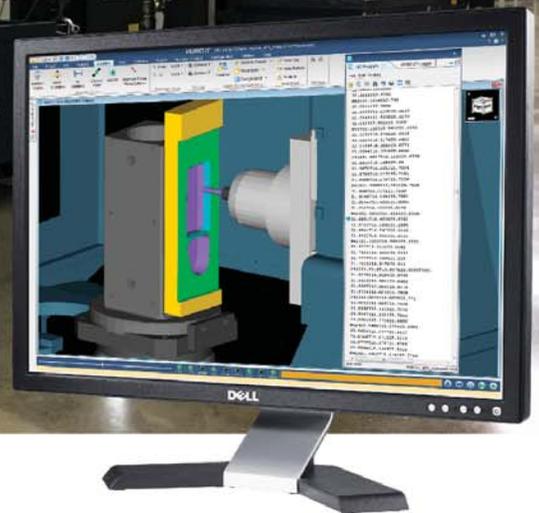
Q What kind of policy reforms are required to make this industry grow faster?

The Government of India has to emphasise a lot on safety and wearing helmets has to be made mandatory in all parts of India. It has not been enforced strictly. There are only few cities in India today, where it is strictly enforced – Mumbai, New Delhi, Jaipur and Chandigarh. It is mandatory for other states and cities too, but enforcing the same is not that effective. When things are not mandatory, we cannot expect people to fall in line. If it is made mandatory and strictly enforced, then it will take this industry to a different level.

For instance, wearing seat belt is mandatory in all metro cities, the same way it has to be enforced that helmet wearing is obligatory. A lot education drive is required on how it is helpful for one to use a branded good quality helmet.

Q You are setting up a 1.25 lakh square meter state of the art plant in Bhiwadi. What is the investment in this plant and what products will you manufacturing here? By when will it be operational?

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“In the last five years, we had almost tripled our production and today Steelbird is equipped to produce 21,000 helmets a day across our multiple manufacturing facilities.”

Steelbird has its own design centre in Italy and a state-of-the-art R&D centre in Baddi (Himachal Pradesh). We already have three helmet plants in Himanchal, and four manufacturing plants in Noida. Now we are planning to setup a biggest plant for helmet which can produce 60,000 helmets a day in Rajasthan.

The total investment will be Rs250 crore. We are producing helmet only because in India the demand of helmet will be incredible in future because government will be making helmets mandatory step by step not today but tomorrow. So, we must be ready for that for coming future. It will be operational by 2021.

Q How has been the overall market for you in terms of business in the current fiscal? How would you compare the performance vis-à-vis the last year?

For us the market has been fantastic. Surely, we had a lot of challenges because our competition at present is not with branded; it is with the sub-standard helmets.

There are about 2000 types of helmets selling in India. Out of which more than 200 are ISI marked. Have you ever bought an ISI marked item and found its quality substandard? If yes, then chances are that the ISI mark itself is forged! It is

necessary to check that the helmet which you are buying from roadside vendors with ISI Mark is whether authentic or not.

Helmet companies which are selling fake helmet are our direct competition at the moment. We are approaching government to bring helmet in a mandatory list and making efforts so that these fake ISI helmet production companies get banned. Here, consumer awareness is very important. Awareness level about the misuse of ISI mark must be taken on a higher level. Several awareness campaigns have been undertaken, but such misuse has fooled many customers. Because of the stated reasons, from last year we have grown about 30 percent.

Q How has GST implementation impacted your business?

GST has not affected our business because we have never done a black business. Our company is always doing white business. Our dealers, distributors and retailers are all used to work with us on books. So, GST has not affected our business; it has grown our business because we are a transparent company. I think it has been worked out very well. The whole procedure and rates have been worked out in a manner that has added value to the economy.

Q How do you intend to close the year in terms of business performance?

With a growth of 30 percent to 40 percent.

Q What kind of growth targets are you looking for the next two years?

Seeing the humongous market demand and our growth potential, I feel we will grow at the pace of 50 percent every year.

Q Steelbird is today Asia’s largest Helmet manufacturer. How satisfied are you with this status?

In a timespan of more than five decades, Steelbird has marked its formidable presence through all its entrepreneurial endeavours. Brilliantly executed strategy and dedicated team of employees have transformed an ordinary company into business extraordinaire. From square one to being number one, what set Steelbird distinct from its counterparts are its unique efforts to put Helmets, quality, innovation, technology and branding together. With many more milestones yet to achieve, Steelbird has taken a giant leap forward to be recognized as dominant player in business arena.

Any helmet shop today cannot survive without Steelbird Helmets. Being the oldest quality brand in the market, it’s the first choice and I think it has been a more than satisfactory performance of the brand. But we still have many miles to go!

Q What’s your next ambition as an entrepreneur?

Steelbird is already producing more than 3000 articles. We are producing side boxes for motorcycles; crash guards for scooters and motorcycles, and are supplying to top notch brands



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like Hero, Honda, Yamaha and so on. We are producing seat covers, all riding gears like jacket, gloves, pants, and shoe covers. We are producing engineering products for the complete helmet industry around the world.

Besides, designing helmets, I have a passion for off-Roading and music which has resulted in genesis of Steelbird Entertainment and Steelbird Motorsports. So, would like to take my new ventures to the next level. We launch new talented artists under this project and make video albums in our own recording studio.

Next, in pipeline is my dream project that is Moto Ziel, which will soon be inaugurated in Gurgaon. Spreadover 18000 sq feet, this showroom will host all top international brands of bike accessories.

“GST has not affected our business. It has grown our business because we are a transparent company. I think it has been worked out very well. The whole procedure and rates have been worked out in a manner that has added value to the economy.”

Q Starting an entrepreneurial journey is never easy. And when it involves manufacturing then it becomes all the more difficult. What message would you like to share with our young readers who are looking to start-up on their own?

Keep an eye on the market. If you have a good idea, it is reasonable to assume someone else out there also thought of it as well. Ignoring the competition is a big mistake.

Believe in yourselves – if you are following some recipe that you found in some ‘how-to’ book, you are probably on the wrong path. If you truly believe in what you are doing, and you have done your homework, you stand a much better chance of succeeding. There will be no shortages of ‘nay-sayers’ along the way who will tell you why your idea has already been tried and failed. It is difficult, but not impossible to conduct a business!

Q What do you think about the Government’s initiatives like ‘Make in India’, ‘Skill India’, ‘Start Up India’, and ‘Digital India’? Do you see such campaigns helping the industry at the ground level?

I would like to state a lot of things on this particular topic. I

appreciate the government’s initiative but whatever initiatives the government implements, it must think that there is 1.3 billion populations and India cannot survive on service industry. No large country can become rich without manufacturing the goods that are consumed or demanded by its people. Most services — especially the basic, low technology and low value-added services — will anyway be produced within the country. A country will move up the ladder of prosperity if it can manufacture the goods and produce the services required by its people and also export a considerable part of those goods and services.

First and foremost, Government has to develop the industrial hub. Government should help with free land, electricity. It is here we face the hurdle of ‘factor costs’. Land, labour, electricity, technology, transport, cost of capital, cost of borrowing, and many others are factor costs. Unless some or all factor costs are favourable, no one will embark upon manufacturing.

Second, the govt should ban NAREGA. You are giving money to the people who are sitting at home. Then why people will work. They will never work because they are getting the money without doing anything.

Then Govt should change the Labour and employment laws. Indian Labour laws are strangling growth. Today you cannot fire any labourer. No business wants to fire workers, but businesses are dynamic and need to be flexible when cycles are not favourable. It genuinely suffocates the business. India hasn’t realised its full growth potential and the labour laws are among the biggest hindrances. There is a need of revamping labour laws and making it on contractual basis like in China. Encouraging urbanisation could add as many as 110 million jobs over the next 10 years.

So, it is very important that government should encourage and motivate businesses. In my opinion, only an industrialist or manufacturer can help making ‘Make in India’ a great success. Understanding and support is what all is required! 



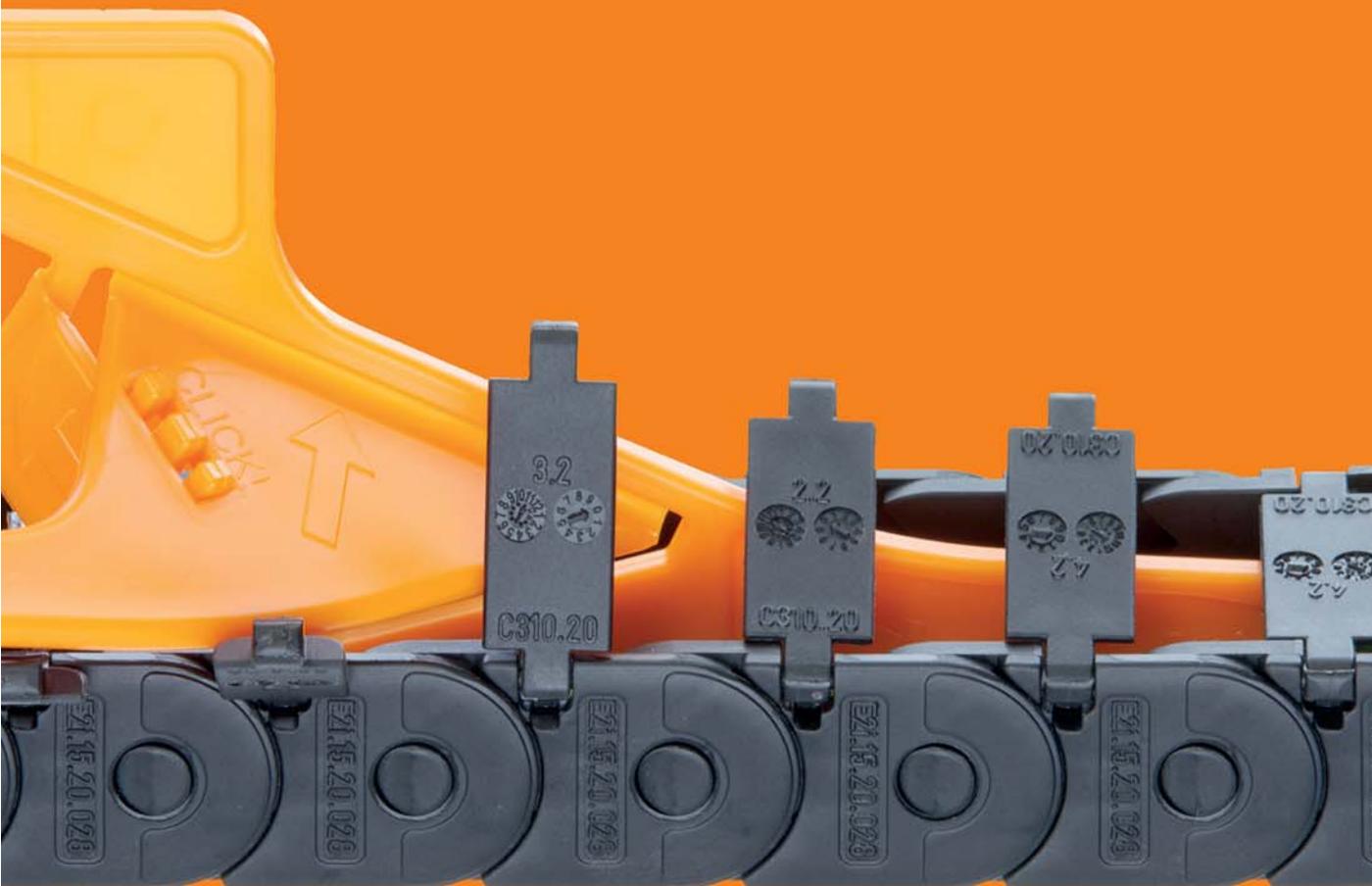
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The industry reacts to 'India's quantum leap in the 'Ease of Doing Business' ranking



HISTORIC JUMP

This historic jump in 'Ease of Doing Business' rankings is the outcome of the all-round and multi-sectoral reform push of Team India. Easier business environment is leading to historic opportunities for our entrepreneurs, particularly MSME sector and bringing more prosperity.

Over the last three years we have seen a spirit of positive competition among states towards making business easier. This has been beneficial.

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Guided by the Mantra of 'Reform, Perform & Transform' we are determined to further improve our rankings and scale greater economic growth."

■ **Narendra Modi**, *Prime Minister of India*

MORALE BOOSTER

"It is commendable that the latest World Bank's Doing Business 2018 report ranked India at 100th position - an improvement from the earlier 130th rank. India also finds itself in the World Bank's list of the top ten most improved countries which should serve as a much-needed morale booster – both for the government and industry. The report finds wide acceptance in the business community – both in India and internationally. Many prospective investors consult the rankings since it is seen as a cross-border barometer for doing business. The recent reforms and legislative interventions have shown excellent results but it is essential to continue and accelerate the transformative changes by taking every effort towards further easing business processes. Ease of doing business is especially critical for the MSME segment which forms the majority of the industry nationwide. These MSME businesses are also vendors and suppliers to larger corporates and therefore their success is the backbone for India's economic resurgence."



■ **Anil Verma**, *Executive Director & President, Godrej & Boyce*



MAKING INDIA A PREFERRED BUSINESS DESTINATION

"This quantum leap in the ease of business index will make India a preferred business destination not merely because of the mammoth market size but also because of simplification of taxation regime, rationalisation of rules and procedures and improved transparency. These measures introduced by the government across sectors in general and Railways in particular will ensure optimised delivery and last mile connect without compromise while sealing our path towards unprecedented economic growth."

■ **Bharat Salhotra**, *Vice President, Sales & Business Development, Alstom APAC*

RESULT OF STRUCTURAL REFORMS

The Centre government has proactively addressed and implemented structural reforms; GST, insolvency and the Bankruptcy code are certainly game changers, open up many sectors for investments. This has encouraged overseas funds to peak levels for overseas funds, in the past three years.

■ **Shobana Kamineni**, *President, CII*



THIS IS INDIA’S DECADE

“The robust rise in India’s rankings from 130 to 100 is phenomenal. Game changing reforms by the Government are finally bearing fruit, making India one of the most compelling investment destinations globally. The Government has introduced comprehensive measures to simplify and broaden the tax net, enhance transparency and increase the share of manufacturing in the country. I believe that the time is also opportune to roll-out reforms in the mineral sector. After all, oil imports forms the majority of India’s forex outflow. The Government can entrust the private sector to boost energy & resources self-sufficiency. Divestment of large, dormant state enterprises, in phased manner, would unlock value, promote

competition and generate huge revenues and employment. I have no doubt that this is India’s decade. Structural reforms will be instrumental in making it India’s century.”

■ **Anil Agarwal**, *Chairman, Vedanta Group*

RANK CAN BE FURTHER IMPROVED

“It’s truly heartening to see a jump of 30 places in India’s Ease of doing Business ranking for 2018 as compared to 2017 and this ranking will further improve next year with the GST implementation; which had happened post the current ranking assessment period. Another aspect that can improve the ranking and positively impact the ease of doing business on ground would be easing off the approvals and permissions required while starting a business. Currently 10-12 approvals /registrations including labour compliance related registrations are required for starting a business. Further as an organisation grows or expands it is required to avail additional registrations/approvals which are required separately for each additional office. These need to be reduced. Further the process needs to be simplified and standardised across the country, this will both improve our ranking in terms of ease of doing business as well encourage companies to increase their geographical footprint and take jobs to people.”



■ **Sonal Arora**, *Vice President, TeamLease Services*

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How did India jump in the Ease of Doing Business ranking?

India has jumped on Ease of Doing Business rankings with sustained reform focus. It has moved 30 ranks ahead, to the 100th spot. Here are some of the factors on how India achieved this.

India for the first time moved into the top 100 in the World Bank's Ease of Doing Business global rankings on the back of sustained business reforms over the past several years. This was announced by the World Bank Group's latest Doing Business 2018: Reforming to Create Jobs report. Last year the report had ranked India at 130. Below are the factors that contributed to the boost.

Starting a business: India made starting a business faster by merging the applications for the Permanent Account Number (PAN) and the Tax Account Number (TAN) and by improving the online application system. Mumbai also made starting a business faster by merging the applications for value added tax and the Profession Tax (PT).

Dealing with construction permits: India reduced the number of procedures and time required to obtain a building permit by implementing an online system that has streamlined the process at the Municipality of New Delhi and Municipality of Greater Mumbai.

Getting credit: India strengthened access to credit by amending the rules on priority of secured creditors outside reorganization proceedings and by adopting a new law on insolvency that provides a time limit and clear grounds for relief to the automatic stay for secured creditors during reorganisation procedures. This reform impacts the data for both Mumbai and Delhi.

Protecting minority investors: Protections for minority investors were strengthened by increasing the remedies available in cases of prejudicial transactions between interested parties. This reform applies to both Delhi and Mumbai.

Paying taxes: In both Delhi and Mumbai, paying taxes was made easier by requiring payments to the Employees Provident Fund to be made electronically, and introducing administrative measures that make it easier to comply with corporate income tax regulations.

Trading across borders: In Mumbai, reducing the time taken



India strengthened access to credit by amending the rules on priority of secured creditors outside reorganization proceedings and by adopting a new law on insolvency that provides a time limit and clear grounds for relief to the automatic stay for secured creditors during reorganisation procedures. This reform impacts the data for both Mumbai and Delhi.

to comply with import regulations at Nhava Sheva port made it much quicker to trade across borders. In Delhi and Mumbai, the elimination of merchant overtime fees and the increased use of electronic and mobile platforms reduced the time taken to comply with both export and import regulations.

Enforcing contracts: In both Delhi and Mumbai, the introduction of the National Judicial Data Grid made it possible to generate case management reports on local courts, thereby making it easier to enforce contracts.

Resolving insolvency: India made resolving insolvency easier by adopting a new insolvency and bankruptcy code that introduced a reorganization procedure for corporate debtors and facilitated continuation of the debtor's business during insolvency proceedings. This reform applies to both Delhi and Mumbai. 

Source: The World Bank



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MAC



'Engineering' the future!

If products are designed and engineered with high-strength science, they are more robust and end consumers can trust them, says **Viraj Kalyani**, Founder & Chairman, Kalyani Studio

By **Niranjan Mudholkar**

Q Congratulations on starting up your entrepreneurial venture – Kalyani Studio. What motivated you to start this?

While working with Kalyani Forge, I always had the urge to start a new company which would address the issues of the future. While I got a lot of insights from the manufacturing world and various other industry sectors, there were a lot of conversations with clients from OEMs, where they were asking for manufacturing design inputs and product design inputs, to improve the strength to rate ratio and other such things. Basically, a lot of insights from customers and OEMs where we understood that there is a gap between the design and manufacturing and engineering worlds.

Kalyani Studio is pioneering a new science - that if products are designed and engineered with high-strength science, they are more robust and end consumers can trust them. That's what Kalyani Studio's brand stands for. The

company creates engineering magic that resides inside hard technology products.

"I want Kalyani Studio to be synonymous with 'high strength engineering'. The long-term vision also includes creating in-house branded high-strength components which can be standardised across multiple industries."

Q What is your vision behind this venture?

Our vision is to become the company world's No. 1 high strength engineering firm. I want Kalyani Studio to be synonymous with 'high strength engineering'. The long-term vision also includes creating in-house branded high-strength components which can be standardised across multiple industries. The impact of such products would help in accelerating future industries like outer-space exploration, geo-engineering, robotics and sustainability all the while being grounded on the twin purposes of creating high-technology jobs of the future and high-end technology in India. This vision is a global one, and the company will take High Strength science to multiple geographies starting with Europe and North America.

We are of the view that if the world came



“India has to manufacture innovative products and be a part of the global supply chain right from the conceptualisation of the product to the finished product. We want to make India self-reliant in the fields of technology development in high-strength applications.”

to India for forging and we continue to prove them right, the world should now come to India for high-strength engineering solutions. We believe in creating ‘Engineers of the future’, who can navigate across all the aspects of the product life cycle – concept, design, simulation, DFM, prototyping – with ease. One of our purposes to start as a business and to exist as a company is to create new high-tech jobs and to create new high technology in India. We thus want to promote design in India, thereby championing the ‘Design in India’ initiative of the ‘Make in India’ campaign of the government.

Q How are you leveraging on your experience from Kalyani Forge?

My experience at Kalyani Forge, made me aware of issues prevalent in the engineering industry. Through my interactions with clients, I understood their concerns to improve upon strength of products. I found the need to build on a solution. To solve this gap between manufacturing, design and engineering, we built Kalyani Studio. The experience at Kalyani Forge has been a big learning for me - on the job and shop floor interacting with people at different levels of a big organization. There have been mentors as well as who have really challenged me and given me good guidance and counsel from time to time.

My family was very supportive of my decision to venture out on my own and their confidence in me led me to dream big. I fortunately come from a family of entrepreneurs where risk taking and leadership qualities are instilled at a very young age.

Q What kind of backing do you have from Kalyani Forge with regards to funds, infrastructure or people?

None. Whilst Kalyani forge is a manufacturing company and a forging company, Kalyani studio is a completely independent entity and is all about high strength engineering and design and high strength is a very large domain that spans many industries and all applications irrespective of manufacturing technology, so you could do you know forging or casting or 3D printing or any new technique that’s coming up.

Q Most industry leaders that I speak to tell me

about the importance of integrating ‘Make in India’ with ‘Design in India’. You seem to have taken the right step in that direction. How confident are you with regards to India’s design and engineering capabilities?

With Kalyani Studio, we want India to manufacture innovative products which are designed by ourselves. I want to change the scepticism around the talent we have in India; we have a billion people and that itself is a huge strength. Our initiative is to start creating those opportunities in alignment with ‘Make in India’ which is creating jobs, in the manufacturing industry.

The world came to India for forging and we continue to prove them right, the world will soon come to India for high-strength engineering solutions. We cannot be another China, we cannot be the factory of the world – India has to manufacture innovative products and be a part of the global supply chain right from the conceptualisation of the product to the finished product. We want to make India self-reliant in the fields of technology development in high-strength applications.

Q Technology is changing rapidly. What’s relevant today may (will) become obsolete tomorrow. In that context, how do you see design and engineering impacting India’s manufacturing progress?

Engineering service providers are numerous, but many follow just routine work like software usage as the primary offering. What people fail to understand is that on giving more im-



“We believe in creating ‘Engineers of the future’, who can navigate across all the aspects of the product life cycle – concept, design, simulation, DFM, prototyping – with ease.”



portance to effective use of software, they lose out on the thinking required in setting up the right problems to solve. Thus, you see many players don't build a deep expertise in the domain and offer software services in the name of engineering service.

On the customer side, when customers look for solutions around a certain problem, they may find it difficult to identify an Engineering and Design firm that has its core capabilities around that problem domain.

We are solving this gap by creating a new market and a new science of high strength engineering and design. We focus only on products and applications in which high strength performance parameters play a major role in the product success and product profitability. So,



The company creates engineering magic that resides inside hard technology products, says Viraj

What the Studio does?

Prototyping & Testing

Not many engineering firms get on the field, they stick to software based design or simulation work. On the other hand, manufacturing firms don't get into low volume prototyping. Hence a gap in prototyping market, where clients expect engineering and design expertise along with DFM (Design for Manufacturing) expertise and prototyping as physical proof of concept. We provide all this in one-stop with our latest P&T service.

Also, we believe Engineers of the future are those who can navigate across all these aspects of the Product Life Cycle – Concept, Design, Simulation, DFM, prototyping – with ease.

Product Diagnosis

OEMs struggle in giving an exact data or root cause for their product. They simply want you to figure it out and improve the performance. That's where we come in with a specialised approach to finding the root cause of performance obstacles tailor-made for high strength products. This helps us devise the right strategies for improving the performance parameter.

Product Prognosis

We use mathematical modelling to predict the behaviour of a product in a quick and easy to use way. Some examples include acceleration, torque or speed curves over a period. Our high strength theories help in coming up with more focused equations to get better results.

As shared by Viraj Kalyani

Transparency and valuing employees and stakeholders are at the helm of Kalyani Studio's activities. For a good work life balance, we also provide our employees opportunities to grow in their current roles.

we are directly impacting product profitability for our clients by intervening at the very basic design and engineering stage itself.

For example, the pace at which new models are coming out has changed because earlier, it used to take years to come out with new car models, now it's just a matter of few months. But there's lot of work that happens six months in advance, in terms of finalising, conceptualising the look and feel of the car and then the performance of the car. Hence, we operate more on performance side of things.

One can't just count the external appearance, even though design tends to be known more for the appearance, but we use design for performance and that's where high strength engineering and design comes in.

What kind of services will Kalyani Studio provide?

Kalyani Studio is a high strength engineering and design company that partners with R&D and innovation teams of OEMs to catalyse their new product ideas with high-strength expertise. The company works from the idea or problem stage to the functional prototype stage and offers end-to-end solutions in this phase of the product life cycle.

We help clients across various Industries to achieve Global Product Category Leadership by increasing the Product Profitability of their Applications.

We offer new-age services for key industrial sectors in the fields of technology development in high-strength applica-



tions with four service suites of Product Innovation, Product Optimisation, Design for Manufacturing and Testing & Prototyping.

Q What are the different industry sectors that you will be reaching out to?

We undertake work with various industries specifically with OEMs (original equipment manufacturers) those who have their own products and work with their R&D and innovation teams. We will be developing an ecosystem for prototyping and testing activities which will unravel over a longer period into the future. Currently we have tied up with IIT Mumbai, so we have a collaboration on high strength engineering with their Mechanical Engineering Department.

Moreover, high strength products are present everywhere and require high levels of performance. Largely, these are under-the-hood products and applications that withstand tremendously challenging physical conditions like forces, motion, temperature and time. Kalyani Studio is therefore building a new ecosystem and category of high-strength engineering and design to cater to OEMs across all industries like railway, aerospace, automotive, agro-tech, construction equipment. The next wave of growth has to come from design which in my opinion is the next logical progression for the sector.

Q What kind of infrastructure and team do you have in place for Kalyani Studio?

We currently have 20 people and along with that we have an ecosystem of vendors and partners that are involved in prototyping, concept manufacturing and so on.

We are a diverse bunch of people – with a large portion of my employees being mechanical engineers. But we also have people from other disciplines like computer science and some people from HR, liberal arts background and some others from manufacturing.

There is nothing more powerful than employees' passion and initiatives for its customers. Our employees enjoy developing new products, features & services for their clients. As a privately-owned company, we're able to work fast and respond to our customers' needs without things getting in our way. We invest in engineering, research, customer support, and great designs. So, we welcome smart, creative, rebellious talent to be a part of team Kalyani Studio.

Transparency and valuing employees and stakeholders are at the helm of Kalyani Studio's activities. For a good work life balance, we also provide our employees opportunities to grow in their current roles. They are encouraged to be a part



Viraj believes that there is nothing more powerful than employees' passion and initiatives for its customers.

“One of our purposes to start as a business and to exist as a company is to create new high-tech jobs and to create new high technology in India. We thus want to promote design in India.”

of various events and lead initiatives. Teamwork, integrity and an indomitable spirit of entrepreneurship is what I believe in and hope to instigate it all the employees at Kalyani Studio.

Q What are your revenue targets for the first year and for five years?

We've seen an increase in our cash flows over the last one year. We've bagged mid-size to large projects in the range of Rs.5 to Rs.10 Lakh and Rs.1-5 crore. We've received repeat/additional orders from each of our top three clients and have successfully completed eight projects this November.

The company has a rigorous AOP process which includes plan for sales pipeline, production, recruitment, infrastructure, knowledge management, and innovation roadmap. Budgeting is also done strategically, with disproportionate resources allocated to certain strategic activities which all have strong fit among each other. Kalyani Studio currently has 12 percent of its resources dedicated to High Strength R&D and will maintain this level of R&D investment and resource allocation.

Q You will obviously have the base of operations in Pune. But will you also look at expanding to cities like New Delhi or Chennai that are India's auto hubs?

We've expanded our footprint from Pune to NCR, Aurangabad, Mumbai and will expand our foot-print to Bengaluru next year, to leverage the R&D and Mathematics ecosystem there. 



BFW to expand its manufacturing facility to attain the enhanced demand

Bharat Fritz Werner (BFW), the leading manufacturer of machine tools, has announced a major facility expansion recently for its Hosur and Bangalore locations to attain the enhanced market demand. The foundation stone laying ceremony was held in Hosur recently. Arun Kothari, the Chairman of Kothari Group, Shailesh Sheth, Director BFW and Ravi Raghavan, MD & CEO, BFW, commemorated the ceremony in the presence of the BFW leadership team. The first phase will spread across 30,000 sq. meters which will in-



clude significant numbers of modern mother machines to enable integration of existing foundry facility with machining capability. The second phase will expand to 60,000 sq. meters. Once operational, these facilities will double the machine building capacity of BFW. Coming within a week of BFW's 56th anniversary, Ravi Raghavan, MD & CEO, BFW said, "This expansion represents our enhanced commitment to enable progress of our manufacturing clients who continue to remain the purpose of our existence and stay at the nucleus of our every initiative."

Continental to build first plant in Lithuania

Continental has announced the construction of a new manufacturing plant in Lithuania to expand its automotive electronics production footprint. By choosing the location in the Kaunas region, Continental is increasing the production of electronic components for European markets. The ground-breaking ceremony is scheduled for the middle of 2018. Continental plans to invest €95 million



over the next five years and will create around 1000 new jobs. "Building the first Continental plant in Lithuania is an important part of our growth strategy in Europe. With this, we are continuing to expand our electronics production and European presence in order to be able to better satisfy our customers' growing demand for automotive electronics," said Dr. Hans-Jürgen Braun, head of 28 Central Electronic Plants worldwide at Continental. "As a modern industrial region with an excellent infrastructure and highly qualified workforce, Kaunas is the ideal location for us. We are delighted about the fact that we will have a plant in Lithuania for the first time ever," said Shayan Ali, future Managing Director of Continental in Lithuania.

Clariant site in Cuddalore now operational

Clariant has announced that its new Clariant Healthcare Packaging production facility in Cuddalore, Tamil Nadu, India is now operational. The new site is capable of producing Clariant's line of sorbent canisters for the growing Indian and Asia-Pacific pharmaceutical packaging markets. "The new site has been validated as scheduled, and we look forward to serving customers with Clariant desiccants directly from Cuddalore," says Matthias Brommer, Head – Clariant Healthcare Packaging business line. "By manufacturing regionally, we will be able to provide improved supply and service to our significant customer base in India while further addressing important and emerging markets in Greater China, the rest of Asia and Australia."



Dassault-Reliance aerospace unit's foundation stone laid

Eric Trappier, Chairman, Dassault Aviation and Anil D. Ambani, Chairman, Reliance Group recently laid the Foundation Stone for the Dassault Reliance Aerospace Ltd (DRAL) manufacturing facility in Mihan, Nagpur located in India's western state of Maharashtra. The Dassault-Reliance manufacturing facility Dhirubhai Ambani Technology Park is located in the Mihan SEZ adjoining Nagpur International Airport. Under this JV, the facility will manufacture several components of the offset obligation connected to the purchase of 36 Rafale Fighters from France, signed between the two Governments in Septe 2016. DRAL will manufacture components for the Legacy Falcon 2000 Series of Civil Jets manufactured by Dassault Aviation.



R&D and quality at the focus

Akshay Dhoot, Head of Technology & Innovation, Videocon speaks to The Machinist about company's journey and technical advancements.

By Swati Deshpande



Earlier market was all about electrical and electronics. However, since last few years software has gained significance. Considering this we have partnered with various software giants.

Q Videocon began its operations catering to the consumer durables market and now has diversified into various segments.

We started operations in 1986 with colour televisions. This was the time when hundreds of other brands existed in the market until the economy liberalised in 1992. At that point of time our company decided to focus on the manufacturing. We emphasised on quality and R&D. This helped us stay strong in the times when other foreign big players entered into the Indian market post liberalisation. We not only survived the competition with multi-national giants but were able to achieve 20 percent market share. Since then, manufacturing has remained our core competency.

Q How do you think the market has evolved in last few years and where is it heading?

Earlier market was all about electrical and electronics. However, since last few years software has gained significance. Considering this trend, we have partnered with various software giants such as Microsoft, Google, etc. Cisco is a big company when it comes to the satellite communication. In partnership with these companies, we have launched several new products. We have introduced an air-conditioner that can be controlled through Google Voice. Another area where we are deploying these technologies is DTH. Few other examples of the advanced technologies are our refrigerator that has world record of having lowest temperature possible i.e. -30 degrees in the residential refrigerator segment and world's first wi-fi air conditioner. So what I mean the focus of manufacturing is moving from hardware to software based innovations.

Q Energy efficiency is yet another aspect that the industry is working on. Can you please highlight Videocon's efforts in this regard?

If we have to name an appliance that consumes most energy, it definitely will be an air-conditioner. So internally, that is where our maximum focus is on. In fact, I am glad to inform you that these efforts have resulted in receiving Energy Conservation Award by the Ministry of Environment. We have been winning this award continuously for last few years.

As an air conditioner maker, we continuously promote our 5 star ACs although we know that 3 Star ACs is bigger segment. Because of this effort our more than 55 percent of sales of ACs happen in 5 star category. Star rating exists in TVs segment as well. And here too we emphasise on 4 and 5 star televisions. At the manufacturing level, we have to continuously work on the star labels because ACs that are of 5 star today will become 3 star next year and 3 star ACs will become 1 star. So we have to continuously work on the air conditioners that would consume lesser and lesser energy. In-house, we endlessly work on designs of appliances as well. And every month we move forward somewhere. And hence we are able to bring out better products every time.

Q Videocon has also brought out Solar air conditioner. Can you please tell us about it?

Videocon's Hybrid Solar Air Conditioner makes use of sunlight to generate power and runs virtually without consuming electricity from the grid. This greatly helps the users in saving on electricity bills and allows them to be environment conscious. It draws power from solar panel that converts the

THE MACHINIST
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Key topics covered

- **CEO Panel Discussion:** Manufacturing 4.0– Evolving economic scenario and its impact on Indian manufacturing industry.
- **Panel Discussion:** Manufacturing 4.0 – Evolving role of the Plant / Manufacturing Head
 - **Role of lubricants**
 - **Smart plastic solutions**



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At the manufacturing level, we have to continuously work on the star level because the ACs that are of 5 star today will become 3 star next year and 3 star ACs will become 1 star. So we have to continuously work on the appliances that would consume lesser and lesser energy.

solar energy into electrical energy. It runs efficiently in all climatic conditions with minimal maintenance cost. It reduces load on the grid making it power efficient and economical. Solar power is a renewable power source which makes it the friend and future of a sustainable living world. Moreover, this Hybrid Solar AC has the useful functionality of shifting to a regular electrically-run AC if required. Videocon Solar Hybrid AC effectively works during the day without electricity and provides exceptional cooling. At night, the solar grid enables the inverter battery to save the solar energy for the AC to run seamlessly. Videocon Hybrid Solar AC range is a certified power saver and comply with BEE star ratings and possess 5 stars. 



AUTOMOTIVE

Lightweight honeycomb solution

Toyota has adopted an interior part using unique honeycomb material solution for its new hybrid model Prius PHV launched earlier this year. The solution, based on ThermHex thermoplastic honeycomb core technology developed by EconCore, is implemented in the trunk cover of the car. This was achieved thanks to developments of Gifu Plastic Industry Co. from Japan using technology licensed from EconCore. Due to its combination of strength and rigidity and optimized material performance, the ultra-low weight honeycomb delivers weight savings of 50 percent as a core part inside the trunk cover compared to previous conventional material set-ups based on cardboard and metal.

This specific trunk cover part was developed by Gifu Plastics together with its local automotive supplier partners. Gifu Plastic developed capabilities and products to conform to the specifications of automobile parts including durability, heat resistance and cold resistance. Gifu Plastic, a licensee of EconCore started out using the ThermHex process to make thermoplastic honeycomb products for packaging and logistics applications, achieving notable success in these areas. Recently Gifu



Plastic has extended its portfolio to include automotive interiors; an application area where sustainable and cost efficient lightweight materials are becoming just as important as in the packaging industry. The light, rigid and easy to thermoform honeycomb core materials have attracted the interest of automotive OEMs in Europe and North America as well. The experiences gained over the last few years are triggering accelerated developments of new solutions in the trunk area and other interior applications.

“We are very pleased to see such a prominent leader in automotive innovation and responsibility moving forward with our honeycomb materials which have minimal weight and minimal environmental impact. We are proud that our uniquely produced

honeycomb cores are becoming increasingly accepted in the highly sensitive automotive industry. That strengthens our position in this field and motivates us to invest further into research and development,” says Jochen Pflug, CEO of EconCore and inventor of the ThermHex technology. 

Source: EconCore

THE ECONOMIC TIMES POLYMERS

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Nominations now open



Agriculture



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Packaging



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Consumer Durables



Houseware & Kitchenware



Building & Construction



**Last date for sending
nominations**

17th November

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EVENT

Manufacturing 4.0

The Machinist Global Manufacturing Summit to take place in Indore on November 16, 2017

The current trend of connected factories or Industry 4.0 is expected to change the way plants operate. Inspired by the trend of Industry 4.0, the third Global Manufacturing Summit is planned in Indore on the theme of 'Manufacturing 4.0 – Skilled, Smart, Safe, Successful'. It will take place on November 16, 2017 at Sayaji Hotel, Indore.

The location is carefully chosen as it is an industrial hub. Additionally, it is surrounded by other industrial clusters such as Dewas, Dhar, Pithampur, etc.

One of the highlights of the conference is the CEO Panel Discussion. The eminent CEOs will discuss the 'Evolving economic scenario and its impact on Indian manufacturing industry.' Some of the distinguished speakers who would participate in this panel are - Prasanth Sakhamuri, MD, Hind High Vacuum Company Pvt. Ltd. (HHV); Anil Kumar, Executive Director (Chemicals), DCM Shriram Ltd., & President, Alkali Manufacturers Association of India; Viraj Kalyani, Founder & Chair-



man – Kalyani Studio and Executive Director – Kalyani Forge and Farhaan Shabbir, President, Twenty Two Motors Pvt. Ltd.

As the Industry 4.0 unfolds, co-ordination between human and machine comes to a point where they complement each other for increased productivity and better products. This

scenario demands change in the role of humans i.e. operators and plant heads and so we will see changes in the required skill sets. Focusing on this need of the hour, the panel discussion is planned on the topic of "Manufacturing 4.0 – Evolving role of the Plant / Manufacturing Head". Eminent speakers from the industry including Aditya K Shrivastava, Sr. VP (Manufacturing), VE Commercial Vehicles Ltd, Maneck Behramkamdin, Head of Manufacturing, Godrej Interio, Udayan Joshi, Head of Manufacturing Engineering, John Deere and few more panellists will throw light on this topic.

Another highlight of the event is 'Hall of Fame'. The Machinist magazine confers Hall of Fame to one of the veteran in the industry. Earlier, this esteem award was bestowed upon Rajan Nanda, Chairman & MD, Escorts Ltd and Baba Kalyani, Chairman & MD, Bharat Forge Ltd. Who would be the next veteran? Be there at the event to find out. 

In a Nutshell

Global Manufacturing Summit 2017

Theme: **Manufacturing 4.0 – Skilled, Smart, Safe, Successful**

Date: **November 16, 2017**

Venue: **Sayaji Hotel, Indore**

Highlights

- The Machinist Hall of Fame 2017
- CEO Panel Discussion – Manufacturing 4.0: Evolving economic scenario and its impact on Indian manufacturing industry.
- Panel Discussion: Manufacturing 4.0 – Evolving role of the Manufacturing Head

Machining Partner



Industrial Lubricant Partner



Technology Partner



Associate Partners





From Seed to Seat

This is how soy foam proved key to Ford's push to use renewables.

By Debbie Mielewski

A lot of people are familiar with soy—tens of millions of consumers eat and drink it every day. But what might come as a surprise is that many of us actually sit on recycled soy all of the time.

This year marks 10 years since Ford first used soybean-based foam in the 2008 Mustang, and since 2011, it's been a key material used in the seat cushions, seat backs and headrests of every vehicle we build in North America.

Now, 18.5 million-plus vehicles and half a trillion soybeans later, we've saved more than 228 million pounds of carbon dioxide from entering the atmosphere. This is the same amount that would be consumed by 4 million trees per year, according to North Carolina State University.

The innovative use of soy foam as a plant-based

alternative to traditional petroleum-based products is what inspired us to adopt it in 2007—bringing key sustainability benefits to our vehicles without compromising durability or performance.

We can credit our company founder Henry Ford with the idea of incorporating biomaterials back in the 1940s, so for us, continuing to implement his vision is the right thing to do. The research and testing of renewable, plant-based alternatives to petroleum-derived plastics has been my life's work since 2000, and I'm proud to be able to continue the vision of Henry Ford.

The innovative use of soy foam as a plant-based alternative to traditional petroleum-based products is what inspired us to adopt it in 2007—bringing key sustainability benefits to our vehicles without compromising durability or performance.

But just bringing the idea to market in the first place was a real challenge. Those first foams, frankly, were terrible! They met none of the rigorous requirements of automotive seating. Early trials failed to meet durabil-



ity standards for seat cushions, which need to rebound for the equivalent of 15 years. Not to mention, the soy and petroleum materials separated, and the soy foam didn't smell very good. So we set out to painstakingly explore how to improve the formulations, rebalance the chemistries and remove odorous compounds.

Just 10 years ago, the world was a different place. A newly invented iPhone was about to launch, George W. Bush was president of the United States, and oil prices were low—\$40 a barrel. Not many saw financial gain in being green at the time, so convincing suppliers that soy foam was the material of the future wasn't easy, either.

In those early days, we relied on a combination of things, including support from the United Soybean Board in funding some initial trials, as well as the personal vision and crucial endorsement of Bill Ford, then CEO. We needed him firmly in the driver's seat and he absolutely was, ensuring the project stayed on track.

In 2008, when oil prices skyrocketed, the value of soy foam became suddenly obvious. Not only was replacing petroleum-based polyol good for the environment, it was good for business. We'd been doing our homework, so Ford was ready.

We were eager to share the potential for soy foam and boost sustainable applications of it wherever possible, so we worked tirelessly with other industries—agriculture, furniture and home goods—to help them formulate foams specific to their needs as well.

Building on our success with soy foam, we began to develop other renewable materials to incorporate into our vehicles, which in turn further helped us reduce greenhouse gas emissions. In some cases, the material allowed for weight reductions as well, leading to improved fuel economy for many of our vehicles.

Of course, our work implementing biomaterials into our vehicles has not been accomplished overnight. We are proud to now feature eight sustainable materials in our production vehicles—soy, wheat, rice, castor, kenaf (hibiscus), tree cellulose, jute and coconut. As we continue to experiment, the list of renewable resources we are researching reads like an entire farm—wheat straw, tomato peel, bamboo, agave fiber, dandelions, even algae!

We're also exploring innovative uses of carbon itself, and are first in the industry to develop foams and plastics using

We're also exploring innovative uses of carbon itself, and are first in the industry to develop foams and plastics using captured carbon dioxide. This is the type of innovative work I'm proud to say my team does every single day at Ford.

captured carbon dioxide. This is the type of innovative work I'm proud to say my team does every single day at Ford.

A decade on, we continue to collaborate with the United Soybean Board to develop soy-based materials for rubber components like gaskets, seals and wiper blades. Today, our use of soy foam looks like a landmark first step. Bill Ford maintains we've come a long way, but we still have a long way to go. Many opportunities remain available for us to explore in pursuit of our sustainability goals. We continue to make progress across our business, as highlighted in our 18th annual Sustainability Report—whether that's trailblazing with our industry-leading commitments on water security, building on our achievements for true zero-waste-to-landfill facilities, or investing in scrappage programs to improve air quality.

Soy was our introduction to sustainable materials. Now, the next 10 years promise even more radical research and revolutionary innovation, underpinned by responsible investment and pioneering vision. We need to embrace the vast host of materials Mother Nature gives us, and employ them to their best advantage. This includes using locally sourced plants and crop waste where we assemble our vehicles, something with the potential to further reduce shipping emissions and provide area farmers with new revenue streams. I think all of this would make Henry Ford very proud.

Ford intends to remain the industry leader in the use of sustainable materials as we move into a future that's guaranteed to be exciting. We've learned a lot over the past decade-plus. Most importantly, we've learned we can provide the world with a host of alternative material choices that have less impact on the environment. I always say I have the best job in the world in that I'm fortunate to work for a company that supports out-of-the-box thinking. 

The author is Senior Technical Leader, Materials Sustainability, Ford Motor Company. Courtesy: Ford Motor Company



Continental and Osram to establish 50:50 JV for intelligent lighting solutions

Technology companies Continental and Osram have announced their intention to establish a joint venture. The idea is to combine innovative lighting technology with electronics and software to develop, manufacture and market intelligent lighting solutions for the automotive industry. The global joint venture would operate under the name Osram Continental GmbH and has its registered office in the Munich region. Continental and Osram will each have a 50 percent stake in the joint venture. The aim is to generate annual sales in the mid-triple-digit-million-euro range with a workforce of around 1,500 employees and 17 locations worldwide. The



Hans-Joachim Schwabe, CEO of the Speciality Lighting Business Unit, OSRAM Licht AG (left), and Andreas Wolf, Head of the Body & Security Business Unit, Continental AG (right).

joint venture is scheduled to start in 2018 subject to agreement on the binding contracts, prior consent of each party's Supervisory Board and antitrust approvals. Osram would be transferring its automotive Solid State Lighting (SSL) module business over to the joint venture. Continental would be incorporating its light control business from the Body & Security business unit. Osram Continental would therefore be able to offer a broad range of end-to-end, innovative lighting solutions, designed especially for headlight and tail light applications. The joint venture would operate on the market as a standalone company.

signed especially for headlight and tail light applications. The joint venture would operate on the market as a standalone company.

Royal Enfield unveils its first modern 650 Twin engine at its Technology Centre

Royal Enfield has unveiled its first modern twin-cylinder engine at its new Technology Centre in Leicestershire, England. This new 650cc, air cooled parallel twin will power the newest generation of Royal Enfield motorcycles. The core idea behind the modern 650cc twin engine was to develop a global platform that would carry the Royal Enfield legacy and character into modern context. The



engine has been designed to offer the right balance between power, torque and usability so as to ensure a smooth and un-intimidating riding experience. It will offer broad spread of torque which will make the motorcycle

easy to ride without frequently shifting gears. The new platform is a 4 stroke, single overhead cam, air-cooled, 648cc parallel twin cylinder engine developed by Royal Enfield's UK Technology Centre and Chennai teams. The engine maintains an under-stressed 9.5:1 compression ratio and the fuel injection system ensures that smooth, accessible power is available at all times. The focus of the development was on giving adequate torque, spread broadly throughout the rev range so that riders can tap into it instantly at anytime without the need for excessive shifting. As a result the engine feels fun, potent, and easy-to-use.

Mahindra manufacturing facilities to adopt LED lighting

India has made ambitious commitments in the Paris Climate Accord and organisations such as Mahindra & Mahindra Ltd. (M&M Ltd.) and Energy Efficiency Services Ltd (EESL) are putting their best foot forward to ensure that the goals are met. EESL and M&M Ltd, announced that they have collaborated for a LED replacement programme with energy efficient (EE) alternatives across Mahindra's 18 manufacturing facilities in India. This collaboration is EESL's first private sector engagement to promote energy efficient appliances in a working space and is aimed at encouraging private sector to adopt EE appliances. The installation of LED lighting will save 20 million units of electricity per annum. Mahindra has made an investment of Rs.16 crore in this project. Technical assistance, cost efficient procurement and project management services for this project across all Mahindra facilities have been provided by EESL. In addition, energy audits - are being undertaken in six manufacturing facilities of Mahindra to explore further energy saving opportunities which include waste heat recovery, energy efficient motors and heating, ventilating & air-conditioning (HVAC) etc. EESL will also help Mahindra in the training and capacity building of its employees to use the new energy efficient equipment and adopt efficient practice to conserve energy. Under the aegis of this programme EESL will enable Mahindra to manage its energy needs efficiently and affordably.



Dormer Pramet opens Experience Center in Czech Republic

Dormer Pramet has recently opened an Experience Center in Czech Republic. This is a major investment by the company that aims to provide expertise, training, research and development and equipment to further increase the scope and performance of its wide assortment of cutting tools. The Experience Center, or XP Center for short, is located at Dormer Pramet's indexable production unit (PU) in Šumperk, Czech Republic. At the opening Klas Forsström, Sandvik Machining Solutions (SMS) President, said: "We often talk about R&D, application development, proximity to the customer and that is very much what this center represents. This is the future of our industry, to interact with our customers and at the same time, bring it in to our own production, so this facility is very important."

Stefan Steenstrup, Dormer Pramet President, added: "Šumperk is a very important location for Dormer Pramet and the ideal place for our XP Center. More than 600 of our 1,400 employees are based there and around 40 percent of everything we sell is manufactured there."

"The XP Center is, though, very much a global facility and will be a focal point for a number of activities. It will help us to expand our knowledge in order to develop new solutions for our customers."

"We are very focused on certain areas of the market and have a unique position in numerous industry sectors, including railway and heavy machining. In order to keep that unique position, we need to continue to develop these areas in the future, along with our broad customer offer across all segments."



The New XP center

The XP Center will be home to Dormer Pramet's materials team who are currently focusing on researching the properties of substrates, developing new CVD and PVD coatings and improving the implementation of the cutting edge.

The very core of the XP Center is a modern testing room featuring a variety of machine tools and measuring equipment. This will allow Dormer Pramet to test the functional properties of product prototypes and verify whether the cutting tool meets expectations before being put into production. 

CERATIZIT S.A. acquires KOMET GROUP GmbH

The CERATIZIT Group, headquartered in Mamer, Luxembourg, has announced the acquisition of the KOMET GROUP, headquartered in Besigheim, Germany, effective October 12, 2017. The transaction is still subject to the approval of the antitrust authorities. "The disruptive changes in the market environment pose enormous challenges for KOMET. The acquisition by CERATIZIT now opens up new opportunities for sustainable growth," says Dr. Christof Bönsch, CEO of the KOMET GROUP. "The takeover sees the emergence of a new global player with superior technological expertise and broad market access", adds Dr. Bönsch. "This move lifts the close and long-standing partnership between the two companies to a new level," says a delighted Jacques Lanners, Chairman of the Executive Board of the CERATIZIT Group. "It opens up completely new prospects both for our customers and our employees,"

adds Lanners. CERATIZIT is committed to Germany as a key production and innovation hub. "Employees can look forward to a positive and attractive future because, as a privately owned company, CERATIZIT is keen to develop its sites in a sustainable manner," says Bönsch. The implementation of the "KOMET 2026" strategy will be continued in order to ensure the safety of the jobs.

The KOMET brand will play a pivotal role in the CERATIZIT Group's cutting tools strategy. Going forward, customers will have an even stronger partner in all areas of cutting tools technology, from turning and milling to the complete machining of holes. "The synergies in terms of technical expertise in substrate development, sintering technology, cutting tools technologies and coating are substantial and represent significant added value for our customers", explains Lanners. 



Jacques Lanners (left), Chairman of the Executive Board of the CERATIZIT Group, and Dr. Christof Bönsch, CEO of the KOMET GROUP, after the contract signing



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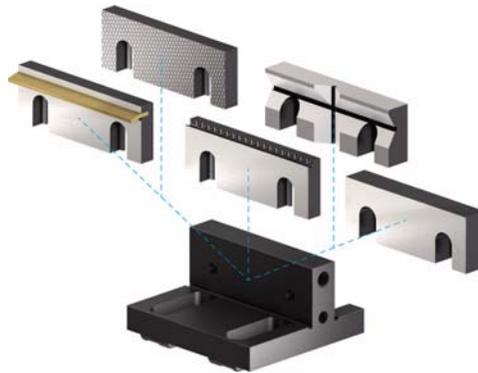
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Maximum flexibility and efficiency on the clamping force blocks

The SCHUNK TANDEM TBA-D supporting jaw system transforms the SCHUNK TANDEM plus clamping force blocks into multi-purpose powerhouses. For the first time it is possible to cover the whole clamping areas with clamping inserts from the SCHUNK standard chuck jaw program for stationary workpiece clamping. Instead of several different special chuck jaws, with the TANDEM TBA-D supporting jaw system, the user just needs a few standard inserts, which can be quickly configured and are usually available from stock. This reduces both the investment volume and implementation time to a minimum. Standard interfaces allow different variations for raw and finished parts as an option including gripper jaws, stepped jaws, prism jaws, soft jaws, jaws with pull-down, jaws with T-nut, and many more. The supporting jaws are assembled with four screws at the base jaw of the clamping force block, maximizing rigidity. With the fine serration, its position can be varied in just a few simple steps. The SCHUNK TANDEM TBA-D is available in three sizes for clamping ranges from 8 to 70 mm, 18 to 120 mm, or 30 to 200 mm. It is suitable for ID and OD clamping on SCHUNK TANDEM plus clamping force blocks in sizes 100, 160, and 250.



Instead of several different special chuck jaws, with the TANDEM TBA-D supporting jaw system, the user just needs a few standard inserts, which can be quickly configured.

High clamping force & repeat accuracy

SCHUNK TANDEM plus clamping force blocks develop high forces in confined spaces. Its one-piece rigid base body, the wedge hook kinematics, and the long, ground jaw guidance provide concentrated clamping forces of up to 55 kN. They also ensure a repeat accuracy of up to 0.01 mm. This means that the clamping force blocks are also suitable for challenging milling processes with a high metal removal rate, high cycle times, and minimum tolerances. The optimised outside contour and minimum clearance prevent the nesting of chips, and keeps chips and dirt out of the clamping module. Tight-fitting screws ensure that the clamping module can be changed at a high repeat accuracy. The

standardized powerhouse is available in several varieties: pneumatic; hydraulic; with spring or manually actuated in module sizes between 64 and 250 mm with a standard stroke or long stroke; or as a clamping force block with a fixed chuck jaw. They are suitable for top jaws with tongue and groove, but also for jaws with fine serration.

For more information, please contact: Satish Sadasivan
SCHUNK INTEC India Pvt Ltd
Email: info@in.schunk.com

Coated CBN Grade Added to the Grooving System

Mitsubishi Materials Corporation, Advanced Materials & Tools Company has added BC8110, a coated CBN grade for the GY series grooving system.

The existing GY Series has received a favourable reception as a grooving system that offers the ultimate in rigidity with a unique clamping technology called TRI-LOCK. This modular type holder system realizes high efficiency machining.

The coated CBN grade BC8110 prevents linear crack development that can cause sudden fracturing and achieves a stable tool life when turning high hardened steels. This new grade has been added to the GY series to complement the



existing range of grooving tools.

Features of Insert Series for Steel Turning

- The newly developed special ceramic coating improves wear and chipping resistance.
- Dispersal of the new Ultra Micro-particle Binder in BC8110 prevents linear crack development that can cause sudden fracturing.
- Improved adhesion to the CBN surface provides increased peeling resistance

Source: MMC Hardmetal India Pvt Ltd.

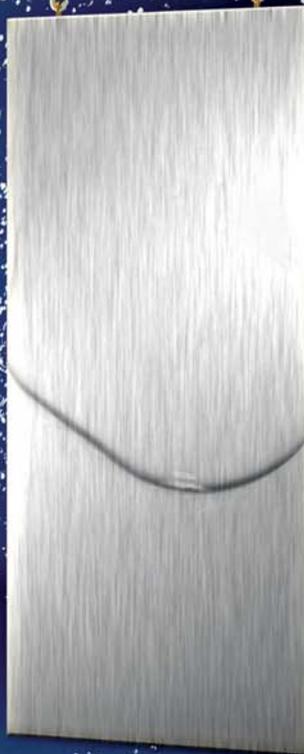
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Increased power factor delivers 12% more active power

Socomec's Delphys MP Elite+, from 60 to 200 kVA, is now available with an increased power factor of PF0.9 – for 12 percent more active power.

The transformer-based Delphys MP Elite+ - based on the proven Delphys technology and engineered for the most demanding electrical infrastructures - provides high quality power with maximum availability and total protection, throughout the equipment lifecycle. Deployed in the most challenging environments around the world, this latest evolution has an increased power factor of PF0.9 and operates in VFI mode (online double conversion) to ensure total load protection for mission critical applications. With high overload capability to withstand abnormal load conditions—and output voltage precision under all load conditions—the Delphys MP Elite+ has a very high short-circuit current capacity.



three cables (no neutral) and the battery connection to the UPS only requires two cables. Also, the high short-circuit capability simplifies downstream protective devices.

Availability - guaranteed

The Delphys MP Elite+ is based on robust technology utilised to protect critical power loads like industrial processes, also other vital applications in healthcare, infrastructure or telecommunications. With IP protection adaptability, high fault current capability and long back-up time, the system has been designed to adapt a wide range of operating environments. Mechanically and electrically robust, the system's fault-tolerant architecture with in-built redundancy—such as the ventilation system – is ideal for high availability requirements. Easy to maintain,

High quality power supply

An isolation transformer installed on the inverter output ensures complete galvanic isolation between the DC circuit and load output – this insulation also provides a separation between the two inputs when they are supplied by different sources. The system has been specifically engineered to minimise constraints on the upstream power supply. The “clean” IGBT rectifier, drawing sinusoidal current, is highly efficient and ideal for LV distribution networks. With a high and constant input power factor, and low THDi, the over-sizing of upstream power supply installations is avoided and power consumption - and associated costs - are reduced. With increasing pressure on budgets within every facility, this compact system delivers a high power density, maximizing the return on valuable floorspace. It incorporates features to optimize your installation—the mains connection of the rectifier requires only

MTTR is reduced as a result of easy to access sub-assemblies and components—minimising costly downtime. Accurate diagnostics guarantee the power supply to the load –with cascade failure prevention for parallel systems for high availability.

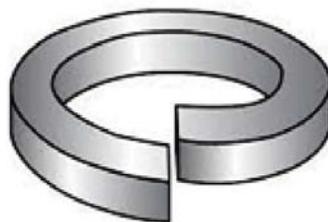
Christophe Dorschner, Site Marketing Manager, Socomec notes, “In order to address the industry's greatest challenges, we work hard to ensure that our product developments deliver reliable, high performance and cost-effective power solutions. Availability is guaranteed, as downtime is simply not an option. The latest evolution of our proven Delphys MP Elite product is now an even more powerful package—designed to meet the evolving demands of hard working electrical infrastructures today and tomorrow.”

Source: Socomec

Spring Washers

Khanwalkar industries, an ISO 9001:2008 certified company manufacturing 'CARBON' brand spring Washer in carbon steel (EN-42B), and in stainless steel (SS-304 & SS-202) as well. These are manufactured on automatic machines with in close tolerances and under strict quality control. Washer are manufactured from 2.5mm to 50mm. I.D. sizes, in natural black and in electroplated coating (trivalent) with blue, golden and green finish. These Washers conform to

ISS, BSS, DIN, ASA, JIS, and Standards. Special sizes and combi sizes are also available.



Spring washers are widely used in transmission towers erection, Railways, Automobiles and in other engineering application where locking action is required against rotation of the screw of bolted assemblies.

For more information, contact:
Subhash Khanwalkar (Prop)
E-mail: khanwalkar08@gmail.com

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The new efficiency hydraulic expansion tool holder with simultaneous Taper and Face support

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- Higher surface quality and dimensional accuracy
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- Maximum repeat exchange accuracy with the tool changing system
- No axial displacement at high speeds
- Improved roundness in drilling machining



T|E|N|D|O® E compact

The universal hydraulic expansion toolholder for volume cutting, boring, reaming and thread cutting

Advantages – Your benefits

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206343	SDF HSK-A63 Ø 10 L1=85, TENDO Slim 4ax	28,919	21,238
206344	SDF HSK-A63 Ø 12 L1=90, TENDO Slim 4ax	28,919	21,238
206349	SDF HSK-A63 Ø 14 L1=90, TENDO Slim 4ax	28,919	21,238
206345	SDF HSK-A63 Ø 16 L1=95, TENDO Slim 4ax	28,919	21,238
206340	SDF HSK-A63 Ø 18 L1=95, TENDO Slim 4ax	28,919	21,238
206346	SDF HSK-A63 Ø 20 L1=100, TENDO Slim 4ax	28,919	21,238
206347	SDF HSK-A63 Ø 25 L1=115, TENDO Slim 4ax	28,919	21,238
206348	SDF HSK-A63 Ø 32 L1=120, TENDO Slim 4ax	32,788	24,079
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206354	SDF HSK-A63 Ø 12 L1=120, TENDO Slim 4ax	32,788	24,079
206359	SDF HSK-A63 Ø 14 L1=120, TENDO Slim 4ax	32,788	24,079
206355	SDF HSK-A63 Ø 16 L1=120, TENDO Slim 4ax	32,788	24,079
206350	SDF HSK-A63 Ø 18 L1=120, TENDO Slim 4ax	32,788	24,079
206356	SDF HSK-A63 Ø 20 L1=120, TENDO Slim 4ax	32,788	24,079
TENDO E compact BT-Dual Contact			
206584	SDF-EC BT-30 DC Ø 12	28,019	20,576
206586	SDF-EC BT-30 DC Ø 20	28,019	20,576
206594	SDF-EC BT-40 DC Ø 12	31,144	22,872
206596	SDF-EC BT-40 DC Ø 20	31,144	22,872
TENDO E compact			
206404	SDF-EC HSK-A 63 Ø12 L1=80,	16,182	8,366
206405	SDF-EC HSK-A 63 Ø16 L1=80,	18,124	12,460
206406	SDF-EC HSK-A 63 Ø20 L1=80,	16,182	8,366
206414	SDF-EC SK40 Ø12 L1=50.0,	17,082	11,744
206415	SDF-EC SK40 Ø16 L1=64.5,	17,082	11,744
206416	SDF-EC SK40 Ø20 L1=64.5,	17,082	11,744
206426	SDF-EC SK50 Ø20 L1=64.5,	25,728	17,688
206428	SDF-EC SK50 Ø32 L1=81,	25,728	17,688
206434	SDF-EC BT 40 Ø12 L1=58,	15,252	7,550
206435	SDF-EC BT40 Ø16 L1=72.5,	17,082	11,744
206436	SDF-EC BT40 Ø20 L1=72.5,	15,252	7,550
206446	SDF-EC BT50 Ø20 L1=83.5,	23,890	16,424
206448	SDF-EC BT50 Ø32 L1=90,	23,890	16,424
206554	SDF-EC JIS-BT30 Ø12 L1=69	14,322	9,295
206556	SDF-EC JIS-BT30 Ø20 L1=90	14,322	9,295
206566	SDF-EC HSK-A100 Ø20 L1=90,	31,144	21,411
206568	SDF-EC HSK-A100 Ø32 L1=100	31,144	21,411

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