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ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

# THE MACHINIST

RNI No 71129/98

Volume 13 Issue 1 • January 2018 • Rs 75

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## Keeping India on Track!

*Sudhir Rao, India MD,  
Bombardier Transportation,  
on how he plans to capture  
more market share*



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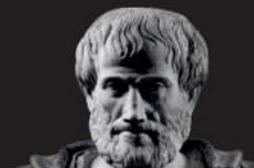
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We are what we repeatedly do.

**Excellence** then, is not an act, but a habit.

Aristotle



## It gets better from here!

**W**ell, The Machinist has now officially entered the teens with the thirteenth anniversary! And to celebrate the thirteenth birthday, we have India's top sixteen manufacturing CEOs from diverse sectors talking about their vision to transform the industry. The Machinist Annual Star List – in its fourth year now – is one of the most coveted listing of industry leaders in India. When you see the names, you will know why! We do not simply pick and choose these names. We look at their contribution so far, their influence on what's happening around and the likely impact their work and vision will have on the industry going ahead. Of course, they are all successful. But they have been survivors too. They have seen challenging times and have triumphed against the odds. And that's what makes them eligible to be part of our Super Sixteen Star List of this year.

**“I KNOW THAT THERE ARE MANY MORE CHALLENGES AHEAD; THERE ARE MANY MORE HURDLES AHEAD. BUT I AM EQUALLY SURE THAT THERE ARE MANY MORE MILESTONES AND MANY MORE VICTORIES TOO.”**

Coming back to our birthday, the beginning of the teenage marks the transition period from childhood to adulthood for humans. The Machinist too has evolved over the years. More so in the last four years since it was relaunched. And what a coincidence it is that this evolution has been in sync with the amazing transformation that our industry as well as our country have been going through in the same period.

Of course, the journey has just started, and I promise you that it is only going to get better from here on. I know that there are many more challenges ahead; there are many more hurdles ahead. But I am equally sure that there are many more milestones and many more victories too. So, stay with us and be part of this fantastic journey.

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Printed and published by Joji Varghese for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at JRD Printpack Private Limited, 78, Resham Bhavan, 7th Floor, Veer Nariman Road, Churchgate, Mumbai - 400 020. Editor: Nirajan Mudholkar. Published for January 2018.

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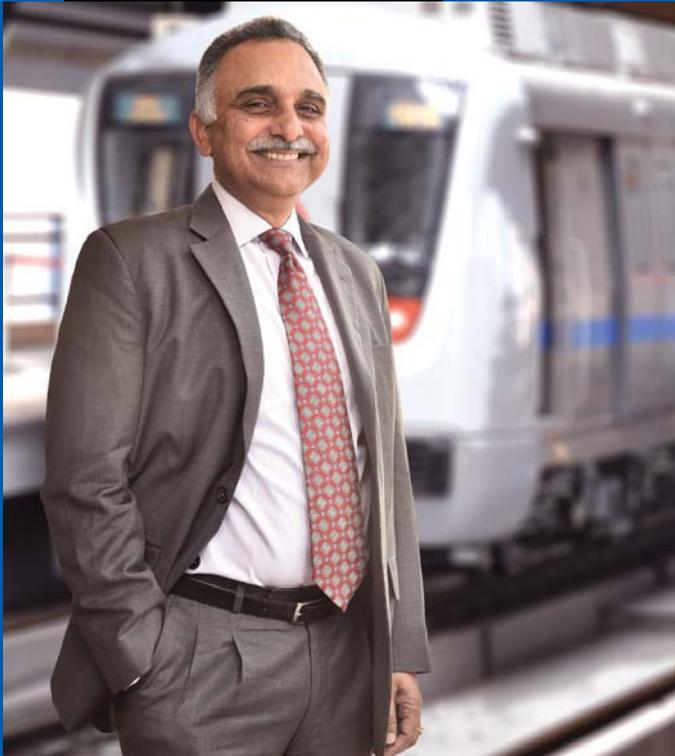


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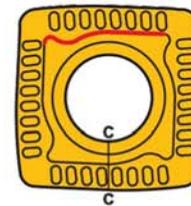


Strong Cutting Edge Part (A)  
Sharp Cutting Edge Part (B)

Inner Insert, for Stainless Steel



## UM Breaker

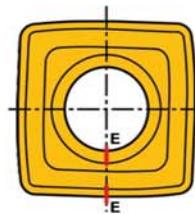


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## India all set to buy 131 Barak Missiles from Israel

**INDIA'S DEFENCE MINISTER SMT. NIRMALA SITHARAMAN** has cleared two procurement proposals recently. The first proposal is related to procurement of 240 bombs, at a cost of Rs. 1254 cr. from JSC Rosonboron Exports, Russia. These bombs, which fall under the category of Precision Guided Munitions, are used by Indian Air Force (IAF). This procurement will address the deficiency of Precision Guided Munitions in the IAF arsenal, besides enhancing

the offensive capabilities of the IAF.

The second proposal pertained to procurement of 131 Barak Missiles and associated equipment, under option clause from Rafeal Advance Defence Systems Ltd., Israel, at a cost of Rs. 460 cr.

These missiles are surface to air missiles designed to be used as a ship-borne anti-missile defence system against anti-ship missiles.

## ISRO and NASA to work together

**ISRO AND JET PROPULSION LABORATORY (JPL)/ NASA** are jointly working on the development of Dual Frequency (L&S band) Synthetic Aperture Radar Imaging Satellite named as NASA-ISRO Synthetic Aperture Radar (NISAR). The L-band SAR is being developed by JPL/NASA, while ISRO is developing S-band SAR.

The L&S band microwave data obtained from this satellite will be useful for variety of application, which include natural resources mapping & monitoring; estimating agricultural biomass over full duration

of crop cycle; assessing soil moisture; monitoring of floods and oil slicks; coastal erosion, coastline changes & variation of winds in

coastal waters; assessment of mangroves; surface deformation studies, ice sheet collapses & dynamics etc.

The data obtained from NISAR mission is not meant for building climate resilience. However, the data acquired from this mission will be useful in developing certain applications, which include - (i) identifying crevasses in the glaciers hidden by fresh snow, where human movement takes place, (ii) identifying the snowpack parameters as an input in Avalanche forecasts, (iii) studying Glacial Lake Outburst Floods (GLOF) hazards, and (iv) identifying inundated area due to floods/ cyclones. These applications could help in taking measures to minimise loss of human lives.

As per the information received, Indian Institute of Tropical Meteorology (IITM) under Ministry of Earth Sciences (MoES) has been working in tandem with National Oceanographic and Atmospheric Administration (NOAA, USA) for development of high resolution seasonal and long-term climate forecasts through Monsoon Mission and Centre for Climate Change Research (CCCR) Programmes. During 2010 to 2015, IITM and NOAA together developed high resolution models for seasonal predictions of Indian Summer Monsoon and long term climate forecasts under a Memorandum of Understanding (MoU). This MoU, concerning the study of "Dynamical Short range, Extended Range and seasonal Prediction of Indian Summer Monsoon Rainfall", has been extended till 2020, within the framework of the MoES-NOAA Partnership.

## Railways, EVs, PPAs to drive growth of the power sector

**AS MANY AS 24 POWER PROJECTS** with 41.81 GW capacity may be under a severe financial stress, but the troubled sector still holds hope in growth drivers including higher demand from the Railways, proposed law to enforce power purchase agreements (PPAs) on the discoms, increasing focus on EVs and reaching electricity to all un-electrified villages, an ASSOCHAM study has noted. Stressed assets remain a key concern for power sector in India. Out of the 24 stressed projects having capacity of 41.81 GW, 8,300 MWs are without any power purchase agreements (PPA), 9500 MW capacity are having partial PPAs (i.e. less than 40%). The balance capacity is having PPAs greater than 40%. Avenues need to be found out to utilise the power available in the stranded capacities, which are already commissioned or nearing completion," the study stressed.

"Our assessment shows that all is not that bad, as is made out by stock analysts or the bankers getting panicky, having financed the big projects," said ASSOCHAM Secretary General, D. S. Rawat. Govt proposes to amend the law making obligation under PPA, statutorily binding all discoms to have PPAs to cover 100 per cent requirement. While there are insufficient PPAs, even today around 5 crore household remain un-electrified. Electrification of these household would lead to increase in demand. Besides, cold storages in the country are mostly run with the help of off-grid power because of reliability issues. Therefore, demand of the cold storages should be met with grid power by providing necessary infrastructure. Also, Indian Railways have taken great initiative for electrification. About 50% of the Railways is presently electrified. It is expected that the railway load is expected to exceed 3000 MW by 2021-22 from a current traction load of 2000 MW thus opening a potential of demand creation.

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# NEWS

## TRIGO Group, CII to develop an aerospace cluster in India, to promote SMEs

**TRIGO GROUP** has started its aerospace cluster development program in cooperation with the Confederation of Indian Industry (CII) to uplift India's small and medium enterprises' quality standards and production.

The goal of this 18-month program is to help new players within the Indian economy from many different sectors enter the aerospace market, while guiding and developing companies that are currently contributing to this highly demanding sector. This project will be organized by CII and executed by TRIGO.

The program officially started on December 18, 2017 with interactive workshops to explain the structure, schedule of the activities and technical content for participants.

The main objective of the cluster program is to build the essential capabilities needed to enter the aerospace market:



- Develop awareness of aerospace quality standards & expectations
- Prepare for ISO / AS certifications and systems
- Tackle quality issues through common or individual action plans
- Enhance awareness of special processes relevant for the sector
- Participating companies will be placed in three different groups, according to their current level of certification.

“This is an exciting day for CII and TRIGO but most importantly for the Indian aerospace market. The program enables us to open doors which are usually closed to various companies across the country, offering a unique chance to participate in the fast growing aerospace industry,” said Emmanuel Marquis, Executive Vice President of TRIGO Aerospace & Heavy Transportation Business Line.

## India is the 60th most innovative country



**INDIA** currently ranks 60th out of 127 countries on the Global Innovation Index (GII) 2017 as compared to 66th rank on GII 2016. In order to make India an innovation-driven economy, NITI Aayog, Department of Industrial Policy & Promotion (DIPP) and Confederation of Indian Industry (CII) together launched a mega initiative “India Innovation Index” that will rank states on Innovations through country's first online innovation index portal that will capture data on innovation from all Indian states on innovation and regularly update it in real time.

Further, the Smart India Hackathon and Smart India Hardware Hackathon have been launched to improve the innovative abilities of the students in the Higher Education Institutions. The Smart India Hackathon has received huge response when it was launched in 2017 and this would be continued as annual event.

The Government is also promoting research parks (RPs) and technology business incubators (TBIs) which would nurture and promote the innovative ideas till they become commercial ventures.

The projects for promoting research and innovation like the IMPRINT and Uchhatar Avishkar Yojana (UAY) have brought focused attention of the scientific community on the need for promoting innovation.

The Start Up India initiative of the Government has also put in place a mechanism for identifying and incubating the innovative ideas.

## 2018 may see \$50 BN M&As

**IN THE BACKDROP** of plenty of stressed corporate assets on offer at tempting valuations, India is expected to see mergers and acquisitions (M&A) worth \$50 bn in 2018, as per ASSOCHAM Year Ahead Outlook. The context for the forecast in 2018 was picked by the study from the trends in the calendar of 2017 when India's M&A transactions witnessed a quantum jump of 170% in valuations and over 70% in the number of transactions. As per the different data compilations, there were a total of 944 transactions (664 Domestic and 280 Cross Border) in 2017 worth \$46.5 bn (\$13.1bn Domestic and \$33.4bn Cross Border). This was against a total of 553 transactions (358 Domestic and 195 Cross Border) worth \$17.5 bn (\$7.2 bn Domestic and US\$ 10.3bn Cross Border) in 2016. There has been a quantum leap in M&A transactions in India with more focus on sectors like healthcare, telecom, energy, real estate, media & entertainment, banking, insurance, oil, cement and consumer products, suggests the ASSOCHAM paper.

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## Application Examples



Hirth Coupling



Indexing Roller



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

<p><b>IMTEX 2018</b> January 25–30, 2018 Bengaluru, India <a href="http://imtex.in">http://imtex.in</a></p>	<p><b>Auto Expo Components</b> February 8–11, 2018 New Delhi, India <a href="http://www.autoexpo.in">www.autoexpo.in</a></p>	<p><b>ELECRAMA</b> March 10–14, 2018 Noida, India <a href="http://elecrama.com/">http://elecrama.com/</a></p>	<p><b>SIMTOS</b> April 03–07, 2018 Seoul, South Korea <a href="http://www.simtos.org">http://www.simtos.org</a></p>
<p><b>Die &amp; Mould India International Exhibition</b> April 11–14, 2018 Mumbai, India <a href="http://www.diemouldindia.org">www.diemouldindia.org</a></p>	<p><b>Hannover Messe</b> April 23–27, 2018 Hannover, Germany <a href="http://www.hannovermesse.de/home">www.hannovermesse.de/home</a></p>	<p><b>CeMAT</b> April 23–27, 2018 Hannover, Germany <a href="http://www.cemat.de/">http://www.cemat.de/</a></p>	<p><b>ACMEE</b> June 21–25, 2018 Chennai, India <a href="http://www.acmee.in/">http://www.acmee.in/</a></p>
<p><b>AMTEX 2018</b> July 06–08, 2018 New Delhi, India <a href="http://www.amtex-expo.com/amtex_delhi">http://www.amtex-expo.com/amtex_delhi</a></p>	<p><b>Busworld India 2018</b> August 29-31, 2018 Bengaluru, India <a href="https://india.busworld.org/">https://india.busworld.org/</a></p>	<p><b>IMTS 2018</b> September 10–15, 2018 Chicago, USA <a href="http://www.imts.com/">http://www.imts.com/</a></p>	<p><b>Wire India Show</b> November 27–29, 2018 Mumbai, India <a href="http://www.wire-india.com/">http://www.wire-india.com/</a></p>

**OUR INHOUSE UPCOMING EVENTS**



March 2018, Mumbai





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**HAL ROBOTICS APPOINTS NAVANIT SAMAIYAR TO THE BOARD**

Gurgaon-based technology start-up, HAL Robotics has roped in Navanit Samaiyar as its Board Member and advisor. Samaiyar has a Proven track record of Setting up, Scaling and Transforming businesses across a very wide cross section of industries spanning from IT/ ITES to Steel, Telecom, Engineering goods, Earthmoving machinery, Logistics and Warehousing, Agribusiness and Healthcare.

He has the Unique ability to Drive/ Setup Systems and Processes drawn from Large Corporation's experiences coupled with Nimbleness of a Start-ups - key to Business "Sustainability" while Driving Exponential "Growth" through a Relentless employees, customers and market focus aided by a Measured Risk taking and Innovative Culture.

Samaiyar's stellar work experience has spanned across top-notch Global MNCs and Indian blue chip enterprises apart from various start-ups/ self-promoted ventures. Having managed diverse operations domestically and across the globe, Mr. Samaiyar has a special knack for Production Planning, Supply Chain & Logistics, Product Management and Development, Marketing/ Sales & Brand Management.



**HYPERTHERM ANNOUNCES SENIOR LEADERSHIP APPOINTMENTS**

Hypertherm has announced changes to its leadership team. These changes are aimed at fully supporting the company's strategic vision and its growing global customer base as it heads into 2018. Pete Vickers, current Vice President, International, has announced his planned retirement in February 2018, after twenty years of service to Hypertherm — during which he significantly advanced the company's global presence and position — and forty-five years serving the welding and cutting industry.

With this retirement, and to more tightly integrate Hypertherm's expanded global sales and marketing strategy, Hidde van Hoeven, currently Global Sales and Marketing Director of the company's waterjet business, will assume the newly created position of Vice President of Global Sales and Marketing, effective with the new year. In this new role, Mr. van Hoeven will oversee sales and marketing in more than 60 countries, with particular emphasis on strategic end market development initiatives. Mr. van Hoeven has served in a number of leadership roles since joining Hypertherm in 2005 including management roles for the company's Europe, Middle East, and Africa (EMEA) business, and leadership of the company's mechanized plasma systems team.

Theo Cornelije, a proven strategic growth leader for Hypertherm as the current Regional Director for Hypertherm's EMEA business, will assume Mr. van Hoeven's current role as Global Sales and Marketing Director for Waterjet, with Marco Mostert, current Director of OEM Sales for EMEA, assuming the role of Regional Director, EMEA.

**VIRGIN HYPERLOOP ONE NAMES RICHARD BRANSON AS A CHAIRMAN**

Virgin Hyperloop One has announced that it has named Richard Branson Chairman (non-executive). Richard Branson, founder of the Virgin Group, will become the Chairman of Virgin Hyperloop One. As the founder of Virgin Group, Branson brings an unparalleled proven track record in delivering technology breakthroughs and transformative experiences in air, rail, and space transportation. Branson joined the Virgin Hyperloop One board of directors in October 2017 after Virgin Group invested in the company and formed a global strategic partnership. The company is in the process of rebranding itself Virgin Hyperloop One.

"I am excited by the latest developments at Virgin Hyperloop One and delighted to be its new Chairman," said Richard Branson, founder of the Virgin Group and Chairman of Virgin Hyperloop One. "The recent investment by our partners Caspian Venture Capital and DP World sets up the company to pursue opportunities in key markets in the Middle East, Europe, and Russia as it develops game-changing and innovative passenger and cargo ground transport systems."



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### NEW MD FOR HEIDENHAIN INDIA

HEIDENHAIN has appointed Abhilash Tripathi as Managing Director for its Indian operations effective December 1, 2017. Tripathi has an Electrical Engineering degree from Malaviya National Institute of Technology, Jaipur and an MBA in Marketing and international business from the prestigious Indian Institute of Foreign Trade (IIFT), New Delhi. He has almost 2 decades of industry experience in leading Indian and foreign multinational corporations at senior levels.

HEIDENHAIN is actively present in the Indian market with its own fully owned subsidiary at Chennai, HEIDENHAIN Optics & Electronics India Pvt Ltd. since 2008. HEIDENHAIN India provides high level of sales, application, service and training support for its diverse customers in India from its Chennai facility and engineers based at Bangalore and Pune.

DR. JOHANNES HEIDENHAIN GmbH, Germany develops and manufactures linear and angle encoders, rotary encoders, digital readouts, and numerical controls for demanding positioning tasks. HEIDENHAIN products are used primarily in high-precision machine tools as well as in plants for the production and processing of electronic components as well as in automated systems and machines. In addition, HEIDENHAIN products are also used in elevators, medical technology and others.



### NEW HEAD FOR DIGITAL SOLUTIONS AT MERCEDES-BENZ TRUCKS

Volker Hansen will become the new General Manager of Fleetboard GmbH, the world's most successful provider of connected services for commercial vehicles. In this position he also becomes Head of Digital Solutions & Services at Mercedes-Benz Trucks. Responsibility for both areas was previously held by Dr Daniela Gerd tom Markotten, who moved on to become General Manager of moovel GmbH on 1 November 2017.

Since 2014, as part of the corporate CASE activities, Volker Hansen has been responsible for the development of electric powertrains at Mercedes-Benz Cars. CASE stands for Connected, Autonomous, Shared & Service and Electric Drive – the future strategic fields for Daimler AG.

### TOYOTA KIRLOSKAR MOTOR ANNOUNCES ORGANIZATIONAL SENIOR LEADERSHIP CHANGES

Toyota Kirloskar Motor has announced the roll-out of restructured organizational changes effective from January 1, 2018. With this, the company aims to further strengthen the objectivity and agility of the management team at various functional drives. The key changes highlight the promotion of N. Raja as the Deputy Managing Director covering Sales & Service functional areas.

An industry veteran, N. Raja, who has been with Toyota Kirloskar Motor for the last 5 years, was previously Senior Vice President and Director, Sales and Marketing.

Raju B. Kerkale, with over two decades of automobile experience, now elevates to a director profile on company's board. He has been promoted as the Senior Vice President & Director for Product Design & Development and Quality Assurance. Previously, Kerkale served as Senior Vice President of Manufacturing in Toyota Kirloskar Motor.

Also, another crucial development in the structure recognises the Indian Management Executive functioning at a global level where Sudeep S. Dalvi has now donned a larger role and moved to one of our Toyota affiliates located in United States, assuming management role at Toyota Motor North America [TMNA] heading Purchase functionalities, leading the team under his able leadership. The company takes pride to note this recognition of unwavering contributions of the Indian executive and huge potential to handle new assignments at global levels.

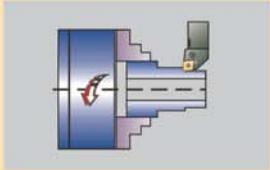
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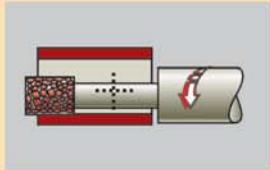


FIG-200 SPL CNC  
BIG BORE GRINDER

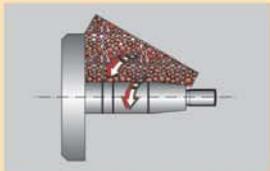


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A15/25

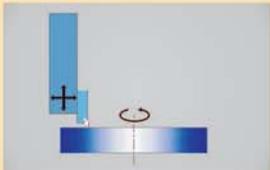


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# Strongest growth in December

The overall upturn in the manufacturing industry was supported by the sharpest increase in output and new orders since December 2012 and October 2016 respectively.

**T**he Indian manufacturing sector ended the year on a strong note, with operating conditions improving at the strongest rate in five years. The overall upturn was supported by the sharpest increase in output and new orders since December 2012 and October 2016 respectively.

In response to greater inflows of new business, job creation quickened to the greatest since August 2012. On the price front, input cost inflation accelerated to the strongest since April and was marked overall. Subsequently, firms raised their average selling prices at the fastest pace since February.

At 54.7 in December, the Nikkei India Manufacturing Purchasing Managers' Index (PMI) rose from 52.6 in November. This was consistent with the strongest improvement in the health of the sector since December 2012. Notably, the PMI reading was slightly stronger than the average (54.0) recorded since the inception of the survey in March 2005. At the broad market group level, growth was recorded across all three monitored categories (consumer, intermediate and investment).

**New orders placed at Indian manufacturers rose for the second month in succession during December. Furthermore, the rate of growth quickened to the sharpest since October 2016. According to anecdotal evidence, new business inflows were underpinned by greater demand from home and international markets.**

The upward movement in the headline index was driven by a sharp increase in output. Furthermore, the rate of expansion quickened to the strongest since December 2012. Higher order book volumes and improved underlying demand conditions reportedly contributed to greater production. Notably, the rate of growth outstripped the trend seen since the start of the survey.

New orders placed at Indian manufacturers rose for the second month in succession during December. Furthermore, the rate of growth quickened to the sharpest since October 2016. According to anecdotal evidence, new business inflows



were underpinned by greater demand from home and international markets. In turn, new export orders rose at the quickest pace since June. Resulting from improved demand conditions, Indian manufacturers upped their staffing levels at the end of the year. In fact, job creation accelerated to the strongest since August 2012.

In response to greater inflows of new orders, good producers were encouraged in December to engage in input buying at the sharpest rate since August 2015. As a consequence, the sector observed a modest increase in pre-production inventories for the first-time since June.

Meanwhile, the introduction of the Goods and Services Tax (GST) continued to exert upward pressure on manufacturers' cost burdens in December. Furthermore, input cost inflation accelerated to the strongest since April and was sharp overall. Reflecting greater cost pressures, firms raised their output charges for the fifth month in succession. Although the rate of inflation quickened to a 10-month high, it was modest and weaker than the longrun series average.

Finally, the Future Output Index signalled the strongest level of confidence in three months, with more than one-in-five survey participants forecasting higher production. Expectations of an improvement in economic conditions was cited as the key factor behind positive sentiment. That said, the level of business confidence remained below the trend observed for the survey history. 

Source: Nikkei India Manufacturing PMI, IHS Markit



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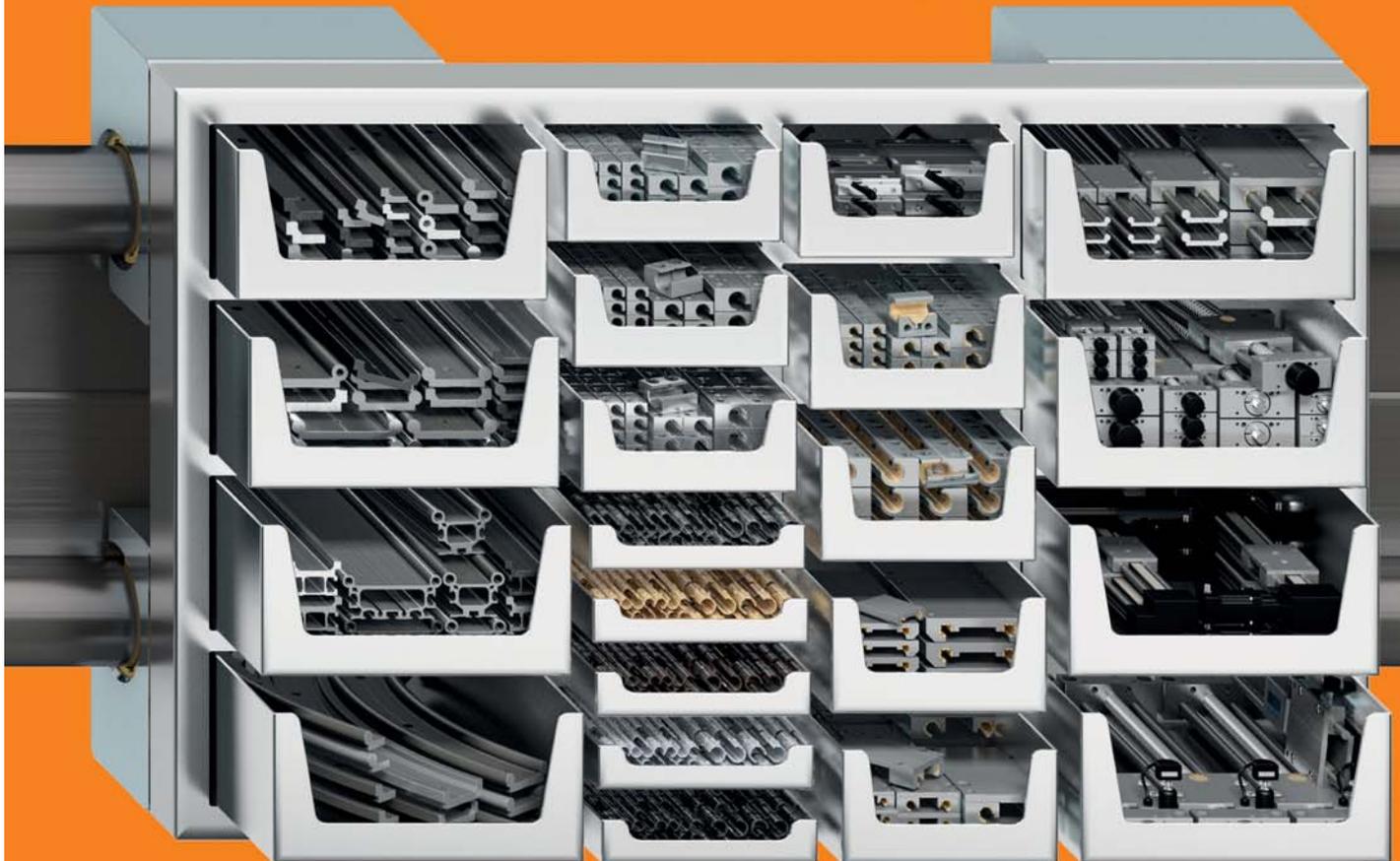
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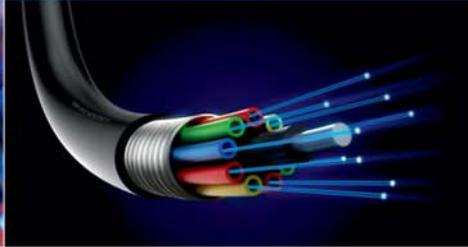
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# Star List

## 2018

The Machinist Star List\* is an annual feature which aims at recognising the iconic leaders of Indian manufacturing. The Star List 2018 includes the leaders from various sectors of the manufacturing industry. It is their vision of steering their respective companies ahead and passion towards the manufacturing industry that makes them extraordinary individuals. Through this feature, The Machinist salutes their contribution towards Indian manufacturing.



\*Names of the Leaders appear in the alphabetical order of their first names in the list. It does not denote any kind of ranking.

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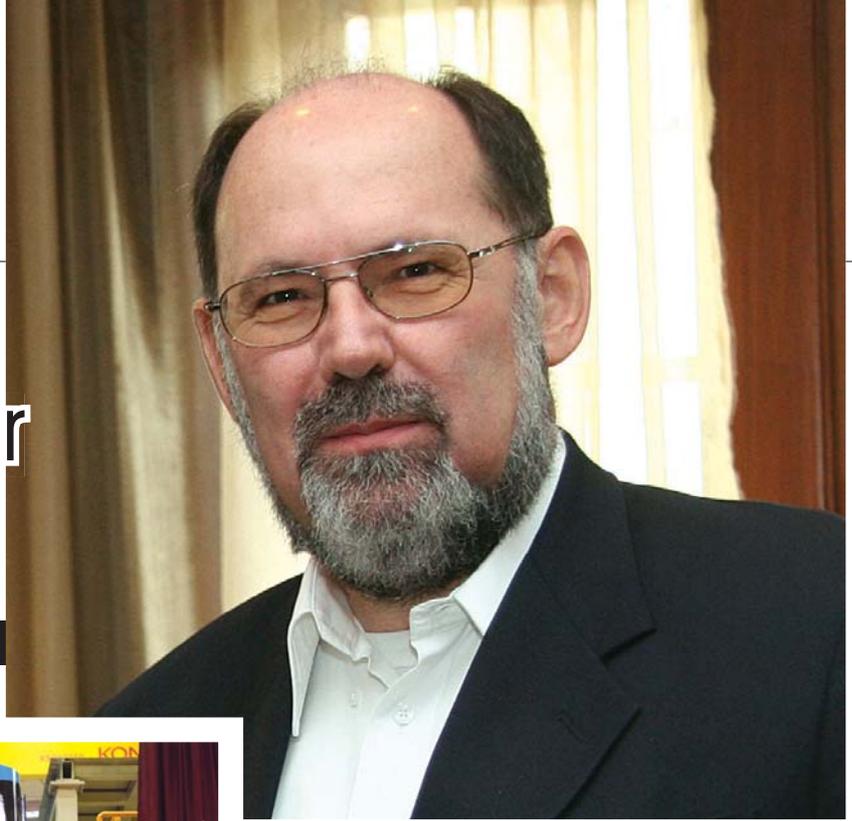
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## Alain Spohr

MD, Alstom India and  
South Asia

By Swati Deshpande



**A**lain Spohr joined Alstom India few months back with the vision of expanding the company's footprint in the country and for ensuring optimised delivery for on-going projects. Another area that he wishes to work on is ensuring optimised delivery for on-going projects. "Alstom in India is going into 2018 with a strong line-up of deliverables, all being executed on

schedule. Especially exciting for us will be the delivery of the first electric locomotive from our Madhepura plant, in early 2018," he says.

Introduction of this locomotive in the Indian freight network will be transformational in terms of delivery and life-cycle of the product.

He plans to further transform the Indian railways with latest technologies. "We are also looking to introduce new technology like the APPITRACK (automated track-

laying solution) and explore new opportunities in the Indian mobility ecosystem (Eg: for APTIS - a tram-bus, CITADIS - Trams and AXONIS - Light Rail Solution)," he shares.

Spohr envisions to make India the third largest railway network. "With a steady inflow of FDI, Government's push towards adopting new technology and modernisation of the existing network, the Indian Railway network both mainline and urban is growing at a healthy rate. Alstom's growth is in keeping with the growth of the sector and the company hopes to continue to contribute in making India the third largest railway network in the next five years," Spohr concludes.

Spohr's rich career in India spans over 14 years which not only gives him a keen understanding on the country's business environment but also its culture and growth trajectory. In his last role, Spohr was the MD & CEO of the GE/Bharat Forge Joint Venture and the India Country Leader for Steam Power Systems at GE Power. Under his leadership, the company won several turbine projects, totaling approximately \$1 billion and also scaled up its knowledge center in the areas of project management, engineering, construction and commissioning.

**"ALSTOM'S GROWTH IS IN KEEPING WITH THE GROWTH OF THE SECTOR AND THE COMPANY HOPES TO CONTINUE TO CONTRIBUTE IN MAKING INDIA THE THIRD LARGEST RAILWAY NETWORK IN THE NEXT FIVE YEARS"**

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THE  
MACHINIST  
Star List  
2018

# Anil Rai Gupta

Chairman & Managing  
Director, Havells India

By Niranjan Mudholkar

It is quite interesting that Havells India describes itself as India's leading 'Fast Moving Electrical Goods' Company! The way it has been clocking profits and growth, one cannot disagree



that it is indeed fast moving. For example, its combined performance for Q2FY18 (Havells and Lloyd), saw net profit growing by a whopping 17 percent to Rs.171 crore while net revenue stood at Rs.1777 crore. EBIDTA? Rs. 257 crore at 26 percent growth! Obviously, it says a lot about the leadership of Anil Rai Gupta, Chairman and Managing Director, Havells India Ltd, who has built the organisation into one of the largest

makers of industrial and household electrical products in India. "In all its product categories, Havells is amongst the leaders and commands a premium over rivals," Gupta says. There are some who even mistake Havells to be an American or a European brand. Of course, Havells does sell its products in over 50 countries – making it truly international. And these products are manufactured at the eleven state-of-the-art factories in India.

**"IN 2017, HAVELLS COMPLETED ACQUISITION OF LLOYD CONSUMER DURABLE BUSINESS DIVISION. THIS IS ONE OF THE LARGEST ACQUISITIONS IN INDIAN CONSUMER DURABLE SPACE."**

Gupta, who joined Havells in 1992 under the mentorship of his father, Qimat Rai Gupta, has been spearheading Havells' transformation. He expanded Havells from industrial switchgear to consumer goods and successfully transformed it from being a B2B brand into a well-accepted consumer brand. In 2007, Gupta took Havells international with the acquisition of Sylvania (in Europe and South America). It is considered amongst the biggest overseas acquisitions by an Indian company. "In May 2017, Havells completed the acquisition of Lloyd Consumer Durable Business Division. This is one of the largest acquisitions in Indian consumer durable space with an enterprise value of Rs.1600 crore," Gupta shares.

There's a lot more happening as Havells continues to expand into different product segments of the industry. To support this expansion, it is planning to set up new plant in Rajasthan for consumer durables.



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# Dharmesh Arora

CEO, Schaeffler India

By Niranjan Mudholkar



**D**harmesh Arora started his 27-year-old career as a product engineer with Maruti. After a successful spell, he joined GM General Motors where he held global leadership positions in India, Thailand, Mexico and USA. He joined Schaeffler

in 2012.

Under his leadership, Schaeffler has consolidated its position as a leading supplier of high quality components and systems for industrial and automotive applications through three product brands – FAG, INA and LuK.

Arora is now charting a new course for Schaeffler. Schaeffler, with its global strategy ‘Mobility for Tomorrow’ is establishing the course for future sustainable and profitable growth.

“The entire strategy is developed by keeping in mind the growing customer demands in all forms of mobility.

The strategy is based on four mega trends- climate change, urbanization, globalisation and digitalization. From these mega trends, we have centred our attention upon eco-friendly drives, urban mobility, inter-urban mobility and energy chain,” Arora says.

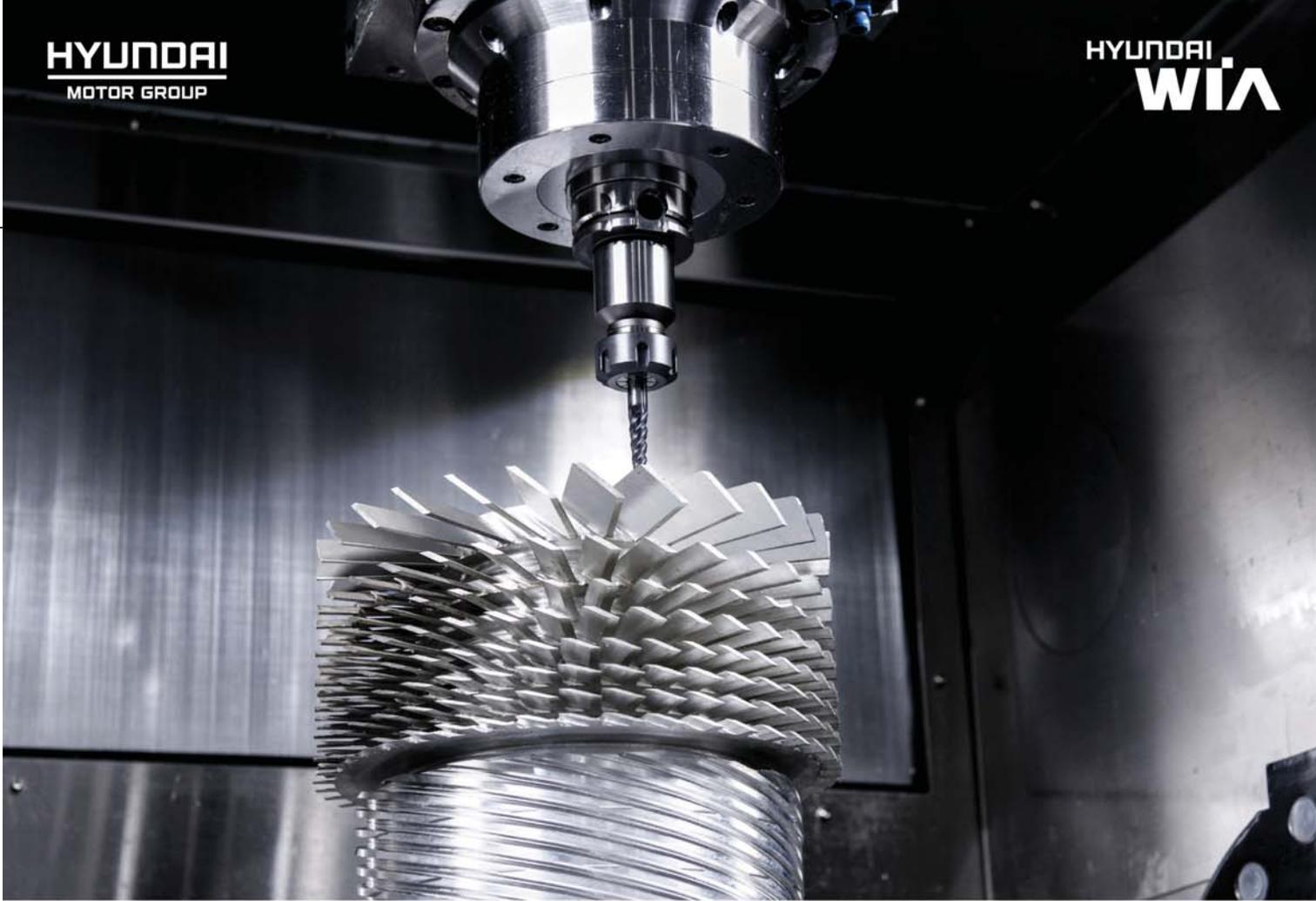
Schaeffler is also playing a crucial part in the field of innovation and technology. “We have a strong local organization that is well integrated

and supported by the Headquarters. Over the next three to five years, we will continue to invest in expanding our plant capacities, our product portfolio and engineering capabilities in the country. We are going to invest in our distribution network and all the logistics areas which will provide us substantial benefits in the long run.”

In the last three years, Schaeffler has invested about Rs.145 crore each year, in India. “We particularly see big opportunities in India in areas of automotive including two wheelers, agricultural tractors, wind energy, railways, steel and other infrastructure related sectors. Going forward, we are doubling our investment into the India market from 2018.”

Schaeffler India clocked Q-o-Q growth of seven percent. On a consolidated basis, the Schaeffler group in India (represented by three companies – Schaeffler India, INA and LuK) nine months’ (Jan-Sep 2017) total income (net) stood at Rs.2,973 crore which is higher by 11 percent compared to the corresponding period of 2016. “We had witnessed some uncertainties due to GST implementation, but the company has delivered good growth in a challenging environment. We see potential of upwards of double-digit growth given our past performance,” he shares.

**“OVER THE NEXT 3-5 YEARS, WE WILL CONTINUE TO INVEST IN EXPANDING OUR PLANT CAPACITIES, OUR PORTFOLIO AND ENGINEERING CAPABILITIES IN THE COUNTRY.”**



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# Gautam Maini

MD, Maini Precision Products

By Niranjan Mudholkar

**A**n alumnus of Shri Ram College of Commerce, Delhi, Gautam Maini started working in Maini Precision Products Limited (Bangalore) in 1989 immediately after



earning his B. Com (Hons.) degree. For the next two years, he received rigorous training under different senior professionals in the organisation including his father Dr. S K Maini, the Founder Chairman of Maini Precision Products. His training was focussed on all key areas of the business such as production, logistics, purchase, stores,

estimation, quality, HR, and so on. He also went through extensive training in Bosch to learn their systems of purchase and logistics.

Since MPP was exporting over 85 percent of its turnover during that time, Gautam Maini was sent to Europe for a couple of months for hands on marketing experience. In 1996, he was given a two-year assignment to run Maini Group's Granite Outfit and he turned it around.

**“MAINI PRECISION PRODUCTS AIMS TO SIGNIFICANTLY RISE UP THE TECHNOLOGY VALUE CHAIN FOR THE INDIAN AEROSPACE INDUSTRY IN THE NEXT FIVE YEARS. THROUGH THE LPT VANES CONTRACT, MPP HAS EMBARKED ITS JOURNEY TOWARDS THIS DIRECTION.”**



In 1998, he came back as Managing Director of MPP. Since then, he has put all his efforts to grow the business from under EUR 2.5 million sales in 2001 to US\$60 million currently. Today, MPP exports 55 percent of its products to Europe and USA. The list of clients includes Bosch, Eaton Corporation, Volvo Powertrain, GM Powertrain, Getrag, Magneti Marelli, Safran Aircraft Engines, Deutz AG, and Magellan amongst others.

MPP has today grown from three manufacturing locations to ten locations. In 2004, Gautam Maini led MPP's successful foray into the aerospace segment, thus also de-risking the business. Recently, Gautam Maini ensured that an Integrated Management System was put in place to make the operations more efficient while also reducing the number of audits. With this team, he is now all set to take MPP to the next level.

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# Star List

## 2018

# Guenter Butschek

CEO & MD, Tata Motors

By Swati Deshpande

**G**uenter Butschek joined Tata Motors in 2016 after his last assignment at Airbus Group where he served as Chief Operating Officer at Airbus and Member of the Group Executive



Committee. His rich global experience of more than 25 years has helped Tata Motors to venture into new avenues of growth. One of the recent examples of the same would be company's entry into e-mobility. Tata Motors bagged an order of 10,000 electric to Energy Efficiency Services Ltd (EESL). In fact, Butschek recently handed over the keys of the Tigor EVs to Saurabh Kumar, Managing Director, EESL. Speaking

on it, he mentioned, "We, at Tata Motors are extremely proud to be part of this project and are supportive of the Government's transformational vision of auto electrification in India."

This project is indeed prestigious for him. Speaking on the same, he said, "With Tigor EV, we have begun our journey in boosting e-mobility and will offer a full range of electric vehicles to the Indian customers. This tender has

effectively paved way for connecting our aspirations in the e-mobility space with the vision of the Government."

Another feather in his cap is RACEMO winning German Design Award (GDA) in the Gold category for International Excellence in "Exceptional Product Design" at the 87th Geneva International Motor Show. "Winning the prestigious German Design Council's Gold Award for Automotive Design is a proud moment for us and is testament to the skill and passion of the Global Tata Motors Design team. A perfect blend of Italian sensuality and Indian ingenuity, the RACEMO is the first innovation from our sub-brand TAMO and our emotional, unexpected leap to the future," Butschek said.

Also, the company registered the growth of by 52 percent in December 2017. Tata Motors sold 54,627 vehicles in December 2017 as against 35,825 units in December 2016.

**"WITH TIGOR EV, WE HAVE BEGUN OUR JOURNEY IN BOOSTING E-MOBILITY AND WILL OFFER A FULL RANGE OF ELECTRIC VEHICLES TO THE INDIAN CUSTOMERS."**

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Driving the world

# Kenichi Ayukawa

MD & CEO, Maruti Suzuki

By Niranjan Mudholkar

It is said that in the Indian automotive industry, the more you try to catch up with Maruti Suzuki, the more it widens the gap! That's been the case for decades now! And every leader at the helm of Maruti Suzuki has ensured that things stay the way they



are. Kenichi Ayukawa, MD & CEO, Maruti Suzuki India Limited, is no exception. If you ask him the secret of Maruti Suzuki's consistent and long-term market leadership, he will give you a simple answer – regularly transforming the organisation by continuously redefining the customer experience, both in terms of the

products as well as the service. No wonder that Maruti Suzuki products keep dominating the top ten lists of highest number of cars sold every single month in India. Obviously, this has a direct impact on the business. For example, the Company sold a total of 886,689 vehicles in H1 (April-Sep 2017) - a growth of 15.6 per cent with

the net profit at Rs 40,407 million, up 3.8 per cent!

“We have always viewed India with confidence and optimism,” he says. It is this confidence and optimism that is driving further investment of nearly Rs. 3800 crore in a new R&D centre at Rohtak to build product design and development capability.

“In terms of manufacturing capacity, a second plant is under construction in Hansalpur and a third one has been announced. Suzuki is setting up the first lithium ion battery plant in India in a joint venture partnership with Toshiba and Denso. We are regularly bringing out new products in diverse segments. We are upgrading the sales and service experience for customers through Nexa and Arena brands,” Ayukawa shares. “All in all, we are committed to all aspects of the business because we believe India will grow further,” Ayukawa adds with confidence.

**“IN TERMS OF MANUFACTURING CAPACITY, A SECOND PLANT IS UNDER CONSTRUCTION IN HANSALPUR AND A THIRD ONE HAS BEEN ANNOUNCED. SUZUKI IS SETTING UP THE FIRST LITHIUM ION BATTERY PLANT IN INDIA IN A JOINT VENTURE PARTNERSHIP WITH TOSHIBA AND DENSO.”**

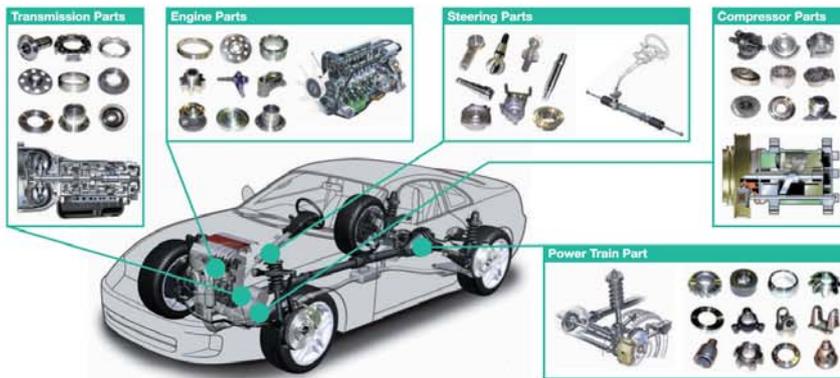
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BB 4013



CNC Servo Motor Driven Ram Turret Punch Press  
M3048 TG



## Dr. Mahesh Gupta

Chairman, Kent RO  
Systems Ltd.

By Niranjan Mudholkar

There was a time when imported or foreign brand water purifiers dominated the Indian market. Recognising the huge gap, Dr. Mahesh Gupta, Founder & Chairman, Kent RO Systems Ltd. forayed into this market with a home grown brand. "Today, our brand - Kent



RO - enjoys a whopping 35 percent market share in the RO Space. In fact, last year, it sold one million water purifiers, clocking a revenue of Rs780 crore (FY16-17). The company is now hoping to close the current financial year (FY17-18) with a revenue of Rs.950 crore, a 22 percent growth over the previous year," Dr. Gupta says.

In recognition for his contribution

to the industry, Dr. Gupta is today known as the 'Pure Water Man' of India. And Dr. Gupta is now aggressively also venturing into other product segments. The company plans to take its number of products to 100 by 2018!

Of course, the focus on water purifiers still remains. Considering the growing demand, Kent RO is now setting up of its new manufacturing

facility in Noida. "We are preparing for future," says Dr. Gupta, the young at heart entrepreneur!

The company already has a facility in Roorkee to make 5,00,000 RO units annually and 5,00,000 gravity based water purifiers running on a single shift, yet it has chosen to invest in another Greenfield facility near Noida, when a scale up in production could have been affected by simply extending the shift at the existing plant. "It has taken us 18 years to grow the overall market to Rs. 3500 crore but the penetration levels are still at 2-3 percent. Once we cross four percent, I believe the growth will be exponential. Investment in the new facility, which is expected to be operational by next year 2018, is expected to cost the company about Rs.100 crore," he shares.

Kent RO is also expanding its geographical horizons and has now entered into the GCC market. The brand's wide range of household appliances will be available at LuLu Hypermarkets.

**"TODAY, OUR BRAND - KENT RO - ENJOYS A WHOPPING 35 PERCENT MARKET SHARE IN THE RO SPACE. IN FACT, LAST YEAR, IT SOLD ONE MILLION WATER PURIFIERS."**



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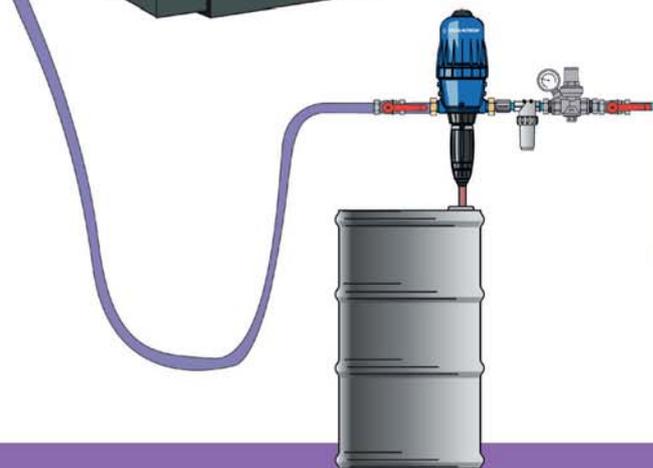
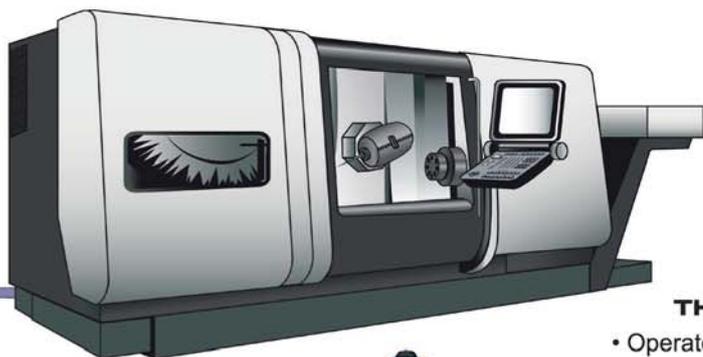
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THE  
MACHINIST  
Star List  
2018

# Rahil Ansari

Head, Audi India

By Niranjan Mudholkar



**W**hen Rahil Ansari took charge as the Head of Audi India on February 1, 2017, he became the first person of Indian origin to do so. In fact, at 38, he is also the youngest Brand Director for Audi Worldwide!

Ansari, who has done his education in Germany, France and Sweden, has been working with Audi since 2004. And while he has mostly worked

in Europe on various assignments, he has also been responsible for the sales and marketing in India (and Pakistan and Sri Lanka) between 2006 and

2008. So, he has a fair understanding of this market. Audi has already launched 11 models in India in 2017 – one more than its set target of ten models. “We will do whatever is necessary to reach a continuous growth for Audi and its dealer partners. Of course, we need to make sure that we achieve a sustainable and viable growth in India,” Ansari shares, adding that “We are not only looking at volumes but also our main focus is to fulfil customers’ requirements and create

memorable moments for them. This means we will also be launching entirely new models, which will create a new segment in the industry.”

With some exciting new products and initiatives planned in 2018 – including the upcoming second-generation Audi Q5 – Ansari is quite positive about the New Year. “The segment is small, but the country is so full of resources. A substantial amount of people can own an Audi. We expect the market to grow at a certain stage. India is a small but strategic market for Audi,” he says. In addition to expanding the network footprint, Ansari believes in increasing accessibility by reaching out to the customers, even at their doorsteps.

One of the important things for Audi in India is the change of the philosophy. “We are now being perceived as being a global brand that is Indianised. ‘My Kind of Audi’ initiatives take into consideration the different cultures and regions within India itself, and integrating in our customer events,” Ansari adds.

**“WE WILL DO WHATEVER IS NECESSARY TO REACH A CONTINUOUS GROWTH FOR AUDI AND ITS DEALER PARTNERS. OF COURSE, WE NEED TO MAKE SURE THAT WE ACHIEVE A SUSTAINABLE AND VIABLE GROWTH IN INDIA.”**



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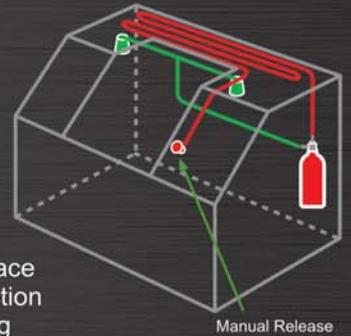
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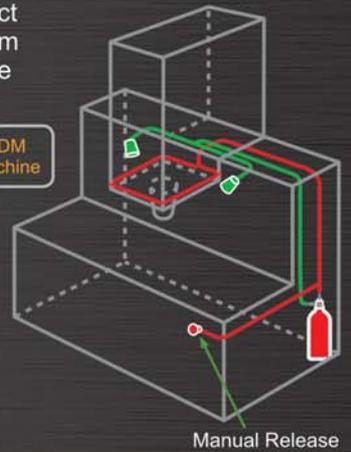


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# Sudhir Kumar Mishra

CEO & MD,  
BrahMos Aerospace

By Niranjan Mudholkar



It is not often that a top-level defence scientist specialising in missile technology gets featured in the top CEO list. But that's what makes Sudhir Kumar Mishra, CEO & MD, BrahMos Aerospace, special. With more than 33 years of enriching experience in fields of missiles and defence diplomacy, Mishra started his career under the tutorage and guidance of Dr. APJ Abdul Kalam.

Currently, he is working as the CEO & MD of BrahMos Aerospace, a Joint Venture between Govt. of India and Russia. "I am leading highly motivated and technically competent team of more than 1500

Engineers, Scientists and Technicians located at New Delhi, Hyderabad, Nagpur and Thiruvananthapuram and successfully managing technical

and financial functioning of Joint Venture BrahMos," he says describing his work.

As the CEO, Mishra's responsibilities include design, development, testing, production, marketing and product support for the world's fastest supersonic cruise missile systems and ground facilities for Indian Army, Navy and Air Force in various configurations.

BrahMos Aerospace has created business of Rs.27,500 crore on the investment of Rs.1300 crore and healthy profits for Govt. of India. Mishra's contribution has been in upgrading the BrahMos missile to achieve newer capabilities and

versions for Land to Land, Sea to Land, Air to Sea/Land and Land to Sea as well as giving extended range capability.

"With the recent launch of BrahMos Air version from Su-30MKI, we have completed the Supersonic Cruise Missile triad. Production capacity is being increased at Nagpur to provide these systems to the users within scheduled time frame and also to cater for futuristic requirements including the prospective export orders.

"With an investment of US\$ 300 million, BrahMos today has an order book of US\$ 6 billion which we expect to reach US\$ 10 billion in the coming years. Apart from this, we are setting up technical positions at numerous locations which will provide 24x7 services to Armed Forces. Our endeavour is to sustain the motto of BrahMos as a Total Solutions Company and maintain the leadership in the world of cruise missiles."

In 2017, under Mishra's leadership, BrahMos achieved several milestones. For example, On November 22, 2017, BrahMos Air version has been successfully flight tested from the fighter aircraft SU-30 MKI hitting the sea target in Bay of Bengal at bull's eye.

**"WITH AN INVESTMENT OF US\$ 300 MILLION, BRAHMOS TODAY HAS AN ORDER BOOK OF US\$ 6 BILLION WHICH WE EXPECT TO REACH US\$ 10 BILLION IN THE COMING YEARS."**

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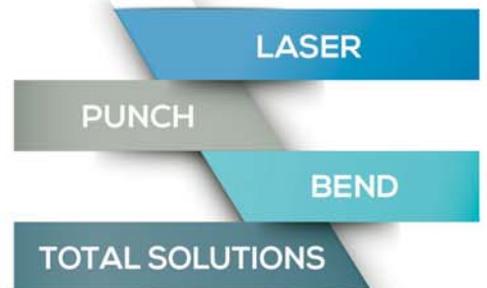


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# Star List

## 2018

# Sudhir Rao

MD, India, Bombardier  
Transportation

By Niranjan Mudholkar

**W**ith 32 years of rich and insightful experience in the automotive industry, it's not easy to shift to completely new industry. But Sudhir



Rao, who has taken charge as the India MD of Bombardier Transportation only recently, has made a smooth transition into the railways sector. In fact, besides the sector change, Rao is also working in a completely new business environment in the sense that auto industry is very B2C in nature compared to the railways sector which is B2B. But Rao is not complaining.

Currently, Bombardier is moving around five million people daily in Mumbai and Delhi and its propulsion equipped locomotives travel around 300,000 km on Indian Railways network. "There is a growing market for public transit driven by urbanization, environmental concerns and, most importantly, infrastructure spending by cities and governments. I want to capture more market share for

"The public sector has always appealed to me and when this opportunity came up, I was quite happy to take it up," he says.

Bombardier Transportation in India across business segments," Rao says.

There are various projects of Indian Railways delivering rolling stock, components, signalling and services Bombardier is keen to participate. Ministry of Railways has set out its vision for rail as a key provider of connectivity and enabler of economic development, with a proposed \$125bn investment over the next five years and with its presence and experience in the Indian market, Bombardier is well poised to take a major share of the accessible market. Rao is enjoying this prospect and wants to make the most of it. "We are focused on projects which we consider as strategic and have long term prospects for our operations in India. We are closely pursuing various metro projects in the cities of Delhi, Mumbai, Pune and Bengaluru along with light rail projects in Kerala amongst various other projects across cities in India," he shares.

**"WE HAVE PLACED A STRONG FOCUS ON DELIVERING PROJECTS FOR THE INDIAN AND EXPORT MARKET, ENHANCING OUR ENGINEERING AND INDUSTRIAL FOOTPRINT."**



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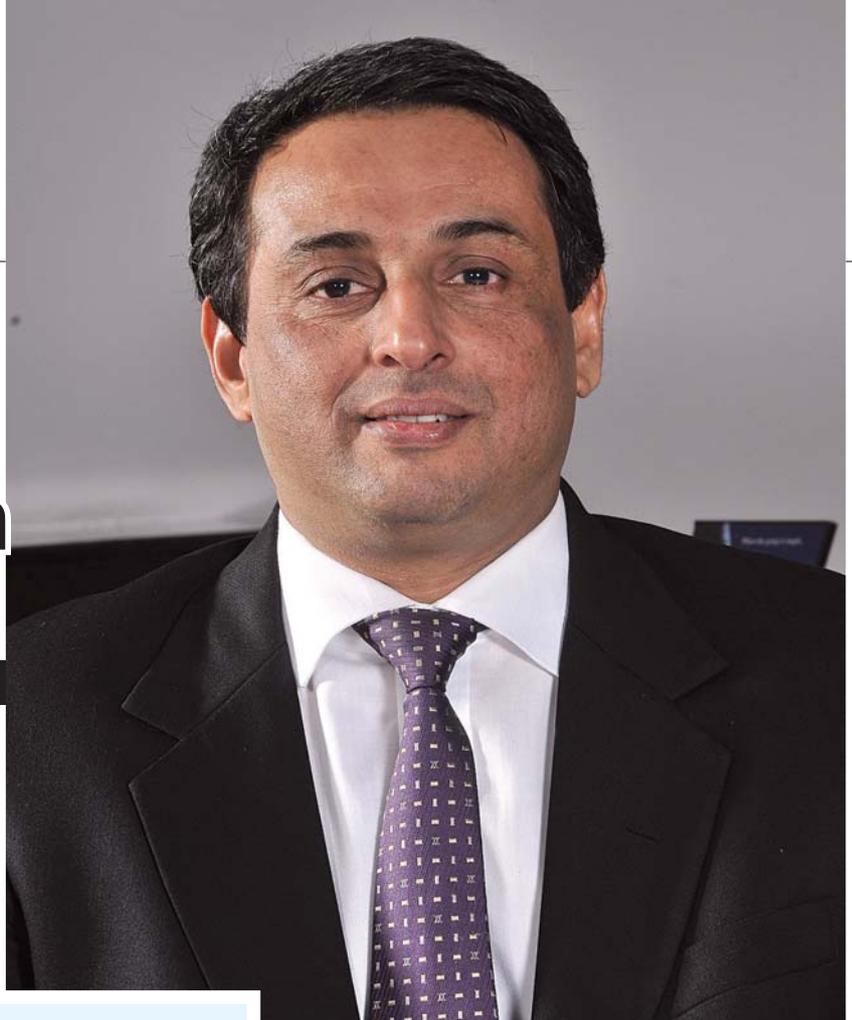
## 2018

# T V Narendran

CEO & MD, Tata Steel

By Swati Deshpande

**N**arendran's career in Tata Steel has spanned many areas in India & overseas including Marketing & Sales, International Trade,



Supply Chain & Planning, Operation & General Management and included stints in Jamshedpur, Kolkata, Dubai & Singapore. With this experience, he became the Managing Director of Tata Steel (overseeing India and South East Asia) effective November 2013 and successfully executed and commissioned one of the largest Greenfield Project in India – The

Kalinganagar Steel plant in Odisha, which ramped up operations to its rated capacity within a very short span of time. On October 31, 2017 he was elevated as CEO & Managing Director, Tata Steel Ltd.

Under his leadership, Tata Steel achieved its best ever quarterly sales of 3.3 million tonnes in Q3FY18. With this, the company has recorded sales

growth by 7 percent QoQ and 10 percent YoY. Additionally the company has also achieved highest ever quarterly sales in 'Automotive & Special Products' segment with a growth of 6 percent QoQ and 26 percent YoY. The year has been event for company. The company has been recognised as one of the top 26 most innovative companies in India at CII Industrial innovation Awards 2017.

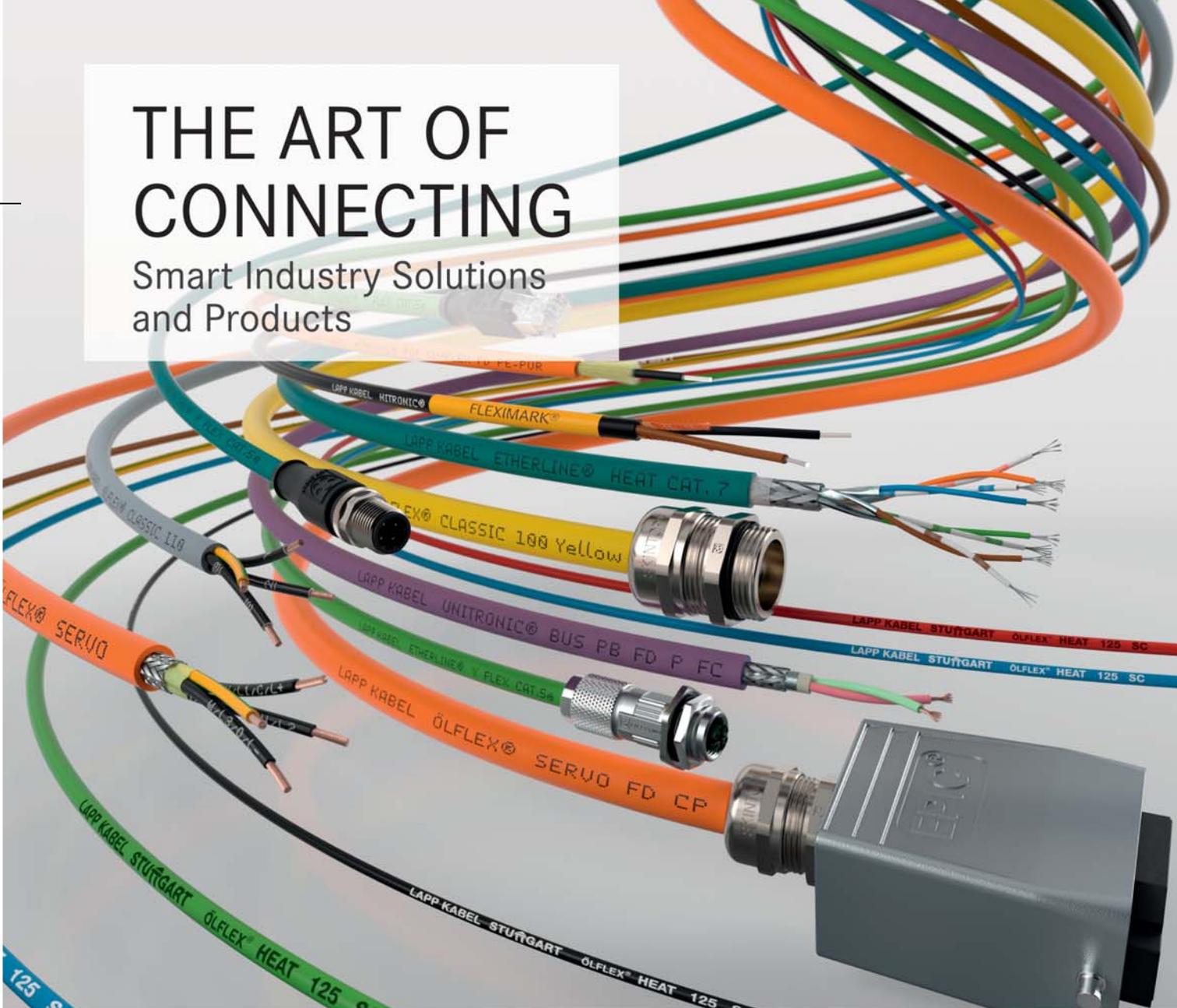
Speaking on the highlights of 2017, he said, "During the year, we had a smooth and successful roll out of GST which had positive implications across our value chain in India. Post the successful ramp up of the 3 million tonne installed capacity at Kalinganagar, the Board has approved a further expansion to 8 million tonnes at an additional capital outlay of INR 23,500 crores to be raised in a combination of equity and debt."

Apart from heading Tata Steel in India he is also on the Boards of Tata Steel Ltd and Tata Steel Europe. He is also the Chairman of Tata Steel Thailand and NatSteel.

**"POST THE SUCCESSFUL RAMP UP OF THE 3 MN TONNE INSTALLED CAPACITY AT KALINGANAGAR, THE BOARD HAS APPROVED A FURTHER EXPANSION TO 8 MILLION TONNES AT AN ADDITIONAL CAPITAL OUTLAY OF INR 23,500 CR."**

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## Tomohiko Okada

Managing Director,  
Toshiba India Pvt. Ltd.(TIPL)

By Swati Deshpande

**T**omohiko Okada is a Toshiba veteran for over three decades and has been associated with India operations for 25 years. He has achieved remarkable



milestones for Toshiba which include projects such as NTPC Korba Generator Transformers, UPRVUNL for 2X500 MW Anpara “B” project, Turbine/Generator island orders of NTPC 3X800 MW Kudgi, 2X660 MW Meja and 2X800 MW Daripalli project. Most recently, he played an instrumental role in winning the first ever full scope EPC project of 1X660

MW Harduaganj project.

As the demand for power and infrastructure in India continues to increase, Okada aims to utilise Toshiba’s overall experience and technical expertise in supplying higher quality products at competitive prices, to contribute to the growth of industries For the Next India.

Speaking about opportunities

in India, “Toshiba has identified India as a hub for manufacturing operations and export base with an aim to Make in India and Export from India. In India, Toshiba is focusing on sustainable B2B fields like Power Systems, Water Treatment, Railway Systems, Elevators, and Batteries, to continue to support and contribute to Government of India’s initiatives.”

That’s not it. He further plans to expand Toshiba India’s base. “With strong alignment between India, Japan and many other countries, we are in a unique position to serve as a gateway to countries globally, especially Middle-East and Africa from our Indian base,” he believes.

Looking ahead at the era of electric vehicles, Okada envisions Toshiba playing an important role in the India’s future with EVs. “Toshiba will also contribute to the stable supply of lithium-ion batteries in India for promoting sustainable cars in the country and will support ‘Make in India’ initiative.”

**“TOSHIBA WILL ALSO CONTRIBUTE TO THE STABLE SUPPLY OF LITHIUM-ION BATTERIES IN INDIA FOR PROMOTING SUSTAINABLE CARS IN THE COUNTRY AND WILL SUPPORT “MAKE IN INDIA” INITIATIVE.”**



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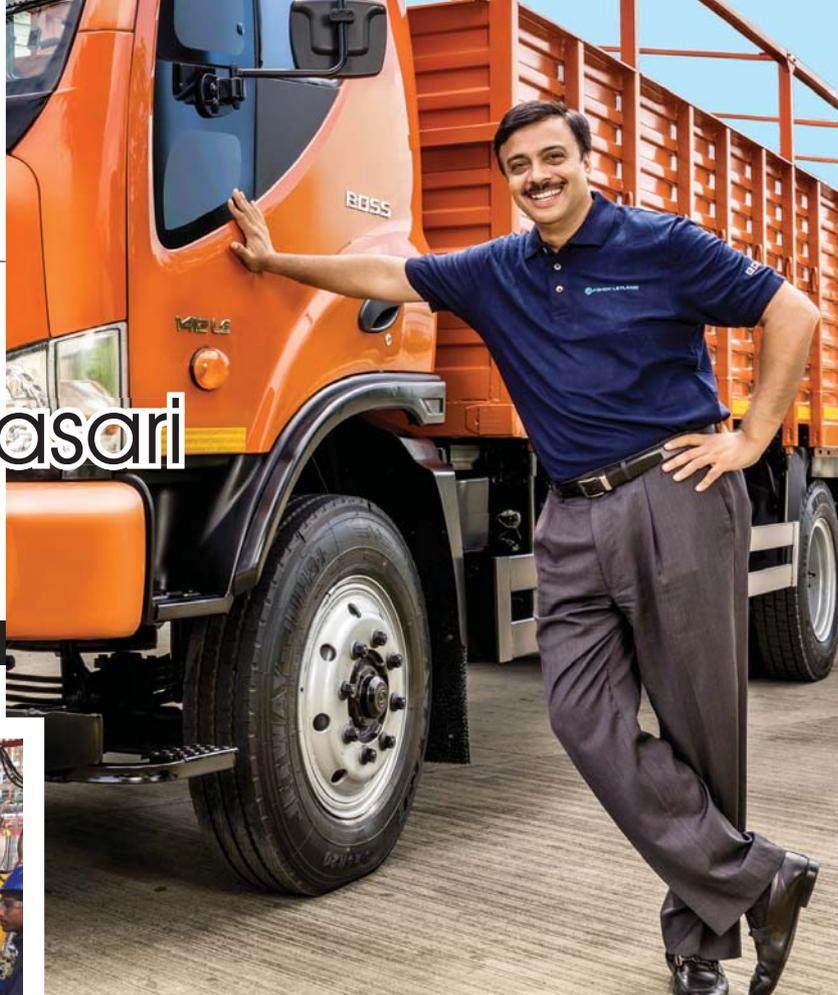
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## Vinod K. Dasari

CEO & MD,  
Ashok Leyland Limited

By Niranjan Mudholkar



**A**shok Leyland, the flagship of the Hinduja Group, reported phenomenal revenues of Rs. 6,046.89 crore, against Rs. 4622.41 crore, same period last year, with an increase of 31 percent. The export volumes grew by 39 percent in the quarter. The company achieved 10.1 percent EBITDA margin in Q2 and has registered a double-digit EBITDA margin in 10 out of the past 11 quarters. And the man who has been

spearheading Ashok Leyland's remarkable growth is its CEO & MD, Vinod K. Dasari.

Dasari is also the man who is responsible for the fantastic turnaround of Ashok Leyland a few years back. And he has not looked back since then. Commenting on the amazing performance, Dasari acknowledges that 'it has been a satisfying performance'. "Despite all the challenges, our robust market share growth exemplifies the technological leadership of Ashok Leyland. Our iEGR technology for BS-IV has been well accepted by customers. To support the rapidly growing network of customers, we have invested in the

digital market place to enhance our customer's efficiency, performance, and profitability through various means of "anytime, anywhere" support for their vehicles. Winning the Deming Prize second time is a testimony of our quality systems. We are very proud to have achieved this," Dasari says.

One of the highlights of Dasari's leadership is his focus on making the organisation future-ready, while addressing the present challenges. Dasari believes that 2018, being a pre-election year, should see increased public spending as well as incentivizing private consumption. "This coupled hopefully with a good monsoon should see buoyancy in demand. For the auto industry in India, 2018 would be a point of inflection, wherein the activity in Electric Vehicle space and preparation for Euro 6 would markedly increase. This should see increased investments across the value chain along with other investments to meet the new regulations. Overall, an exciting year ahead," he says.

**"FOR THE AUTO INDUSTRY IN INDIA, 2018 WOULD BE A POINT OF INFLECTION, WHEREIN THE ACTIVITY IN ELECTRIC VEHICLE SPACE AND PREPARATION FOR EURO 6 WOULD MARKEDLY INCREASE."**

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## Vipin Sondhi

MD & CEO, JCB  
India Ltd

By Swati Deshpande

In the span of 11 years, Vipin Sondhi, Managing Director and Chief Executive Officer of JCB India Ltd. has steered the expansion of the company's business in India from one



factory to five world-class factories at Delhi, Pune and more recently at Jaipur. Moreover, he has played a key role in making India as a Global Manufacturing hub for JCB with cumulative exports to over 85 countries.

Innovation is something that is close to his heart and hence company is at the forefront in launching new

and innovative product. One of the recent examples of the same would be JCB Backhoe Loader with Automated Manual Transmission. Speaking on the same, Sondhi says, "We have made the iconic JCB Backhoe Loader even better with the introduction of five world's first features, including an AMT which is an Automated Manual Transmission called Easy Shift. In line with our

philosophy of being a Full Range Infrastructure Equipment Partner, we have also introduced our largest 'Made in India' machine."

Under his leadership JCB India is Transforming into a full range Infrastructure Equipment Partner with a wide range of products and services. Additionally, an avid golfer—Sondhi has been actively involved in the growth of the industry and leading conduct of CII's Excon, South Asia's largest exhibition for construction equipment by as a Chairman since 2006. An alumnus of The Indian Institute of Management, Ahmedabad, The Indian Institute of Technology, Delhi and The Lawrence School, Sanawar; Sondhi has over three decades of experience in Manufacturing and Engineering based companies such as Honda, Tata Steel and Tecumseh.

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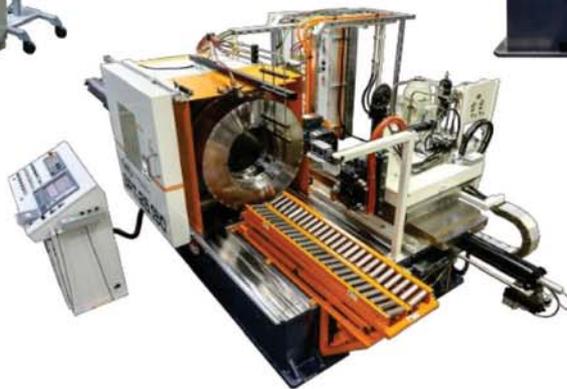
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THE  
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2018

# Wu Song

MD, LiuGong India

By Niranjan Mudholkar

**W**hile Wu Song has been the Managing Director of LiuGong India since April 2016, his stint with India has been much longer. He has already served as the Finance Director of LiuGong India since May 2010 and as



the Vice President since April 2011.

And although he is an accountant by qualification, Song has more than familiarised himself with all the other important facets of the business in a period spanning more than seven years in India. Little wonder that he's leading the Team in India and overseeing the areas of R&D, procurement, manufacturing, dealer development as well as sales & marketing. In fact,



besides India, Song is also responsible for all aspects of LiuGong's operations in South Asia including Bangladesh, Nepal, Sri Lanka and Bhutan.

What makes Song a perfect fit for our Star List is his relentless, strategic and successful focus towards 'Make in India' by launching more product lines, full localisation of components, expansion of manufacturing capabilities and positioning India as an

'export hub' for LiuGong!

During its 15 years of relatively young business presence in India, LiuGong has been operating an assembly based manufacturing facility for a decade now. The facility is supported by an R&D Centre as well as a training Centre in MP. But Song is now taking it to the next level. "To match steps with the 'Make in India' campaign and generate better employment opportunities, we are making an additional investment of US\$ five million to incentivise the installed production capacity by setting up a full-fledged manufacturing facility by end of this year. Our manpower strength is likely to increase by 40 percent over the next 2-3 years generating more manpower from India to support Skill India," he shares.

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## Yoichiro Ueno

President & CEO,  
Honda Cars India Ltd.

By Niranjan Mudholkar

**Y**oichiro Ueno took charge at Honda Cars India Ltd as the President & CEO with effect from April 1, 2016. Ueno is seasoned campaigner with over three decades of working experience in Honda's automobile business. He



has amassed wealth of knowledge in the global automotive industry having worked in diverse markets such as Japan, New Zealand, Thailand, China, North America and Malaysia. Ueno believes that India is one of the fastest developing markets in the world with its economy also growing steadily.

The year 2017 has been a successful one for Honda Cars India (HCIL).

HCIL posted a very healthy 19 percent growth from April to November owing to the success of new launches like the New City and the WR-V. In fact, a growth of 19 percent is one of the highest growth in the industry this year. In 2018 also, Honda is going to have an aggressive plan for the Indian Market as India is a very important market for Honda. "In the

Asia Oceania business region, India is currently the largest market for Honda, and is expected to increase its importance for Honda in its global operations in the future. As a measure to demonstrate our commitment to the market, we have an aggressive plan to make six big launches in the next three years. We are certain that Honda will further increase its sales and strengthen the presence in the Indian market.

"We understand that the customer's expectation to Honda is to provide products which are more premium and come with additional value. We will maintain our premium positioning in the Indian market through our innovative global products as well as products developed specifically for this region," he adds.

**"AS A MEASURE TO DEMONSTRATE OUR COMMITMENT TO THE MARKET, WE HAVE AN AGGRESSIVE PLAN TO MAKE SIX BIG LAUNCHES IN THE NEXT THREE YEARS."**



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## Volkswagen India produces 150,150 cars in 2017

Registering a growth in production over the last year, Volkswagen India's Pune Plant has now recorded its highest ever annual production since 2009. The plant has now witnessed a growth in production for the sixth year in running. The contribution towards the increased volumes comes from a combination of higher demand from the domestic as well as export markets where the cars 'Made in India' have been a success.

The Volkswagen Pune Plant facility is the only German car manufacturing plant in India that covers the entire production process from pressing parts to final assembly. The plant manufactures a range of vehicles including Volkswagen Polo, Ameo, Vento and ŠKODA Rapid. In addition to the cars,



1.5-litre and 2.0-litre diesel engines are also being assembled at the facility.

The production for domestic volume for the year 2017 reached over 57,000 units from Pune Plant for Volkswagen and ŠKODA combined. The production of export units which includes Volkswagen Polo and Vento stood at over 93,100 cars. Over all, the total number of cars rolled out of the plant has crossed 870,000 units.

## Sona BLW showcases e-axle for auto rickshaws at the EV Expo in New Delhi

Sona BLW Precision Forgings Ltd recently showcased its latest development, an e-axle for auto rickshaws, at the EV Expo in New Delhi. The manufacturer of precision forged gears for automotive and other applications will start production of the new product from next month, with an annual capacity target of 12,000 axles.

"Axle is the spine of an automobile," Sunjay Kapur, Managing Director of Sona BLW Precision Forgings, said. "And the e-axle for auto rickshaws is a shot in the arm for the electric vehicle revolution and conserving the environment."

"Sona's e-axle is designed to allow retro fitment in existing fossil-fuel powered auto rickshaws plying in the market, and offers modularity to adapt to different motors from various manufacturers. Sona BLW will also be looking to cater e-axles up to the 3-ton vehicle segment. The company is in talks with major OEMs to cater to different target vehicles," added Kapur.



## EESL to use \$ 220-million for EV push

On the second anniversary of the historic Paris Accord, world leaders and civil society re-convened to review their commitments towards mitigating climate change at the One Planet Summit in Paris. The Summit was designed to launch new initiatives that assist in ramping up financial flows to developing nations as they implement their climate action plans under the Agreement.

Representatives from over 130 different nations were part of the One Planet summit. While sharing best practices with the representatives, World Bank President Jim Yong Kim applauded Energy Efficiency Services Ltd (EESL) in leading the world with its innovative business model and driving the energy efficiency programmes in India.

Highlighting the impact of EESL's innovative approach and the objective of World Bank's partnership with the company, President of the World Bank Jim Yong Kim said, "I am very excited to share with you the partnership with Energy Efficiency Services Limited or EESL, a company that finances residential and public-sector energy efficiency investments in India. EESL has already deployed more than 275 million LED bulbs, 4.2 million LED tube lights, and 4 million street lights in municipalities throughout India. Through an innovative bulk procurement business model, EESL has driven down prices to make climate-smart LED bulbs as affordable as conventional bulbs, saving energy costs for customers.

"Just by mid-2019 this programme will save enough energy to avoid 20 Gigawatts of electricity capacity which would likely been all coal fired. Early next year, EESL will use a 220-million-dollar World Bank (IBRD) loan, combined with an 80-million-dollar guarantee facility, and leverage 200 million dollars of commercial finance to deploy thousands of electric cars and charging stations and millions of smart meters throughout India."

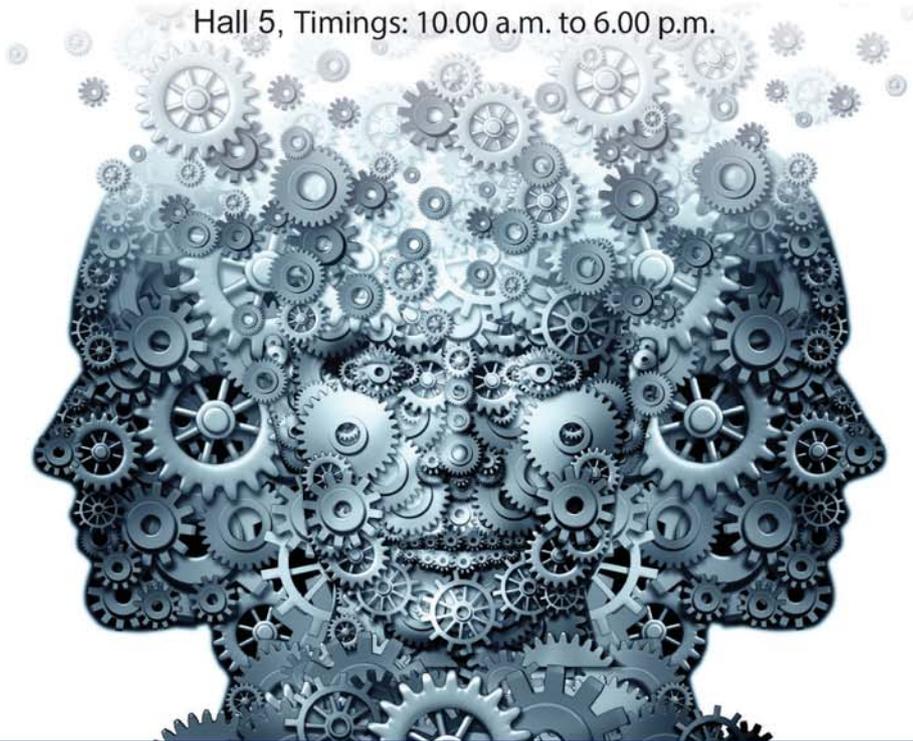
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COVER STORY





# Keeping India on Track!

With its presence and experience in India, Bombardier Transportation is well poised to grab a major share of the accessible railways market, says **Sudhir Rao**, its India Managing Director.

By **Niranjan Mudholkar**

Imagine working for 32 years with the automotive industry and then making a shift to the railways sector. Imagine being in the B2C segment for more than three decades and then suddenly placing yourself in the B2B sector. Now, meet Sudhir Rao, Managing Director, India, Bombardier Transportation, who has made this shift. And he's enjoying it! In fact, he also believes that this stint with the public sector will actually give him the opportunity to also do something for the society.

Rao, who has worked across different functions in his long career, sees a lot of synergies between the automotive and the railways industries - in terms of manufacturing and operations. In fact, his last employer Skoda and the new employer Bombardier are both German companies. "Of course, the customer profile and the procurement policies are different in both the industries. I have just started but the first few months have been quite educational," he says.

## Priorities now

In the current role, Rao will oversee all projects, manufacturing sites, engineering presence, business development and stakeholder-related activities for Bombardier Transportation in India. His primary focus and commitment is towards building a sustainable and profitable business in India, while improving the company's performance and competitiveness. "India is one of the high priority markets for Bombardier Transportation. We have placed a strong focus on delivering projects for the Indian and export market, enhancing our engineering and industrial footprint, enhancing skills of local talent and increasing our local content to continue delivering on the government's

Make in India initiative," he says. Globally, as well as in India, Bombardier is in a transformation phase and its in sync with the fact that Rao has driven profitable growth for companies, with deep manufacturing industry experience and a track record of execution during his tenure of over three decades.

## The background

Rao, who is a graduate of BITS Pilani and University of Michigan Ann Arbor, is known in the industry for his deep understanding of business development, operations and procurement. He started his journey in the automotive industry in 1985 with General Motors Corporation, where for over two decades, he held various leadership positions across North America, Europe and Asia in Product Development, Purchasing, Manufacturing and Strategy. "I was the first Managing Director for AVTEC Ltd. in New Delhi, a spin off from Hindustan Motors and led the restructuring of Renault's joint venture in India to create an independent operation for Renault in India," he says, recalling his journey.

As a person, Rao believes in striving for excellence. "Importantly, I have always believed in having a direction for what I am doing. The generation I grew up in wanted to do something for the society and also achieve something professionally in the private sector that could be a matter of pride. I grew up with two goals in life - one, to be a CEO of a company and two, to do something for the society. I have been at the top management of leading companies for the last twelve years or so. That part is pretty much satisfied. Now, the question came up as to what I could do differently at this stage of life that could set me up for the next 10-15 years for doing something



professionally. The public sector has always appealed to me and when this opportunity came up, I was quite happy about it,” he shares.

**Leveraging on the position**

Bombardier has been investing in India for over 50 years. It has a well-established manufacturing operation, innovative technologies, engineering capabilities, supplier base and over 2400 highly skilled employees in India. “In fact, Bombardier is one of the largest rolling stock suppliers to Delhi Metro delivering 776 metro cars and is the largest signalling supplier to Delhi Metro with over 120 track km delivered or in progress. Bombardier recently celebrated 10 years of successful partnership with Delhi Metro,” Rao informs. Currently, Bombardier is moving around five million people daily in Mumbai and Delhi and its propulsion equipped locomotives travel around 300,000 km on Indian Railways network.

“There is a growing market for public transit driven by urbanization, environmental concerns and, most importantly, infrastructure spending by cities and governments. I want to capture more market share for Bombardier Transportation in India across business segments. Generally, cities and governments never have cash, which is readily available to invest in infrastructure projects and I’ve never seen so many people who are really convinced that this is a good return for the economy, but Indian rail transportation market is very, very strong and we have a key role to play,” Rao states.

He underlines that with the Indian government, the in-

There is a growing market for public transit driven by urbanization, environmental concerns and, most importantly, infrastructure spending by cities and governments. I want to capture more market share for Bombardier Transportation in India across business segments.”



INNOVIA monorail

dustry is seeing clarity on modes of transport ideal for a particular city with major focus on integration, creating mobility ecosystem keeping safety in mind. “8,000 new metro cars and 3,200km of new urban tracks were added in the last two years globally. Capacity and safety are very important for cities, it’s an unstoppable trend. Despite the arrival of the internet people are actually moving more and more. Digitalisation helps us to increase capacity and deliver more and more automation in everything we do: preparation, driving and maintenance,” Rao says.

**Ambition of high-speed network**

How does Rao view the Indian government’s ambition to create the high-speed network, although Bombardier is not involved with it as of now? “The recent launch of the high-speed network in India between Mumbai and Ahmedabad is a path-breaking initiative and will bolster the economy, create new jobs, improve connectivity, and enhance infrastructure and manufacturing in India,” he says. The government is planning nine routes for the high-speed trains, and Bombardier ZEFIRO high-speed (HS) and very-high-speed (VHS) trains are already setting the benchmark in very high performance, very high efficiency and very high dedication globally. (Speed: 250 km/h – 380km/p).

“We would be keen to support the Indian Government in its endeavour to create a high-speed network with our world-class ZEFIRO High speed trains delivering the Make in India promise. Bombardier’s expertise in the high-speed segment is unmatched. Over the past 20 years, we have helped deliver 850 trains and vehicles for high-speed and very-high-speed applications. We have also participated in 95 per cent of Europe’s VHS trains,” Rao shares.

Rao believes that in the next couple of years, there will be more projects and tenders on high speed trains considering

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India is a vast country and requires connectivity which is safer and faster supporting economic growth.

### Running Mumbai's lifelines

I tell Rao that I am a hardcore Mumbaikar and I travel by the Bombardier-made rakes during my daily commutes. He points out that Bombardier has been supporting Mumbai's rail ecosystem from 2002. "We have installed and maintained the Traffic Management System on Mumbai's Western and Central lines. Currently, our propulsion equipped trains are operating successfully on the suburban rail network moving around 3.5 million passengers daily. These projects further boost our long-term relationship in this important ecosystem and we intend to continue to contribute to the success of Mumbai by delivering more of our high-performance metro vehicles, monorails and signalling systems," he informs.

### For the industry

Bombardier has a large industrial presence in India at Va-

## QNGR Project – First rolling stock export project for India

- Bombardier is currently manufacturing 450 commuter cars for the Queensland New Generation Rollingstock (QNGR) project for Australia.
- Vehicle assembly and bogie manufacture is taking place at the Savli site and the Maneja site, near Vadodara, is supplying a portion of the propulsion equipment.
- Seventeen six-car trains have been delivered to date and they are undergoing testing at Bombardier's state-of-the-art Wulkuraka Maintenance Facility in Ipswich, Australia.
- This project truly demonstrates Indian government's promise on Make in India and Bombardier's efforts on this project have been acknowledged by Indian Prime Minister and his cabinet ministers.
- The Savli site is also supplying bogie components for export projects to Australia, Brazil, Hungary and Saudi Arabia.

**"We would be keen to support the Indian Government in its endeavour to create a high-speed network with our world-class ZEFIRO High speed trains delivering the Make in India promise."**

dodara. Rao believes that it is one of the few locations in the world with the capacity to deliver all key electrical and mechanical components for the manufacturing of railway vehicles. In terms of new technologies, Bombardier offers the broadest portfolio of rail vehicles and technologies in the industry and can offer individual solutions for all Indian cities. "Focusing on the most pressing public transport challenges in India, Bombardier offers all products needed for a comprehensive transport system – from metros and Light rail vehicles (LRV) as well as APM and Monorails to regional commuter and high-speed trains along with rail components, signalling systems and maintaining the asset," he says.

According to Rao, expertise, creativity, market knowledge and vision are just some of the reasons why Bombardier is setting the industry pace in providing the most innovative and cost-effective rail solutions in today's market. "We strive continuously to improve reliability, availability, maintainability and safety while supporting and strengthening sustainable rail transport. Government should focus on introducing new rail solutions like Airport People Movers, Light Rail Vehicles, Monorails also for Indian cities," he adds.

With the government's strong focus on e-mobility vehicles, PRIMOVE is Bombardier's complete e-mobility portfolio allowing cities and the transportation industry to easily incorporate electric mobility. It includes wireless charging, compact battery and efficient propulsion systems for electric rail and road vehicles. "PRIMOVE makes sustainable mobility a reality by reducing local CO2 emissions to zero. It eliminates noise pollution and integrates seamlessly into the environment," Rao reveals.

### Manufacturing capabilities and capacities

Currently, Bombardier is the first foreign multinational company to set up a wholly-owned railway vehicle manufactur-

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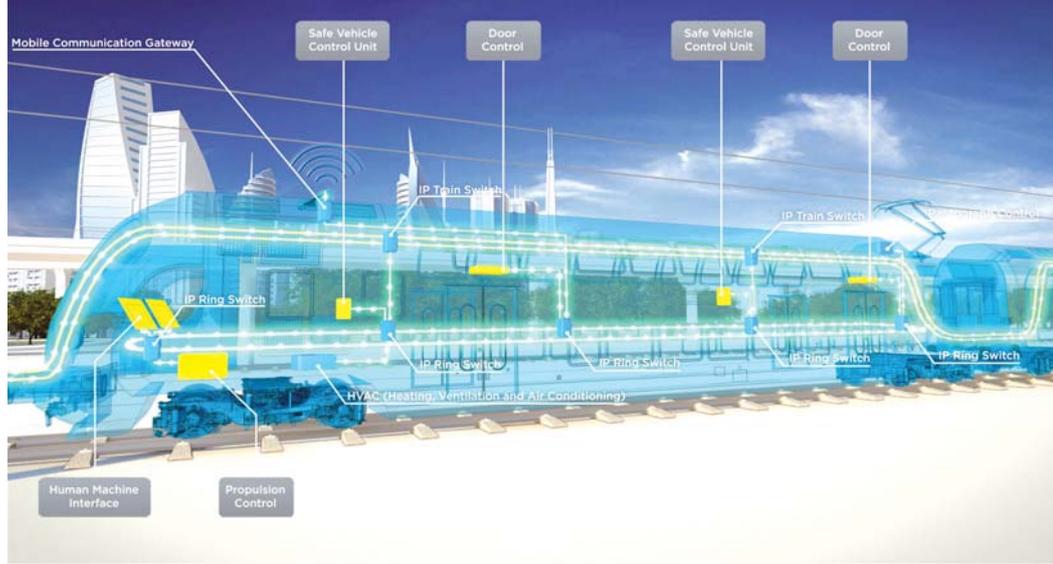
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ing facility in India. It is the first rail company to use robotic welding in India. Bombardier has delivered India's first indigenously produced metro train in India for India. The Savli site has a demonstrated capacity of manufacturing one car per day and it has capacity to manufacture 40 metro cars per month. The Maneja site is also supplying propulsion equipment to Indian Railways for locomotives for over two decades.

"Bombardier aims at investing in India with a long-term perspective in manufacturing facilities, local talent, developing local supplier base, enhancing engineering capabilities and new technologies in the projects which are strategic to our growth in India. Our commitment and investment has attracted world class rail suppliers to India making our local content and sourcing between around 60 percent from India itself (varies from project to project as per customer requirement), created around 2500 direct jobs and 5000 indirect jobs. Our are suppliers setting up manufacturing facilities in India meaning less dependency for spares," Rao highlights.

Bombardier's employees in Gujarat are fully trained on special tools and processes to ensure standard quality across Bombardier. Savli started with rail engineering experts from across the globe moving to India to set up a manufacturing site has rapidly evolved into a truly Indian production and export hub with high international standards.



### Exports

Recently, the first three trains built by Bombardier Transportation India entered service in Australia successfully. This is in line with Bombardier's long-term vision of making India an exports hub. Bombardier is currently manufacturing 450 commuter cars for the Queensland New Generation Rolling-stock project for Australia. "For the Indian market we are delivering trains and signalling systems to Delhi Metro, providing propulsion equipment to Indian Railways regularly and exporting trains for Australia along with bogie components to few countries," Rao informs.

The first three trains exported to Australia – although manufactured at Bombardier's Savli plant – have been designed and engineered in Brisbane, Australia. When do we see Bombardier Transportation India adding 'Design in India' and 'Engineer in India' to 'Make in India'? "In fact, we are already demonstrating it in India. Bombardier announced in September 2016 that we are developing a high capacity metro platform called MOVIA Maxx for emerging markets," Rao says. He adds: "In this regard, in April 2017, Bombardier Transportation has opened a new engineering centre supporting product development and design activities in Hyderabad, India. This new facility expands Bombardier's global network of specialised centres with a particular focus on the development of metro and electrical multiple unit (EMU) product platforms and engineering design for transportation projects locally and globally. As part of our commitment to developing local talent, our goal is to continue to grow the team in Hyderabad and support our product development strategy, innovation and improve our services to our customers."

Bombardier has also been significantly growing its engineering presence in India over the years with a new rail control facility for Engineering and Product Development in Gurugram Delhi NCR, a Train Control and Management System centre in Vadodara, a bogie, carbody and vehicle engineering centre as well as an engineering centre with a local partner in Hyderabad along with project engineering teams at our manufacturing sites near Vadodara.

### Business performance

Bombardier's business in India has been in line with the management expectations. However, as a company policy, it

Despite the arrival of the internet people are actually moving more and more. Digitalisation helps us to increase capacity and deliver more and more automation in everything we do: preparation, driving and maintenance."





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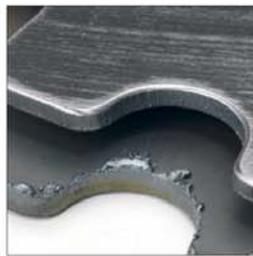
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“In April 2017, Bombardier Transportation has opened a new engineering centre supporting product development and design activities in Hyderabad, India.”

doesn't reveal local entity related numbers as Bombardier is only listed in Toronto Stock Exchange. “We are determined to make our sites in India as one of the best in the world with a common and focused goal to be lean sites with flexibility, innovation, respect for the environment and a customer-oriented approach. The four main cornerstones of our philosophy are: to ensure top quality of our product and all deliverables; to deliver to schedule; to develop a trusted and quality network of local suppliers and last, but not least, to provide a cost-competitive product without compromise to quality,” Rao explains. He also assures that since Bombardier Transportation is committed to the growth of rail transportation industry in India and as it grows in the coming years, ‘if deemed necessary Bombardier will also look at increasing its presence in India’.

#### Investments in India

Recent investment of around Rs. 230 crore (EUR33 million) in a state-of-the-art railway vehicle manufacturing facility at Savli, Gujarat, is a testimony to the fact that India has become one of the most important markets. Bombardier has invested around US\$ 100 million over the last two decades in Indian manufacturing sites, people, engineering, local supplier network and proven technologies.

#### Vision

Bombardier Transportation's active presence in the Indian market complements with the fact that the Indian railways sector is going through a dynamic transformation. “Over the next 5-7 years, various cities in India will procure approximately 3000 metro cars and 20 signalling lines. The Indian government expects 50 cities will have population over 2mn by 2050 and is encouraging them to develop mass transit sys-



Delhi MOVIA Metro car

tems. This will generate demand for the urban transit solutions that we excel at,” Rao shares. “We are focused on projects which we consider as strategic and have long term prospects for our operations in India. We are closely pursuing various metro projects in the cities of Delhi, Mumbai, Pune and Bengaluru along with light rail projects in the state of Kerala amongst various other projects across India,” he adds.

There are various projects of Indian Railways delivering rolling stock, components, signalling and services Bombardier is keen to participate. “Ministry of Railways has set out its vision for rail as a key provider of connectivity and enabler of economic development, with a proposed \$125bn investment over the next five years and with our presence and experience in the Indian market, we are well poised to grab a major share of the accessible market,” Rao says with optimism.

He believes that the current Indian government is actively pursuing long-term vision for a sustainable and stable railway in India. “Its ambitions are huge and focused, with emphasis on improving safety, expanding rail infrastructure, increasing

track capacity, reducing congestion, raising passenger comfort levels, technological innovations, and faster train speeds.”

Rail is considered a significant engine of inclusive growth for India, with the potential to contribute up to two percent of GDP, compared to current one percent levels. “To maintain historic levels of national growth at 7-8 percent, railway needs to grow by ~9.5 percent every year. This will create new jobs, save energy and improve the environment, while moving people, raw materials and goods more efficiently nationwide,” he says on a positive note. 



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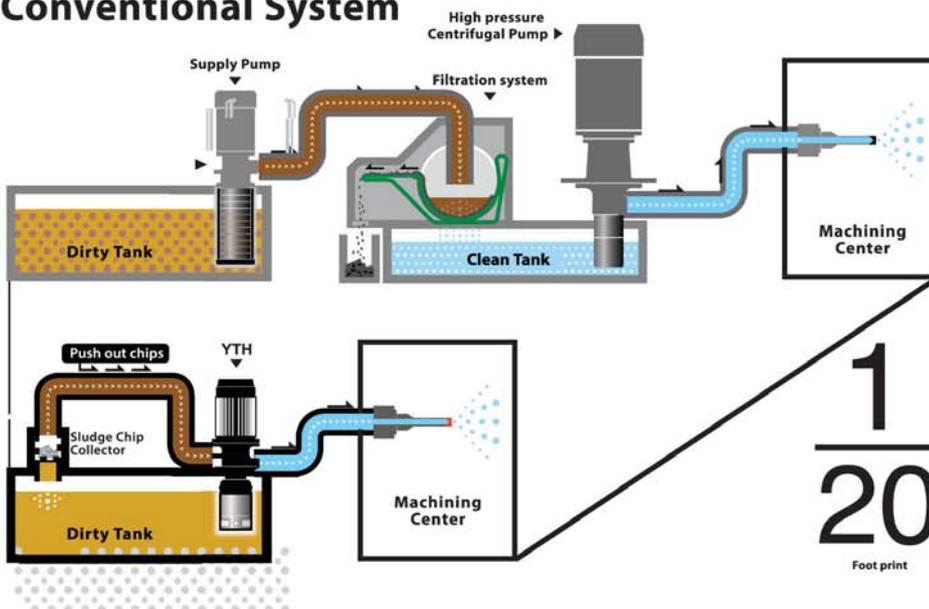
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# 'Lean and Fast'

Maini Precision Products aims to significantly rise up the technology value chain for the Indian aerospace industry in the next five years, says **Gautam Maini**, its Managing Director

By **Niranjan Mudholkar**

**Q** Congratulations on the recent inauguration of the new dedicated aerospace manufacturing plant at Bommasandra Industrial Estate, Bengaluru. Tell us about this facility and how will you leverage on the same to grow your business.

The facility that originally housed Maini Materials Movement and subsequently Reva Electric Car Company has been completely renovated comprising an area of office and factory of 55,000 sq ft. We have invested in advance machineries including high end profilers and 5 axis CNC machines. Phase 2 will be added on and completed by the first quarter of the next Financial year with an additional 45000 sq ft .

This is a Lean Digital Factory in accordance with industry 4.0 which has been created on the strong base of all our learnings of over four decades from the automotive combined with our experience of the aerospace markets.

A considerable portion of the floor space in the new facility has already been assigned to new projects which are being implemented, which in turn require specific investments in technologies which would be seen for the first time in the Indian private sector.

Over the next three years, Maini Precision Products (MPP) aims to utilise the complete area of this facility and hence create unprecedented value in the sector. With key technologies like St-elliting, vacuum brazing and complex grinding requirements which are being invested in to support complex process requirements, the new facility is set to become a state of the art plant for manufacturing quality aerospace components and sub-assemblies.

This will create a base for the Aerospace Division to grow 500 percent from the current level.

**Q** Tell us briefly about the journey of Maini Precision Products till now. How satisfied are you with achievements so far?

MPP started with manufacturing components, gradually moving over to sub-systems and assemblies for global automotive major companies. MPP started exporting its products to

Europe in 1982 and was exporting 90 percent of its Products by 2003. As the Indian automotive market attained maturity in product development, MPP started to use its expertise to

"Maini Precision Products is positioning itself as a primary source in India for supporting the critical modules for the major OEM / Tier 1s customers across aero-engines, Aero-structures and aircraft systems."





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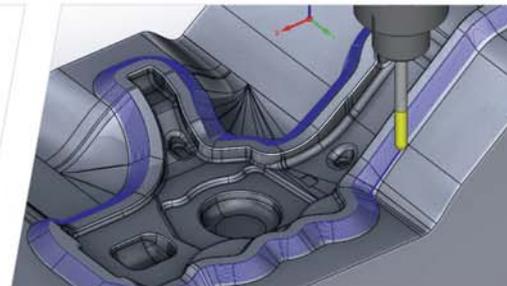
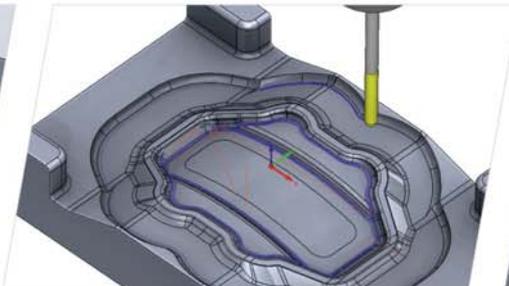
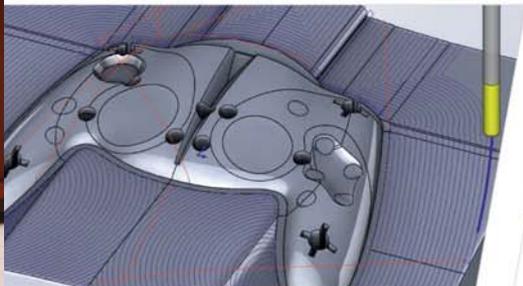
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MPP had moved into aerospace manufacture in 2005 with Safran Aircraft Engines (then Snecma) as the launch customer. The Aerospace Division was created by having an exclusive plant area from the automotive components manufacturing plant at Bommasandra. To start with a plant area of 4,000 sq ft was utilised with around five CNC machines. During the last decade plus, the Aero Division made progressive strides adding several prestigious customers and in the process adding more CNC machines and other equipment. The floor area requirement also grew and by 2016 we extended to occupy 20,000 sq ft. With the current orders that we have placed and the current machines MPP has, the number of machines will reach close to 90 machines soon and will increase further with the current visibility in our awarded programs.

While MPP could establish as a reliable source for all the high precision & sub-assembly requirements, the major breakthrough was the contract signed for the LEAP Low Pressure Turbine Vanes for Safran Aircraft Engines. This has increased our appetite to further enhance our support levels. With the strong base built over the last 12 years, we are aiming to scale up significantly. Our concentration is building up in 3 verticals of Aerospace – Structures, Engines and Systems.

**Q How's been the business in the ongoing fiscal and how would you compare it to last year's performance? What kind of growth targets have you set for the next two years?**

Over the years, MPP has transcended to a stage where our products are being used in products from all major nations where manufacturing is of prime importance. We are servicing customers in over a dozen countries for aerospace alone, and many more with our group footprint. This year, for one customer alone, we are set to support production in over 50 global locations. The consistent performance in terms of Quality and Delivery as well as competitiveness in the global market attracted interest of more and more customers. The Eaton Supplier Excellence Award which we received this year is an example to highlight this aspect.

Post Aero India, we have entered into multiple long-term contracts and are in final stages of negotiations with further customers across the major programs. Through these contracts, we will be in a position to grow beyond 200 percent within next two years.

**Q Tell us about your R&D activities.**

Being part of future programs like LEAP engine which are



**“With key technologies like Stellite, vacuum brazing and complex grinding requirements which are being invested in to support complex process requirements, the new facility is set to become a state of the art plant for manufacturing quality aerospace components and sub-assemblies.”**

ramping up significantly, MPP has massive focus on new product development.

MPP has been aggressively hiring the best engineering and manufacturing talent in the market who will cater to our new projects and is looking to hire further resources in pursuit of larger and more complex projects. The “LEAN & FAST” Award from GE is a testimony for our rapid development of new products.

To further augment this area, MPP has now implemented PLM software which will help in faster conversion of new products.

**Q Since aerospace is a niche segment, has it been challenging to find the right talent in India? Do you have in-house training infrastructure and programmes to address this issue?**

We had always focussed on training and skill development aspects. Right from the initial days, we had a dedicated team and a strong system in place to constantly monitor upgrade the skillsets of employees. Our Vocational Training System was also appreciated by the Safran Technical University during their assessments. We regularly send our engineers and technicians to our customer locations to get trained on the latest technologies/ standards. Such practices have resulted in customer satisfaction as we could achieve rapid ramp-ups through successful implementation of these learnings.

**Q Tell us about the technical collaborations or partnerships that you have with international companies.**

We do not have any formal technical collaborations with our



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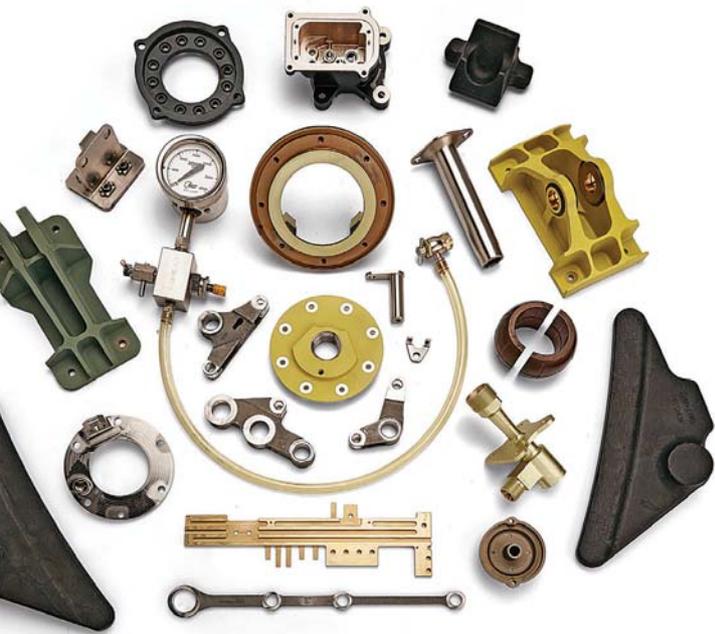
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“We see good prospects for aerospace engineering and manufacturing in India in the next five years and more. Indian industry has started investing in infrastructure and skills quite aggressively.”

customers, but in our progression up the technology value stream, the customers play a significant role in hand holding and providing technical support on the manufacturing aspects as well as quality control.

**Q How would you analyse the ‘Make in India’ initiative in the context of your industry?**

We have always been a Make in India enterprise since inception. That is why we first started with the overseas market and then moved to meet the requirements of the domestic customers. Thus, we started with manufacturing products for other countries in India 40 years ago. With our move into aerospace 12 years ago and now with a dedicated plant for aerospace manufacture, we are positioned more strongly to give a value proposition to our customers and partners from abroad in supporting their Make in India projects as a well-established Indian sub tier of global credibility. This positioning helps us in providing “Make in India” and “Made for Overseas” products.

**Q India needs to build a robust ecosystem for aerospace if it has to evolve to the next level in this segment. What are your views on this and do you see this already happening?**

The Maini group in its successful journey of more than four decades, since its inception in 1973, has been building up

sub-tier ecosystem for its automotive, industrial and hydraulic segment businesses. On moving into aerospace manufacture a little more than a decade ago, it encouraged many of its non-aerospace ecosystem partners to move into aerospace, which was at a very nascent stage at that time. The Maini group followed the concept of not creating captive ancillaries, who are bound by restrictions, but to create ecosystem partners who had the independence to support other industry members. This has created a win-win situation in which the sub-tiers are not restricted for the growth opportunities and are limited only to the extent they can invest in their areas of strength. As a result of this robust ecosystem, the Maini group offers an end-to-end one stop capability in its niche area of manufacture to its customers, taking care to save them effort and cost of managing a number of diverse suppliers. This has enabled Maini group to offer single window capability solutions, as opposed to narrow product solutions.

**Q How do you see the aerospace engineering and manufacturing sector in India growing in the next five years?**

We see good prospects for aerospace engineering and manufacturing in India in the next five years and more. Indian industry has started investing in infrastructure and skills quite aggressively. This is attracting overseas companies to increase sourcing from India as a low cost and high calibre destination. The offsets augment this offering of Indian industry as an additional opportunity. But the industry has to remain focussed on longer term global market since offsets are only a short-term opportunity.

**Q How do you see Maini Precision Products evolving in the next five years?**

Time and time again, MPP has supported customer requirements when they have faced issues with sourcing increasingly complex parts, out of a market which is still in its nascent stages. This affinity to addressing pain points of the customers has made MPP adept at turning around projects in the shortest lead times, which has in turn made MPP the partner of choice when lean and fast implementation is required for global customers.

MPP presence expands over multiple commercial, business jet and military platforms with some as prolific as the Airbus A320, A350 and Boeing 737, 777, 787, and also the engine and systems requirements that these platforms require. One such example is MPP’s large presence in the parts assembled into the LEAP engines, which support the A320 Neo and 737 Max platforms.

MPP aims to significantly rise up the technology value chain for the Indian aerospace industry in the next five years. Through the LPT Vanes contract, MPP has embarked its journey towards this direction. MPP is positioning itself as a primary source in India for supporting the critical modules for the major OEM / Tier 1s customers across aero-engines, Aero-structures and aircraft systems. 



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# 2018

## Expanding horizon

The industry hopes to expand its footprint in the coming year. Read on to know the industry plans to achieve its ambitions.

By Swati Deshpande

**A**fter much ups and downs, the Indian manufacturing sector witnessed improvement in December 2017. According to Nikkei India Manufacturing PMI, The Indian manufacturing sector ended the year on a strong note, with operating conditions improving at the strongest rate in five years. The overall upturn was supported by the sharpest increase in output and new orders since December 2012 and October 2016 respectively.

The year 2017 began with the repercussions of demonetisation while in the later months, GST also impacted the industry adversely for a short period of time. Speaking on the same, T.V. Narendran, MD &CEO, Tata Steel says, “2017 saw a recovery in global steel demand, prices and trade leading to better than expected performance by India’s steel sector. The year not only saw India becoming the third largest steel producer in the world, it managed to successfully reverse the trend of increasing imports as it became a net exporter. Globally, G20 through the GFSEC has been working on addressing the excess steel capacity and we expect to see more work towards this endeavor in 2017-18. Focusing on the need to improve domestic demand, Govt of India’s National Steel Policy 2017 has drawn the long term road map for steel vision in India.”

Gunjan Srivastava, Managing Director & CEO, BSH Household Appliances mentions, “For BSH Household Ap-

pliances, 2017 has seen positive impact on business. Owing to demonetization and the GST implications, the consumer durables industry was marginally impacted. However, it did not have an immediate effect on our growth momentum. In fact, sales in the month of June amplified as dealers were trying to liquidate their stocks which caused the following months to be sluggish compared to last year. Having said that, the growth rate in 2017 has been consistent to the growth rate we achieved in the previous year.”

Speaking about the new products he informs that BSH Household Appliances saw a host of new launches across categories. “In the washing category, Bosch introduced revolutionary technology with the launch of ActiveOxygen and Speed



**T.V. Narendran**, MD &CEO, Tata Steel

“The Board has approved expansion to 8 million tonnes at an additional capital outlay of Rs. 23,500 crores to be raised in a combination of equity and debt. This will help us meet India’s rising demand in automotive, general engineering and other valued-added segments.”



“Toshiba has identified India as a hub for manufacturing operations and export base with an aim to Make in India and Export from India. In India, Toshiba is focusing on sustainable B2B fields like Power Systems, Water

Treatment, Railway Systems, Elevators, and Batteries, to continue to support and contribute to Government of India’s initiatives.”

**Tomohiko Okada**, MD, Toshiba India Pvt. Ltd

range which ensures odour free clothes and a faster washing cycle respectively, catering to emerging needs of modern day households. All new launches as well as existing product portfolio have been well received in the media. Amidst this growth momentum, we expect to further grow between 25–30 percent in the next three years. Another growth category for BSH has been the dishwasher segment, wherein we have shaped the category with a 50 percent market share,” he shares.

Agreeing to the sentiment, Dr. Jairam Varadaraj, Managing Director, ELGi Equipments says, “This year has been a good year for ELGi with growth in key industries, product segments, and regions. India has shown positive signs for manufacturing and industrial growth following demonetisation and GST. Customers are considering capacity increases and machine replacements with increased optimism.”

### Impact of GST

Implementation of GST was the highlight of the year. Speaking on the impact of GST, Srivastava mentions, “The introduction of GST did affect the consumer durables industry with the slab of 28 percent on white goods. However, with changing times, today, durables are not considered a luxury anymore, it’s considered as an integral part of any household with customers willing to pay a premium for these appliances. Throughout the year, BSH has seen steady growth in the overall consumer durables industry as well as within categories including washing machines – front loaders, refrigerators and dishwashers etc that we operate under the Bosch and Siemens brands. Our product offerings did not witness a massive slack as we cater to the mass premium and premium consumers.”

Sharing his views, Narendran says, “During the year, we had a smooth and successful roll out of GST which had positive implications across our value chain in India.”

### Looking ahead at 2018

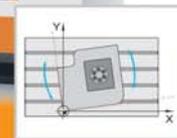
Looking ahead at the new year, he adds, “Post the successful ramp up of the 3 million tonne installed capacity at Kalinganagar, the Board has approved a further expansion to 8

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“From an industry standpoint, companies are likely to expand their product lines and segments to suit the consumer needs which will eventually increase the manufacturing capacities in India. Premiumisation is another aspect that will witness growth in the consumer durables sector as well as spur manufacturing activity.”

**Gunjan Srivastava**, MD & CEO, BSH Household Appliances



“We expect industries such as Auto and their ancillaries to be strong for our industrial screw compressors in 2018 owing to new entrants and increasing demand. Similarly, with positive intent on infrastructure spending, we expect our portable compressed air solutions to perform well next year.”

**Dr. Jairam Varadaraj**, Managing Director, ELGi Equipments

million tonnes at an additional capital outlay of Rs. 23,500 crores to be raised in a combination of equity and debt. This will help us meet India’s rising demand in automotive, general engineering and other valued-added segments. As for Europe, we announced our plan for an equal joint venture with thyssenkrupp AG and in doing so, create Europe’s second largest steel maker.”

“From an industry standpoint, companies are likely to expand their product lines and segments to suit the consumer needs which will eventually increase the manufacturing capacities in India. Premiumisation is another aspect that will witness growth in the consumer durables sector as well as spur manufacturing activity,” Srivastava says.

Making his projection for the year, Varadaraj adds, “We expect industries such as Auto and their ancillaries to be strong for our industrial screw compressors in 2018 owing to new entrants and increasing demand. Similarly, with positive intent on infrastructure spending, we expect our portable compressed air solutions to perform well next year.”

Elaborating further on the company’s plans for the year Srivastava adds, “We aim to gain 10 percent share in the market by 2025, our plans for 2018 remain aligned to achieve this vision. We are focused on launching new products and categories in the Indian market as well as building trust and a preferred brand name with a vast network to service our customers. Owing to the rising disposable incomes and aspirational lifestyle of consumers across metros and now even in Tier-II markets, the premium products are the fastest growing category in India. We anticipate significant action in 2018 and plan to further strengthen our market presence in India.”

Even Toshiba India Pvt. Ltd. has identified India as an important manufacturing hub and plan to expand its operations here. “We have identified India as a hub for manufacturing operations and export base with an aim to Make in India and Export from India. In India, Toshiba is focusing on sustainable B2B fields like Power Systems, Water Treatment, Railway Systems, Elevators, and Batteries, to continue to support and

contribute to Government of India’s initiatives. Toshiba will contribute to the development of Power and Infrastructure sectors with its experience, expertise and technology innovation FOR THE NEXT INDIA,” says Tomohiko Okada, MD, Toshiba India Pvt. Ltd.

Alstom, a railway giant, also plans to contribute towards India’s infrastructure in the coming year. Alain Spohr, Managing Director, Alstom India and South Asia says, “Alstom in India is going into 2018 with a strong line up of deliverables, all being executed on schedule. Especially exciting for us will be the delivery of the first electric locomotive from our Madhepura plant, in early 2018. Introduction of this locomotive in the Indian freight network will be transformational in terms of delivery and life-cycle of the product. With a steady inflow of FDI, Government’s push towards adopting new technology and modernisation of the existing network, the Indian Railway network both mainline and urban is growing at a healthy rate. Alstom’s growth is in keeping with the growth of the sector and the company hopes to continue to contribute in making India the third largest railway network in the next five years.”

“We plan to increase production in our Chennai factory over the span of 3 - 5 years. As compared to the previous years, production has increased in 2017. We also aim to strengthen our Research & Development initiatives in India to reinforce our manufacturing capacity,” he continues.

It is going to be action packed year for Elgi Equipments as well. Highlighting his plans for the year, Varadaraj says, We have continued to gain share in key markets such as the USA and Europe, where our machines are fast gaining a reputation for reliability and energy efficiency. We will continue our focus on offering the lowest ownership cost for our customers with lower energy and maintenance costs. We will introduce customer facing technology initiatives such as Air alert, which will enable ELGi to monitor a compressor’s key parameters with the goal of predicting failure, scheduling maintenance, and improving product quality. By early 2018, we aim to equip all of our new machines with the system.” 

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EVENT

# Platform for Excellence!

Excon 2017, South Asia's largest construction equipment exhibition, concluded successfully in Bengaluru last month.

The Confederation of Indian Industry (CII) successfully organised Excon 2017, which is considered as South Asia's largest construction equipment exhibition from December 12-16, at the Bangalore International Exhibition Centre (BIEC), Bengaluru. With a gross display area of 2,50,000 sq m, the 5-day international exhibition saw participation from 925 exhibitors including 275 overseas companies. The event attracted over 40,000 business visitors from across the globe. The trade show was inaugurated by Anant G. Geete, Union Minister for Heavy Industries and Public Enterprises, Government of India. Speaking at the event, Geete said, "Under Prime Minister Modi's leadership, the NDA government is trying to pave the way to lead India as a developed nation. In all these efforts, 'Make in India' is a pivotal initiative especially in the heavy industry sector. While we want foreign players to invest in India, our focus is also to encourage Indian companies to invest and grow in India. I am confident that the government will support all companies to make PM's vision of 'Make in India' a successful one. The constitution of equipment makers have good opportunities as there is phenomenal investment being experienced in the Infrastructure sector and we have also launched a slew of schemes to promote the capital goods industry. In the coming years, around INR 7-8 lakh crore is expected to be spent."

The combined Indian Construction Equipment (ICE) market including construction equipment, spares, service and exports stood at US\$ 5.8 billion in 2016-17 is likely to touch US\$ 10.5 billion by 2021-22 according to CII-ICEMA Re-

"With a gross display area of 2,50,000 sq m, the 5-day international exhibition saw participation from 925 exhibitors including 275 overseas companies. The event attracted over 40,000 business visitors."



over the next five years."

Vipin Sondhi, Chairman, CII Excon 2017

"This year as an industry, we will surpass our previous best year of 2011 with a growth of 14 percent. The industry is headed for better days of a projected stable growth of 10 percent CAGR

port on the Indian construction equipment industry released during Excon 2017. The overall market for spares for earth moving equipment in FY 2016-17 was in the range of Rs. 4,000 crore to Rs. 4,300 crore. The spares market is expected to go up to Rs. 5,800 crore by FY 2022 with the allied services business to be pegged at Rs. 800-850 crore giving a huge opportunity for growth of the components industry.

According to Vipin Sondhi, Chairman, CII Excon 2017, the Indian Construction Equipment Industry which peaked in 2011 went through a downcycle for four straight years from 2012 until 2015. "This year as an industry, we will surpass our previous best year of 2011 with a growth of 14 percent. The industry is headed for better days of a projected stable growth of 10 percent CAGR over the next five years compared to seven percent in the previous decade. The government of India has made infrastructure creation a major pillar for sustained growth and announced a number of projects in roads, railways, metro rail, mining, irrigation, power and urban development which are growth drivers for our industry," he said.

Excon, which has a 17-year strong legacy being organized since 2000, has witnessed immense growth both in quality and participation. Excon 2017 witnessed a 16 per cent growth in terms of number of exhibitors compared with the 2015 edition. The highlight of this edition was the enhanced participation of overseas companies from over 20 countries. This

also included country pavilions including leading economies like Germany, Italy, China, South Korea and UK.

The Government of Karnataka was the Host State for Excon 2017. The Indian Construction Equipment Manufacturers Association (ICEMA) was the Sector Partner and supported by the Builders Association of India (BAI).



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# Reducing friction, ensuring productivity

It is critical to choose the right slideway lubricant for machine tools that will help to improve the productivity of the equipment

By Shankar Karnik

**F**riction is the force that opposes the relative motion of two surfaces in contact. Solid surfaces that appear smooth to the human eye are actually not when examined minutely. They are rather rough and opposing surfaces scrape against each other producing surface wear and tear due to the friction created. Hence it is important to have solutions that protect the machine, improve productivity, efficiency and reliability as well as maintain environmental protection.

Friction can be either 'static or break-away' friction which is when a machine which has been at rest is turned on. Herein, the force applied to turn the shaft must first overcome the interactions between the two surfaces. As the shaft begins to rotate, 'dynamic or kinetic' friction comes into play.

As a result of the shaft rotation, lubricant is "dragged" into the contact zone, which reduces surface-to-surface interactions and thus causes friction forces to drop. With increasing speed, the lubricant film in the contact zone increases too and friction drops further. When surfaces are fully separated by the lubricant, friction is reduced to a minimum. If speed continues to increase past this point, friction increases again as the lubricant film grows and generates viscous drag.

Among the many types of lubrication regimes are three major categories that one needs to be cognizant of:

- Boundary Lubrication: Where friction is dominated by the properties of the surfaces
- Mixed Lubrication: Where both the properties of the lubricant as well as the properties of the surfaces affect friction with a ratio depending on speed
- Hydrodynamic Lubrication: Where friction is governed by the viscosity of the lubricant film

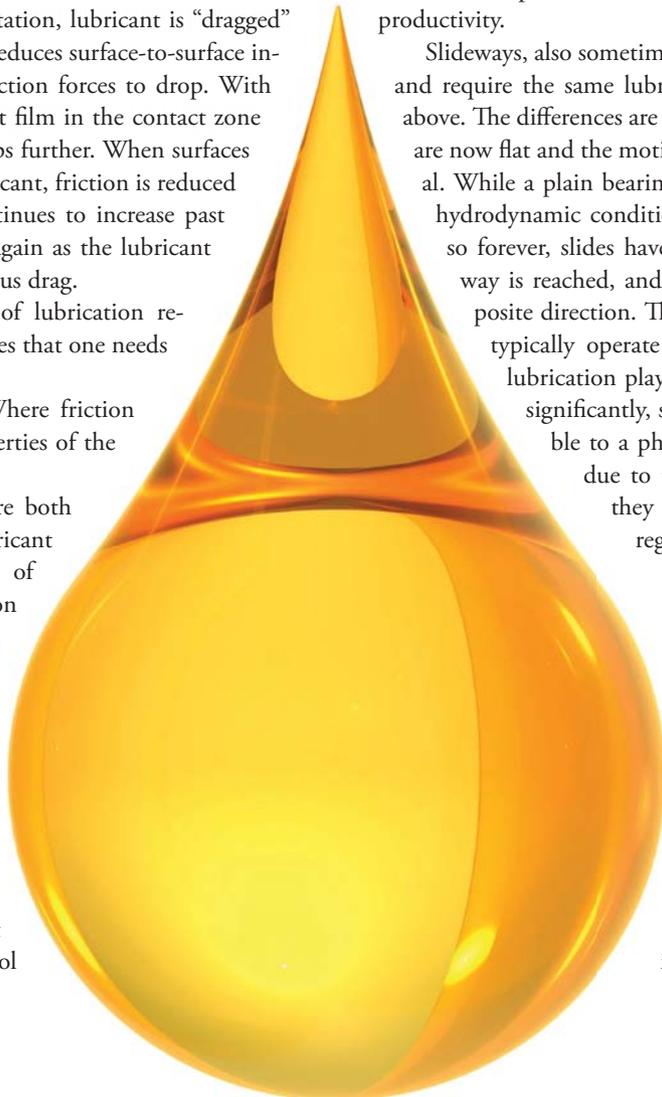
Minimising friction is not the lubricant's only prime target for many applications, this is simply not good enough in machine tool

While it may not be visible to the human eye, stick-slip is all around us, producing a range of very audible experiences. Stick-slip renders possible the experience of an enjoyable violin concerto, but also causes the less enjoyable noise of the teacher's chalk on the blackboard or the brakes of a train coming to a halt at the platform.

Slideways. Smooth and precise slideway operation/s require special attention to the friction properties of the lubricant. Loss of frictional control can cause inaccuracies, which in a metal removal process, ultimately results in lost machine tool productivity.

Slideways, also sometimes referred to as linear bearings, and require the same lubrication principles as described above. The differences are that the two surfaces in contact are now flat and the motion is linear instead of rotational. While a plain bearing is designed to operate under hydrodynamic conditions and theoretically could do so forever, slides have to stop when the end of the way is reached, and start moving again in the opposite direction. Therefore, and because slideways typically operate in a stepwise manner, mixed lubrication plays a more important role. Most significantly, slideways are far more susceptible to a phenomenon known as stick-slip due to the large amount of time that they operate in a mixed-lubrication regime.

Stick-slip is a phenomenon caused by continuous alternating between static and dynamic friction. It can occur when static friction exceeds dynamic friction, and when there is some elasticity in the system. When a driving force is applied, high static friction prevents the slide from moving immediately. Instead, the force is loading the spring, by which



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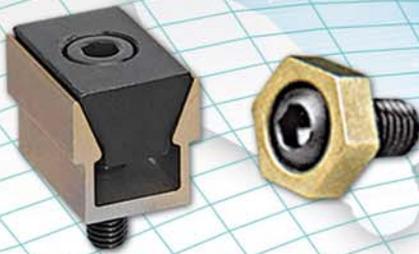
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the driving force exerted on the slide is gradually increased. When the force of the spring exceeds that of the static friction, the slide starts moving. Due to the change from static to dynamic friction the spring force accelerates the slide, while the spring unloads rapidly. Eventually the spring is completely unloaded and starts opposing the slide movement. The slide slows down, while friction for mixed lubrication grows rapidly, until finally the slide comes to a halt and the cycle starts all over again. This jerky movement is what is often referred to as stick-slip.

While it may not be visible to the human eye, stick-slip is all around us, producing a range of very audible experiences. Stick-slip renders possible the experience of an enjoyable violin concerto, but also causes the less enjoyable noise of the teacher's chalk on the blackboard or the brakes of a train coming to a halt at the platform. Stick-slip is responsible for the jerky motion of windshield wipers as well as the squeaking sounds of a loose drive belt. Car drivers making their tyres squeal by abruptly changing speed or direction unknowingly make use of the stick-slip effect. The small list above gives a flavour of how undesired stick-slip is in most situations. This is especially true for slideways, where stick-slip may cause jerky

**Modern machine tools and slideway designs demand more of the applied lubricants. Increasing speeds and loads as well as greater expectations for machine accuracy require highly sophisticated slideway lubricants. In addition, there are an increasing number of friction materia**

movements of the slide and the attached work piece or tool. Such uncontrolled motion can result in inaccurate machining operations, unacceptable finished part quality and lost production.

To facilitate smoother operations, special additives called friction modifiers may be added to the lubricant to allow for better friction control. Modern slideway lubricants usually contain a synergistic mix of friction modifying additives that enable accurate and smooth operation over a range of operating conditions.

Modern machine tools and slideway designs demand more of the applied lubricants. Increasing speeds and loads as well as greater expectations for machine accuracy require highly sophisticated slideway lubricants. In addition, there are an increasing number of friction material pairings (e. g. metal-on-plastic) that have different lubrication needs.

Modern slideway lubricants must meet these challenges with a carefully balanced combination of base oils and additives to achieve:

- Low static friction for easy start-up
- Continuous transition from rest to movement



As a result of the shaft rotation, lubricant is “dragged” into the contact zone, which reduces surface-to-surface interactions and thus causes friction forces to drop. With increasing speed, the lubricant film in the contact zone increases too and friction drops further.

- Smooth movement even under heavy loads

It is critical to choose the right slideway lubricant for machine tools that will help to improve the productivity of the equipment, protect the parts as well as prevent friction stick-slip. There are several recognized friction tests to demonstrate frictional properties of slideway lubricants such as:

- Cincinnati Lamb Friction Test
- SKC Tribometer
- Darmstadt Rig Test

These tests allow evaluation of static and dynamic friction characteristics of a lubricant and the effect of various slideway materials.

Mobil™ industrial lubricants are developed by working closely with leading equipment builders. Mobil engineers gain deep insights into equipment trends and lubrication requirements to guide lubricant researchers and formulators in designing highly effective lubricants which are specially formulated to:

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- Provide longer lubrication intervals

Available in a range of viscosity, to offer customers the right choice for their applications, Mobil industrial lubricants can help enhance performance, reduce cost and waste, and improve industrial productivity. 

*The author is the General Manager Industrial at ExxonMobil Lubricants Pvt Ltd*



## International Seminar on Forming Technology



With a view to highlight evolving trends in Forming Technologies, from all over the globe, Indian Machine Tool Manufacturers' Association (IMTMA) is organising the 'International Seminar on Forming Technology' on 24th January 2018 at BIEC, Bangalore, coinciding with IMTEX FORMING 2018 exhibition.

Organised every alternate year, this event is recognized as an international platform for global interaction on latest trends in forming technology. The seminar will focus on Processes, Equipment & Software, Materials & Tools and will

bring together the fraternity of forming technology on a common platform to discuss related issues. Renowned National and International companies and research institutes from Germany, Italy, Sweden, USA and India will share their expertise and latest developments in the field of Forming Technology.

The event will be attended by individuals and delegates from varied segments of the Indian manufacturing industry – Automotive and Auto Parts, Aerospace, Defense & Railway establishments, Heavy Engineering, Consumer Durables,

The seminar will focus on processes, equipment & software, materials & tools and will bring together the fraternity of forming technology on a common platform to discuss related issues. Renowned National and International companies and research institutes will share their expertise.

General Engineering, Machine Tools & other capital goods industries. Decision makers including CEOs, senior executives, practicing engineers, industry experts, R&D specialists as well the academia will immensely benefit from this International seminar. 

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# Stage set for **IMTEX FORMING 2018** & **Tooltech 2018**

The six-day exhibition serves as an important platform for the machine tool industry to showcase the latest technologies in metal forming.

**I**ndian Machine Tool Manufacturers' Association (IMTMA) is organising 'IMTEX FORMING 2018 & Tooltech 2018', a B2B exhibition of metal forming technologies at Bangalore International Exhibition Centre (BIEC), Bengaluru from January 25–30, 2018.

The six-day exhibition serves as an important platform for the machine tool industry by showcasing the latest technologies in metal forming.

Innovations in metal forming technologies, robotics and automation, welding and joining, wire-forming and drawing, presses, die casting, hydro forming, sheet metal forming machines, presses for special applications, dies and moulds, hydraulic and pneumatic systems and elements, testing machines, and so on will be at display.

The trade fair will feature several companies introducing new technologies to suit many user industries such as aerospace, defence, automobiles, auto components, capital goods, electrical and electronics, earth moving and construction, food processing and dairy equipment, and many others. High level delegations from public and pri-



Glimpse of IMTEX's previous edition

### Highlights of IMTEX 2018

**Around 500 exhibitors.**

**Participation from 23 countries including India.**

**Group participation from 3 countries.**

**Show organized in a gross area of 33,000 square metres**

vate sector industries will be present as trade delegations.

For visitors it will be a virtual treat to see the machines 'live' which will enable them to take quick decisions to procure the technologies.

#### Concurrent events

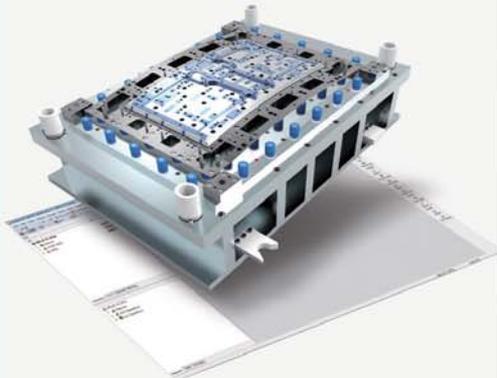
Along with the exhibition of latest technologies IMTEX FORMING 2018 will also serve as a knowledge sharing platform. Coinciding with the trade fair, IMTMA is also

organising an International Seminar on Forming Technology (a seminar on trends in metal forming) on January 24, 2018.

Additionally, IMTEX FORMING 2018 & Tooltech 2018 will also feature events such as Connect (an awareness programme on machine tool industry), Reverse International Buyer-Seller Meet (an interaction platform for machine tool manufacturers and international buyers), i2 (Industry-Institution), Academia Pavilion (an event for academia and industry to interact). All these are expected to see good visitor turnouts. 

The exhibition will feature several companies introducing new technologies to suit many user industries such as aerospace, defence, automobiles, auto components, capital goods, electrical and electronics, earth moving and construction, food processing and dairy equipment, and many others.

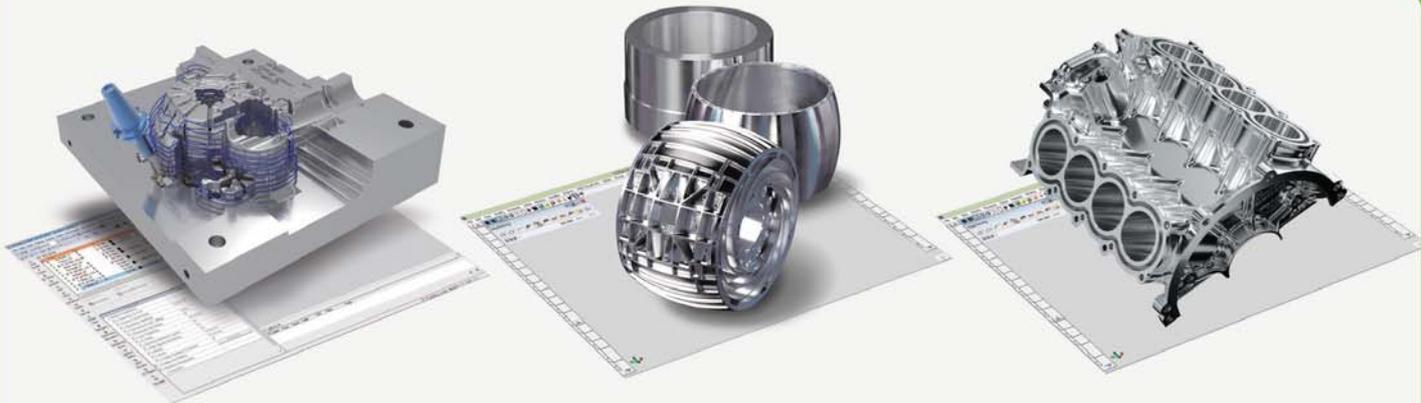
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# Towards digital era

An overview of how the manufacturing industry is moving towards smart and intelligent technologies.

**W**ith greater influence of digitisation, robotics, etc., the Indian manufacturing landscape seems to be disrupted. According to Frost & Sullivan, in FY 2016, the Indian automation market (which includes DCS, PLC, HMI, SCADA, and Industrial Robots) was estimated at Rs. 40.28 billion. This market is expected to grow at a CAGR of 5.2 percent, 2016-2021, with industrial robots expected to grow at a slightly higher rate. The report further suggests that Industry 4.0, will bring about an overall change in the Indian manufacturing ecosystem, with more and more companies acquiring automation solutions within their manufacturing processes.

## Automation projects

Recently, the Kolkata-based Emami Group has placed an order with ABB for an automation and electrical system for a 2 MPTA greenfield plant in Odisha by Emami Cement. The company is setting up advanced and energy-efficient cement plants to meet the future demand of cement coming out of steadily rising infrastructure spend in the country. The solution implemented will minimise energy consumption and enhance the overall plant performance helping the plant support infrastructure growth in the region.

Recently Indian Railways has revealed its plan of deploying drones for track monitoring. It plans to deploy “Drone” cameras for various railway activities especially project monitoring and maintenance of tracks and other railway infrastructure. It has been given directions to Zonal Railways to procure such cameras.

ABB will be undertaking complete project implementation including supply, erection, testing and commissioning for the electrical distribution and distributed control system (DCS). The 800xA DCS will help monitor, control and optimise the cement manufacturing process while maximising plant uptime. The electrical distribution system includes 220 kV switchyard with 20/25 MVA 220kV/11kV Transformer, 11 kV Board, Intelligent Motor Control Center, Distribution transformer, medium- and low- voltage capacitors and allied accessories.

“We would like to ensure that we provide best-in-class quality cement to our consumers, at the same time being environmentally responsible by deploying world-class technology and manufacturing process in our plants,” said Vivek Chawla, CEO, Emami Cement Ltd.

Apart from private players, even PSUs such as Indian Railways is at forefront at embracing new technologies and automation. Recently it has revealed its plan of deploying drones for track monitoring. Indian Railways plans to deploy “Drone” cameras for various railway activities especially project monitoring and maintenance of tracks and other railway infrastructure. It has been given directions to Zonal Railways to procure such cameras. This is in-line with Railways’ desire to use technology to enhance safety and efficiency in train operations.

Drones shall be deployed to undertake monitoring activities of relief and rescue operation, project monitoring, progress of important works, conditions of track and inspection related activities. It shall also be used to assess preparedness of Non-Interlocking (NI) works, crowd management during fairs and melas, to identify scrap and also for aerial survey of station yards. It is going to be instrumental in providing real time inputs related to safety and maintenance of tracks and other railway infrastructure.

Under this initiative, West Central Railways with head-quarter at Jabalpur (M.P) has become the first Zonal Railway



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to procure “Drone” cameras in Indian Railways. West Central Railways has already done a trial-run of those cameras last week on its all the three divisions in the following locations.

**Global scenario**

Besides drones, cobots are also getting momentum in the manufacturing industry. Globally, much work has been done in this area. ABB and Kawasaki Heavy Industries, two global industrial automation and robot suppliers, have recently announced that the companies will join forces to share knowledge and promote the benefits of collaborative robots, in particular those with dual arm designs. The global cooperation will become effective immediately.

Under the new cooperation, which is the world’s first to focus on ‘cobots,’ both robot makers will continue independently manufacturing and marketing their own offerings while working together on joint technical and awareness opportunities. This includes educating policy makers, NGOs and the general public about the benefits of collaborative automation, and creating common industry approaches to safety, programming and communications.

On the other hand, Honda introduced its new 3E (Empower, Experience, Empathy) Robotics Concept, demonstrating a range of experimental technologies engineered to understand people’s needs and make their lives better. Through a suite of robotic concepts expressing a variety of functions and designs, Honda shared its vision of a society where robotics and AI can assist people in many situations such as disaster recovery, recreation and learning from human interaction to become more helpful and empathetic.

**Software**

In the era when automation has no longer become a choice

**HAL Robotics seamlessly integrates custom-designed plug-and-play sensors, wireless protocols, and AI-powered IoT data platform, into an easy-to-use, simple & DIY (do-it-yourself) deployment.**

but a necessity for the sustainability of the business, software is playing a key role in making technologies feasible.

To strengthen its capabilities further, Siemens has announced the MindSphere Partner Program, the newest element of its open cloud-based Internet of Things (IoT) operating system. This program, launched globally, equips partners in both operational technology (OT) and informational technology (IT)

areas with the tools needed to help solve real business and technical challenges faced by end customers through the transformational capabilities of MindSphere and IoT technology.

Culturally, Indian market is different than the global market. Hence, the country needs solutions that are not only feasible but also cost-efficient. In this regard, Gurgaon-based start-up, HAL Robotics, has launched its operations to help enterprises gain better visibility and control over key business metrics in real-time via its IoT data platform and product-suite. HAL Robotics seamlessly integrates custom-designed plug-and-play sensors, wireless protocols, and AI-powered IoT data platform, into an easy-to-use, simple & DIY (do-it-yourself) deployment. Enterprises can deploy these smaller and cost-effective sensors to remove operational bottlenecks and increase the efficiency of the operations.

Apart from automation, digitisation, another upcoming trend that can be seen on the horizon is artificial intelligence. This technology is expected to catch up soon. According to a new report from Grand View Research The global smart manufacturing market size is predicted to hit nearly \$400 billion by 2025. The report further says that the market size is expected to reach \$395.2 billion in 2025, up from \$172.34 billion in 2016. 

*Compiled by Swati Deshpande*

**UPDATE**

**Toyota, Panasonic explore possibility of automotive prismatic battery business**

**T**oyota Motor Corporation and Panasonic Corporation have announced an agreement to begin studying the feasibility of a joint automotive prismatic battery business. This agreement between the two companies aims to help find solutions to pressing societal issues such as global warming, air pollution, the depletion of natural resources and energy security. Furthermore, this agreement is intended to address growing demand and expectations for electrified vehicles. In order to realize these objectives, Toyota and Panasonic target



further advancements in automotive batteries, which are crucial technologies in electrified vehicles. Toyota and Panasonic recognize the importance that further advancements in battery performance, price and safety, as well as a stable supply capacity, will have on encouraging further popularization of electrified vehicles. Both companies will consider details of the collaboration with the aim of achieving the best automotive prismatic battery in the industry and, ultimately, contributing to the popularization of Toyota's and other automakers' electrified vehicles.

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## AMS inaugurates new facility

New production facility has capability to produce 1800 machines per year

December 22, 2017 saw the beginning of yet another new phase in the remarkable journey of Ace Manufacturing Systems Ltd. (AMS) Exactly 12 years ago on the very same day, AMS moved out their small premises into the existing 10 acres plot in Peenya.

The factory had a capacity to produce 1200 CNC Machining center in a year. From the journey of three machining centers in 1994, AMS grew rapidly to churn out 1200 machining centers during the previous financial year. Envisaging a growth in the coming year, P Ramadas, Managing Director AMS, took the decision of expanding the manufacturing setup and in a record time the new production facility for producing 1,800 machines per year was built in a short period of six months. With this addition, AMS boasts of the largest facility in India for machining centers with a capacity of 3,000 machines per annum and a strong vision to move on to 10,000 and then to 30,000 machines per year.

The facility was inaugurated in presence of several of the doyens of the leading Indian automotive groups. A gala function earmarked the inaugural of the new facility.

The opening ceremony was graced by who's who of the automotive industry, including Viji Santhanam, Managing Director, Brakes India Group; V N Vijayaraghavan, Managing Director, I M Gears Pvt. Ltd.; Dr. Manickam M, Chairman, Sakthi Automotive Group; Gautam Maini, Managing Director, Maini Precision Products Ltd.; R. S. Zanvar, Chairman, Shriram Foundry Ltd – Zanvar Group; G Parthipan, CEO, Rane TRW Steering Systems Ltd.; Kohari san, Member of the Board, FANUC Corporation – Japan; Steven Y Pai, Chairman, Precision Motion Industries, INC.(PMI Taiwan).

The ceremony was also attended by the Directors of Ace Micromatic Group A. V. Sathe - Chairman of Ace Designers & Pragati Automation Pvt. Ltd.; S. G. Shirgurkar – Managing Director of Ace Designers Ltd. and B Machado – Manag-



With this addition, AMS boasts of the largest facility in India for machining centers with a capacity of 3,000 machines per annum and a strong vision to move on to 10,000 and then to 30,000 machines per year.

ing Director of Ace Designers Ltd. The event was presided over by P Ramadas, Managing Director of Ace Manufacturing Systems Ltd. (AMS) and President of Indian Machine Tool Manufacturers' Association.

Customers of AMS from across India marked their presence for the Inaugural with the numbers crossing well over 1,000. After the Lamp lighting, P. Ramadas gave the welcome address followed by speeches by the dignitaries on the dias.

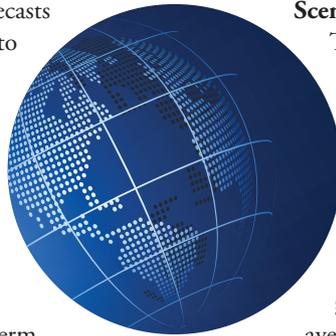
One common theme of most of the speeches was the passion of P. Ramadas for ensuring customer satisfaction at all cost and the proactive approach of the Ace Micromatic Group in driving the Indian Machine Tool Industry from the forefront.

The grand finale was the unveiling of the model of the Ace Manufacturing Systems Ltd. plant followed by a visit to the facility. The event concluded with a sumptuous traditional south Indian lunch on banana leaf. 



# India to grow at 7.3%: The World Bank

**T**he World Bank forecasts global economic growth to edge up to 3.1 percent in 2018 after a much stronger-than-expected 2017, as the recovery in investment, manufacturing, and trade continues, and as commodity-exporting developing economies benefit from firming commodity prices.



However, this is largely seen as a short-term upswing. Over the longer term, slowing potential growth—a measure of how fast an economy can expand when labor and capital are fully employed—puts at risk gains in improving living standards and reducing poverty around the world, the World Bank warns in its January 2018 Global Economic Prospects. Growth in advanced economies is expected to moderate slightly to 2.2 percent in 2018, as central banks gradually remove their post-crisis accommodation and as an upturn in investment levels off. Growth in emerging market and developing economies as a whole is projected to strengthen to 4.5 percent in 2018, as activity in commodity exporters continues to recover.

## Scenario in South Asia

The slowdown in potential growth is the result of years of softening productivity growth, weak investment, and the aging of the global labor force. The deceleration is widespread, affecting economies that account for more than 65 percent of global GDP. Without efforts to revitalize potential growth, the decline may extend into the next decade, and could slow average global growth by a quarter percentage point and average growth in emerging market and developing economies by half a percentage point over that period.

Growth in the South Asian region is forecasted to accelerate to 6.9 percent in 2018 from an estimated 6.5 percent in 2017. Consumption is expected to stay strong, exports are anticipated to recover, and investment is on track to revive as a result of policy reforms and infrastructure upgrades. Setbacks to reform efforts, natural disasters, or an upswing in global financial volatility could slow growth. India is expected to pick up to a 7.3 percent rate in fiscal year 2018/19, which begins April 1, from 6.7 percent in FY 2017/18. Pakistan is anticipated to accelerate to 5.8 percent in FY 2018/19, which begins July 1, from 5.5 percent in FY 2017/18. 

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## Robust switches for demanding industrial networks

ETHERLINE ACCESS for the managed & unmanaged switches



Ethernet technology-based networks are active network components which play an important role in Industrial Ethernet Systems, required by the smart factories of the future. Understanding the increasing demand of Ethernet Technology, Lapp launched its new line of switches for Ethernet networks under the name ETHERLINE ACCESS. One important value is the reconfiguration time, which is the period until communication is restored following an interruption. In the case of the new switches from Lapp, this period is only 20 milliseconds with 250 active components in the network. Besides this, the switches are fully equipped with cutting-edge diagnostic and redundancy features.

Switches are a new line of business for Lapp, but this represents an ideal fit for the market leader in integrated cable and connection systems. Only the combination of an industry-calibre switch and industrial brand-name cables such as ETHERLINE from Lapp guarantees maximum performance in terms of transmission quality and reliability. In addition, the customer does not need to purchase individual components from different suppliers. On the contrary, they can procure a complete communication solution from a single source for the highest demands in industrial applications.

The Lapp switches are available in four variants: “managed”, i.e. with the option of configuration and five or eight RJ45 ports, designated ETHERLINE ACCESS M05T or M08T respectively. By contrast, the ETHERLINE ACCESS U05T and U08T switches are “unmanaged”. All four are fanless and maintenance-free and have two redundant connections to ensure a reliable power supply.

### General Features

- Redundant power inputs – high availability
- Robust metal housing and DIN rail mounting
- IP 30

- Fanless – maintenance free

### ETHERLINE ACCESS can be best applied at:

- Industry and building networks
- Stage engineering and event technology

### Featured of ETHERLINE ACCESS Managed & Unmanaged Switches:

- ETHERLINE ACCESS M05T/M08T (Managed Switches)
  - Simple setup of redundant network topologies
  - Reconfiguration time < 20 ms one of the lowest reconfiguration time of redundancy protocols
  - RJ45 Ports: 10/100BaseT(X)
  - Packet Buffer Size: 1 Mbit
  - Supported protocols: HTTP, Telnet, EtherNet/IP, Modbus/TCP, IPv6, and many more
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  - Power Input: 24 VDC redundant dual inputs
  - Shock IEC 60068-2-27; Freefall IEC 60068-2-32; Vibration IEC 60068-2-6
- ETHERLINE ACCESS U05T/U08T (Unmanaged Switches)
  - Broadcast storm protection
  - RJ45 Ports: 10/100BaseT(X)
  - Packet Buffer Size: 512 kbit
  - Temperature range: -10 °C to 60 °C
  - Power Input: 12/24/48 VDC, 18 to 30 VAC, redundant dual inputs
  - Shock IEC 60068-2-27; Freefall IEC 60068-2-32; Vibration IEC 60068-2-6

Source: Lapp India



## A synthetic fluid based neat machining oil

Aiming at technological excellence Motultech is continuously improving its products and services. The company has launched its new SUPRACUT EVO range of neat machining oils. These oils have been developed to meet highest performance requirements, whereby cost efficiency, full compliance with our European and other international regulations and durable supply security.

SUPRACUT EVO oils contain new generation synthetic base fluids of highest purity as a result of latest technology in refining process. Thanks to these synthetic base fluids used in these formulation which not only help us to increase the life of the oil but also help in human/operators safety from BAP a carcinogenic content, reduced fire hazards, and extremely low evaporation. Motultech has conducted numerous trials worldwide and able to demonstrate increased product performance as well as improved and more acceptable operator acceptable application conditions. SUPRACUT EVO products has clearer appearance and extremely low volatility. This help in avoiding mist creation and evaporation. Moreover these prod-



ucts provides advantages in terms of product stability over extended periods. SUPRACUT EVO products are available in different viscosities from 15cst to 45 cst in different performance levels and machining conditions for low alloyed steel to exotic alloys like Inconel, Hestalloxy, Titanium and special medical alloys.

**Minimum BAP Content:** The range was developed as per INRS ND

2356-227- 12 recommendation which sets the Benzo-a- Pyrene content limit at 30 µg/kg (Benzo-a-pyrene is a molecule of Polycyclic Aromatic Hydrocarbon group classified as being carcinogenic).

**Longer-life Time:** The higher oxidation resistance of Supracut EVO oils gives constant quality for a longer time.

**Low mist:** The Supracut EVO's high viscosity index allows oil to keep its viscosity constant in spite of the temperature increase.

**Better filterability:** High quality of base stocks and additives used in Supracut EVO allows to improve its filterability.

**Reduced consumption:** Thanks to its high viscosity index, evaporation of Supracut EVO is reduced by 50% and so is the consumption of oil.



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## Next generation anti-vibration carbide end mill

OSG Corporation released its new AE-VMS anti-vibration carbide end mill offering, a series designed to attain an all new level of milling efficiency coupled with superb finish quality suitable for a variety of milling applications.

In high-speed milling, surface finish quality is often jeopardized for the sake of speed. The AE-VMS' sharp positive rake angle geometry significantly reduces cutting force to minimise tool wear and potential damage to the workpiece even under aggressive cutting conditions. Cutting vibration is minimised with the AE-VMS' unequal spacing of teeth and variable-lead geometry. Furthermore, its unique flute form helps facilitate trouble-free chip evacuation to enable stable and consistent performance.

With the AE-VMS' high tool rigidity, the occurrence of burrs can be suppressed to ensure high milling accuracy. With the addition of OSG's original DUARISE coating, tool life can be enhanced by its excellent lubricity, superior friction-resistance



"Cutting vibration is minimised with the AE-VMS' unequal spacing of teeth and variable-lead geometry. Furthermore, its unique flute form helps facilitate trouble-free chip evacuation to enable stable and consistent performance."

and high oxidation temperature qualities. The DUARISE coating's multi-layer construction minimizes thermal cracks, allowing the AE-VMS to excel even in water-soluble oil.

The AE-VMS is designed to accommodate a wide range of milling operations including slotting, side milling, helical milling, contour milling and ramping in stainless steel, cast iron, carbon steel, alloy steel and hardened steel (up to 40 HRC). Tested repeatedly to guarantee consistent performance and quality even in difficult-to-machine materials, the

AE-VMS is the new standard for milling.

## Electric bending machine

The AMT 16 is an all-electric tube bending machine, formerly known as the Tulip 19, for tubes up to 16mm outside diameter, with a patented design allowing bending on two levels in both directions (right or left hand). With fewer components and less tool complexity than conventional bending machines, the result is a simple and compact machine design that increases production at a lower cost.

For a fully automated cycle, the AMT 16 bending machine is paired with a Kuka robot, with the robot handling the tube



The flexibility and speed of the robot, combined with the patented multi-stack, two-radius bend head, allow the AMT 16 to bend the most complex part shapes (up to 3 different compound bends) in a cycle time faster than conventional mandrel bending.

shapes (up to 3 different compound bends) in a cycle time faster than conventional mandrel bending.

Other operations such as endforming, marking, or cutting can also be integrated into the AMT 16 bending cell for a fully automated tube forming solution. Among other applications, the AMT 16 is well suited for bending components such as automotive fuel and brake lines, as well as air-conditioning lines. Additionally, it is capable of bending tubes with rubber fittings.

from loading to unloading. The flexibility and speed of the robot, combined with the patented multi-stack, two-radius bend head, allow the AMT 16 to bend the most complex part

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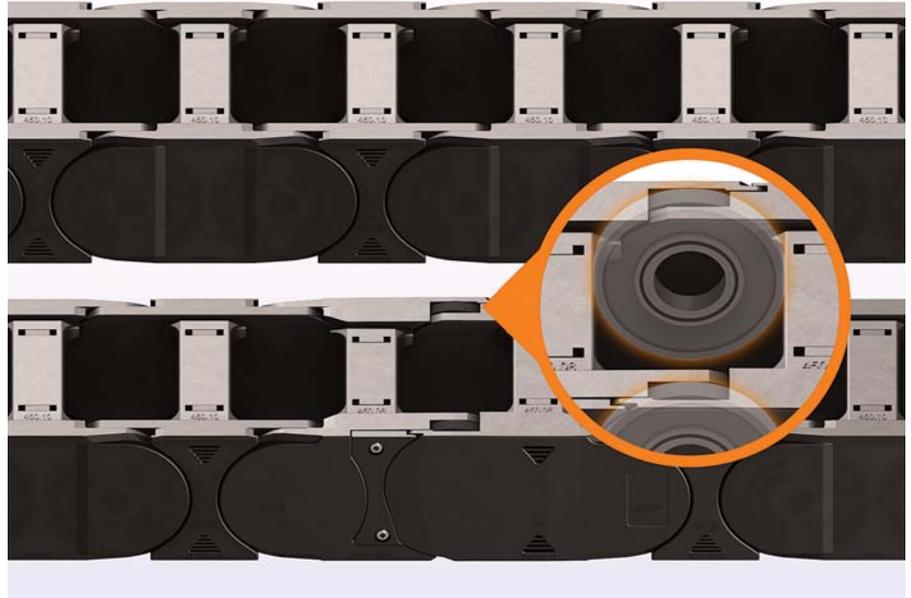
## Now gliding or rolling e-chain travel – E4.1 modular system

New roller links reduce noise, vibration and the amount of drive energy required

igus, the motion plastics specialist, now expands its standard modular E4.1 e-chain system by adding new roller links. This makes it especially easy for users to change over from gliding to rolling energy chain systems – The roller links are completely compatible with the entire E4.1 modular system. For example, e-chains for linear robots in the machine tool industry can be easily modified to cope with greater dynamics and, at the same time, reduce the drive energy needed by up to 57 per cent.

For travels between ten and 50 metres, energy chains that glide are usually used. However, more demanding requirements are being placed on these systems – The required dynamics of the systems and the loads that have to be moved by them are continuously increasing, sometimes for existing systems as well. If for example the cycle rates of machines are increased retrospectively and energy chains are moved faster as a result, gliding systems can reach their physical limits. For this reason igus, the motion plastics specialist, now expands the standard modular system of the E4.1 e-chain series by adding new roller links. "The newly developed roller links are separated, so that the roller sits in the middle of the link", explains Michael Blaß, Vice President, Head of Business Division e-chainsystems at igus. "This means that all links effectively have the same pitch, a feature that ensures quieter operation of the system." The main contribution to this is made by the new hollow rollers which produce considerable less vibration and noise when they roll over each other due to a combination of new geometry and material. In many tests lasting several years, igus engineers found the ideal solution with which safe and reliable applications involving speeds of 6 m/s can be implemented.

In order to reduce noise further during movement, the roller links have small ramps in front of and behind the rollers, as a result of which hard impacts are avoided when the upper run of the chains is unrolled onto the lower run. The rollers



**"This means that all links effectively have the same pitch, a feature that ensures quieter operation of the system."**  
**Michael Blaß,**  
Vice President, Head of Business Division e-chainsystems at igus

are not additional components that can be lost but are securely integrated into the links in a manner that is also space-saving.

The "all-rounder modular system" for an extremely wide variety of applications

The new roller links in the comprehensive modular E4.1 system enable users to change from gliding to rolling energy chain systems for their machines and thus save drive energy. Moreover, it is possible to continue using the same trough systems, interior separation and mounting brackets as before. Thanks to the modular nature of the series, a very wide range of different sizes and types are possible. No adapter links are needed. The roller links can be fitted on the left and right side of the chain and assembly is therefore easily integrated.

The interior contours of all links of the E4.1 series are smooth and the crossbars and lids are slightly rounded, as a result of which there is less wear on the cables during operation. At the same time, E4.1 chains from igus are very robust and are designed for demanding requirements and very high loads. They can therefore be used in many different applications and industries, from machine tool halls to cranes in sea ports. With the isense products for predictive and plannable reliability, unscheduled machine shutdowns can also be avoided.

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## New Version of CADMAN Software Suite Enhanced features for smart manufacturing

LVD Company nv has released a new version of its programming and shop management software, CADMAN Suite version 8.5. The release includes enhancements for every CADMAN module, such as an improved dashboard for more intuitive use, and extends CADMAN’s integration capabilities to include the next generation of LVD’s Touch-P punch press control, as well as non-LVD cutting and punching equipment. CADMAN helps streamline the complete fabrication process to make smart manufacturing possible – starting with a 3D part concept, communication to production control, organizing a shop’s manufacturing flow, to cutting, sorting and bending.

### Key updates

Beyond its new, modern look and feel, CADMAN Suite v8.5 provides these key updates:

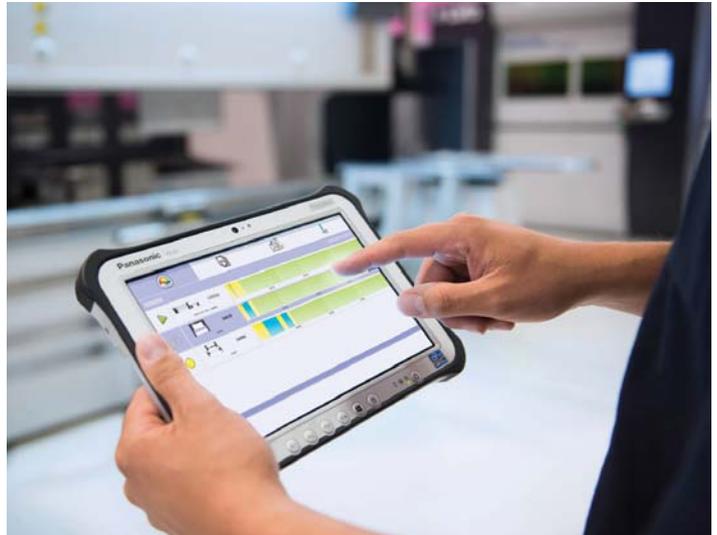
- CADMAN-B bend CAM software has improved bend solution finding, including tool preselection based on active catalogue(s). Preferred (custom) tooling can be selected followed by several checks ending with a collision check on a 3D virtual production. The intelligent import function for import part by part or in batch has been en-

The release includes enhancements for every CADMAN module, such as an improved dashboard for more intuitive use, and extends CADMAN’s integration capabilities to include the next generation of LVD’s Touch-P punch press control, as well as non-LVD cutting and punching equipment.

hanced. Form features are recognized, existing bends in the part can be indicated or bends can be excluded from the automatic solution find process.

CADMAN-B is now also available for LVD Synchro-Form Series press brakes. Synchro-Form is the next generation of adaptive bending system designed specifically for bending of XXL profiles.

- Touch-B control software, which can be used in combination with CADMAN-B, is also improved. The sequence change - the time between bending parts – is now optimized, resulting in a significantly higher press brake working speed for increased productivity.
- CADMAN-L and CADMAN-P CAD/CAM software modules feature advanced nesting capabilities for laser cutting and punching. New functions such as “minimal heat impact” while finishing parts one by one, material thickness defined parameters, material and material condi-



tion technology cutting tables ensure a more smooth and automatic preparation for laser cutting. For punching, smart functionality such as “avoid hits with form tools” and “punch with form tools last” ensure reliable punching preparation. In the common module, parts can be detected automatically or manually in a multiple part drawing.

- CADMAN-JOB now connects to the latest Touch-P control for LVD punch presses as well as integrates to other, non-LVD fabrication cutting equipment. CADMAN-JOB connects the front office intakes and processing of orders with shop floor operations, facilitating a controlled process from the order to the finished part. The software provides real-time insights from the shop floor so users can optimize machine production time and fabrication resources.

LVD’s Touch-i4 tablet, which works as a companion to CADMAN-JOB and helps sort parts after cutting, has the added functionality to assign parts to a certain location, which can be an identified carrier or warehouse position.

- CADMAN-SDI, Smart Drawing Importer, makes generating accurate cost estimates from imported CAD files easier and more accurate with a greater number of built-in cost drivers that help fabricators identify what’s driving their indirect manufacturing costs to determine the true cost of a part/product. CADMAN-SDI also offers more functionality for file exporting and improved batch importing capability. Additional cost drivers, including the length of the longest bend and maximum required bend force, are now part of the information on the display or in the export file.

In all, the v8.5 updates make CADMAN Software Suite a more powerful tool to meet the digitally integrated needs of today’s manufacturing and Industry 4.0.

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