

# THE MACHINIST

RNI No 71129/98

Volume 13 Issue 11 • November 2018 • Rs 75

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TECHNOLOGY  
*Impact of  
digitization*

INSIGHT  
*Creativity on  
the shopfloor*



## Armed for future!

Punj Lloyd is developing capability and infrastructure, which can be effectively leveraged for defence programmes, says **Ashok Wadhawan**, the President of Defence, Aerospace and Homeland Security division at the Group.

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We are what we repeatedly do.  
**Excellence** then, is not an act, but a habit.  
Aristotle



## Inspire, Integrate, Innovate!

Indian manufacturing sector's ongoing growth spell has now stretched to 15 straight months, as of October 2018! That is an amazing record to have for a dynamic and powerful economy like India. As reflected in the PMI numbers for the last month, the industry has fired up on all three engines – production, purchase and employment. And considering the fact that November has been a festive month, the momentum is likely to be maintained with more zest and zeal.

At the same time, thanks to the Government's pro-industry policies, India is now placed 77th in the Ease of Doing Business ranking amongst the 190 countries assessed by the World Bank. In fact, India has recorded a jump of 23 positions against its rank of 100 in 2017, which is quite significant considering that last year too India had improved its rank by 30 places. This is absolutely brilliant given the complexity and diversity of our nation.

**“THE MACHINIST GLOBAL MANUFACTURING SUMMIT (GMS) HAS GROWN IN BOTH STATURE AND SCALE. IN A WAY, IT ALSO REFLECTS THE INDUSTRY'S RISE IN THE LAST FIVE YEARS OR SO.”**

The overall scenario is just right for the economy as well as for the industry. And we are delighted to have this leading into the fourth edition of our Global Manufacturing Summit. GMS, as it is popularly known, has grown in both stature and scale. In a way, it also reflects the industry's rise in the last five years or so. After travelling to the other key manufacturing destinations like Bengaluru (2015), New Delhi (2016) and Indore (2017), GMS comes to the country's Western manufacturing hub – Pune. This is where we will deliberate and discuss upon this year's exciting theme of 'Inspire, Integrate, Innovate'. As part of the Summit, we are also taking many of our delegates to Mahindra's Chakan manufacturing facility, which embodies the event theme in its work and scale in the true sense.

Of course, we have a lot of engaging and relevant content planned for the event. So, this will be the most 'unmissable' GMS so far. Look forward to meeting you there.

Editor & Chief Community Officer

**THE MACHINIST**  
ULTIMATE GUIDE TO PROFITABLE MANUFACTURING  
Volume 13 Issue 11 November 2018



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022 67427209 / 67427206

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

Editor: Niranjan Mudholkar. Published for November 2018.

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# CONTENTS



## COVER STORY

**Armed for future! ..... 38**



## DEFENCE

**Investment in Defence! ..... 16**

**A bird's eye view! ..... 32**

Editorial ..... 4

News ..... 8

Event Calendar ..... 12

Appointments ..... 14

Facility Update ..... 20

Human Resource Update ..... 26

### Event:

Driving Change in Mobility ..... 48

Focus on die-casting technology ..... 52

SME Zone: Connecting People and Technology! ..... 54

Products ..... 59



## Market

**Manufacturing health improves strongly in Oct 2018..... 18**



## Aerospace

**3D printing technology leads the way .. 24**



## Automotive

**Miracle Material! ..... 36**

**Updates ..... 56**

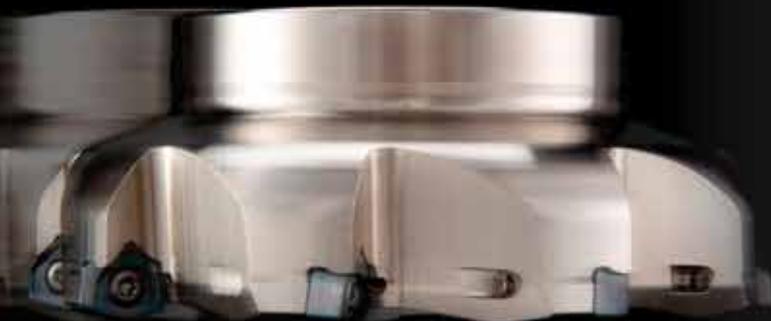


## Insight

**Creativity on the Shopfloor..... 28**

**Digital Transformation of Manufacturing in India ..... 42**

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# NEWS

## Government to set up Indian Institute of Skills

**THE UNION CABINET** chaired by Prime Minister Narendra Modi has approved the for setting up of the Indian Institute of Skills (IISs) at different locations across the country in Public Private Partnership (PPP), which will be explored for promotion of IIS at select locations based on demand and available infrastructure.

The setting up of IISs shall augment the global competitiveness of key sectors of Indian economy by providing high quality skill training, applied

research education and a direct and meaningful connection with industry. It will provide opportunity to aspiring youth across the country to have access to highly skilled training, and enhance the scope of accountability through its linkage with industry and global competitiveness across sectors.

By leveraging advantages of private sector enterprise and public capital in terms of Government land, it would create new institutes of expertise, knowledge and competitiveness.

## HAL begins spin test of HTT 40 aircraft



**THE HTT 40** (Basic Trainer Aircraft) began the most awaited phase of the 'spin test' by successfully entering in to two turn spin and subsequently recovering with the appropriate controls. Two test pilots undertook the first ever spin entry testing recently. The aircraft was piloted by Gp Capt (Retd) KK Venugopal, DGM-Test Pilot (FW) from front cockpit and Gp Capt S Chaki (Retd), Sr. Test Pilot (FW) from rear. The stall testing was already completed and the project galloped its way to spin tests.

R. Madhavan, Chairman & Managing Director, HAL said that the successful start of the spin testing gives a boost to HAL and also restores credibility of HAL in successfully designing a spin worthy aircraft.

The spin testing is the most crucial and challenging aspect of flight testing of any aircraft development programme. HAL's Aircraft Research and Design Centre (ARDC) had conducted extensive wind tunnel testing and mathematical model analyses to arrive at the spin characteristics of the aircraft. The entire study is put to test during those first few moments of spin testing.

According Arup Chatterjee, Director (Engg and R&D) the PSQR test points have been met and the spin completion is the last metric which needs to be accomplished before the aircraft enters service. As a matter of fact, HTT 40 exceeds the Preliminary Services Qualitative Requirements (PSQR) on most fronts and offers a technologically advanced product than its competitor.

## Indian construction equipment sector grows by 24% in FY2017-18

**THE DEMAND FOR** Indian Construction Equipment (ICE) grew by 24% in FY 2017-18, up from 13% in FY 2015-16, and the sector crossed 90,000 units for the first time due to increase in infrastructure expenditure, according to an ASSOCHAM-Feedback consulting joint study. The Indian Construction Equipment industry grew despite the hiccups of emission & GST during April and July 2017, respectively. Demonetisation also had a negligible effect on the industry growth. The government, which is a major demand driver, also plays a facilitator's role through policy and regulations. It is the largest end customer accounting for nearly two thirds of the demand for ICE products and hence has a significant impact on the industry. Also, its role in setting policy and regulation has a further impact on the industry. The study also highlighted that highway construction (Roads) has been one of the key drivers for equipment growth. Earthmoving & Mining equipment are largely used for initial land clearing for Road construction. The Indian construction, mining equipment industry continues to be highly dependent on the demand for backhoe loaders & hydraulic excavators. The backhoe loader alone contributed to 40% of the overall sales by volume during FY 2017-18, a very India specific phenomenon. Backhoe loaders in China account for 0.5% of overall construction equipment sales while in North America it accounts for 8.5%. Capacity utilisation among OEMs, is above 70% levels. Most of them have expanded and some others are planning expansions in equipment like hydraulic excavators, wheel loaders and other specialized equipment. OEMs are focusing on exports to improve their capacity utilisation. The interest in Indian backhoe loaders in certain African countries is on the rise.

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#### International

**METALEX 2018**  
21st to 24th November, 2018

Bangkok, Thailand  
**HALL NO. 102      STAND NO. BK31**

#### VISIT US AT

#### Domestic

**RAJKOT MACHINE TOOLS SHOW**  
28th November to 1st December, 2018

NSIC Ground, 80 Feet Road, Aji Industrial Area, Rajkot, Gujarat, India  
**HALL NO. 02      STALL NO. P-1**



# NEWS

## Tata Steel to expand its Kalinganagar plant

**THE GROUNDBREAKING CEREMONY** for the expansion to 8 million tons per annum (MTPA) capacity of Tata Steel's Kalinganagar plant was held recently by the Chief Minister of Odisha Naveen Patnaik during the 'Make In Odisha Conclave 2018.'



The project will cost the company Rs 23,500 crore and will be completed within 48 months. The project configuration and costs includes investments

in raw material capacity expansion, upstream and mid-stream facilities, infrastructure and downstream facilities including a cold rolling mill complex.

"Tata Group's association with the State of Odisha is very deep. It has over 100 years of relationship. Tata Steel has a very large capacity state-of-the-art plant in the State. With the phase-II expansion of Tata Steel Kalinganagar, Tata Group's investment in the State will cross Rs 100,000 crore," said N Chandrasekaran, Chairman, Tata Group.

## BHEL wins an order for emission control equipment

**BHARAT HEAVY ELECTRICALS LTD (BHEL)** has bagged four orders for emission control equipment from NTPC Ltd. Valued at about Rs.2,900 Crore, these orders involve supply and installation of Flue

Gas Desulphurization (FGD) systems for control of SO<sub>x</sub> emissions at NTPC's 3x660 MW North Karanpura, 2x500 MW Mauda Stage - I, 3x660 MW Barh Stage - I and 2x660 MW Barh Stage - II power projects.

BHEL has been a major player in this area for more than a decade and was one of the earliest entrants in the Indian market for emission control equipment, having successfully executed the FGD system at Tata Power's Trombay Unit 8 in 2008. With these orders, BHEL is presently executing FGD systems for 17 units of NTPC and its JVs, other projects being 3x250 MW Bongaigaon, 2x490 MW National Capital Power Station (NCPS) at Dadri and 2x660 MW Maitree in Bangladesh. Overall, BHEL has contracted FGD orders for 32 units from various customers till date.

## Escorts Ltd. Q2 profit up by 32.5% at Rs.102.7 crore

**ESCORTS LIMITED** has reported a profit of Rs. 102.7 crore in the quarter ending September 30, 2018 up by 32.4 percent as against a profit of Rs. 77.6 crore in the corresponding period last fiscal. Revenue from operations up by 15.4% to Rs. 1,398.4 crore in quarter ended September 2018 as against Rs. 1,211.7 crore in the corresponding period last fiscal. The net profit for the first half year ending September 2018 was up by 59.4 percent at Rs. 223.4 crore in half year ended September 30, 2018 as against a profit of Rs. 140.2 crore in the corresponding period last fiscal. Revenue from operations up by 22.5% to Rs. 2,909.6 crore in first half ended September 2018 as against Rs. 2,374.8 crore in the corresponding period last fiscal.

## Commerce Ministry strategizing to make Indian exports more competitive: Suresh Prabhu

### INDIA'S EXPORTS

rose by 9.8%, in financial year 2017-18, which is the highest rate of growth in six years. In this regard, Union Minister of Commerce & Industry and Civil Aviation, Suresh Prabhu stated that this positive growth in exports has taken place at a time when there is a lot of negative headwinds globally. He was speaking at the Export Summit 2018 organised by CII. Prabhu further stated that Commerce Ministry is working on a strategy to re-



vitalize India's exports & is working with key exporting ministries to formulate sectoral, commodity and territory specific export strategy.

Prabhu further stated that he is personally monitoring the progress and

regular meetings are being held with sectoral ministries, export promotion councils and exporters. Certain issues which were affecting growth of exports have been specifically taken up with Department of Revenue and Ministry of Environment.

## Setco Automotive Ltd sales up by 50 percent

### SETCO AUTOMOTIVE LTD

announced its financial result for the quarter and half year ended September 30, 2018. The company's management maintains its sales growth guidance at ~35% for the year. Setco's OEM business grew by ~65 percent compared to MHCV industry production growth of 57 percent.

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SC-14  
BIG BORE LATHE



SC-25  
CNC HEAVY DUTY LATHE

## CNC Internal Grinding



FIG-200 SPL CNC  
BIG BORE GRINDER

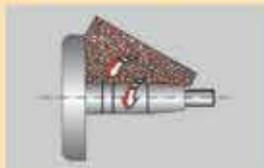


FIG-300 CNC  
FOUR STATION TURRET



FIG-150 CNC  
ID / OD GRINDER

## CNC Cylindrical Grinding



AWH-1500 CNC  
LONG SHAFT GRINDER



AWH-2000 CNC  
HEAVY DUTY GRINDER



SWH-400 CNC  
AUTO LOADING

## Surface Grinding



SG-106 CNC  
CREEP FEED GRINDER



SGR-60  
ROTARY GRINDER



SG-63  
HYDRAULIC / PLC

## Automats



A15/25

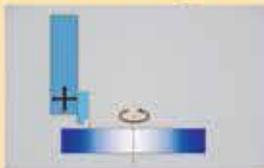


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• MARK YOUR DIARY •

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

<p><b>ConMac</b> November 22–24, 2018 Kathmandu, Nepal <a href="http://www.conmac.in">http://www.conmac.in</a></p>	<p><b>Wire India Show</b> November 27–29, 2018 Mumbai, India <a href="http://www.wire-india.com">www.wire-india.com</a></p>	<p><b>Metallurgy Show</b> November 27–29, 2018 Mumbai, India <a href="http://www.metallurgy-india.com">www.metallurgy-india.com</a></p>	<p><b>IMTEX 2019</b> January 24–30, 2019 Bengaluru, India <a href="http://www.imtex.in">www.imtex.in</a></p>
<p><b>Taipei International Machine Tool Show</b> March 4–9, 2019 Taipei, Taiwan <a href="http://www.timtos.com.tw">www.timtos.com.tw</a></p>	<p><b>International Engineering Sourcing Show (IESS)</b> March 14–16, 2019 Chennai, India <a href="http://www.iesshow.in">www.iesshow.in</a></p>	<p><b>Hannover Messe</b> April 1–5, 2019 Hannover, Germany <a href="http://www.hannovermesse.de">www.hannovermesse.de</a></p>	<p><b>Bauma</b> April 8–14, 2019 Munich, Germany <a href="http://www.bauma.de">www.bauma.de</a></p>
<p><b>intec Coimbatore</b> June 6–10, 2019 Coimbatore, India <a href="http://www.intec.codissia.com">www.intec.codissia.com</a></p>	<p><b>Automotive Engineering Show India 2019 (Chennai)</b> July 4–6, 2019 Chennai, India <a href="http://www.automotive-engineering-show.in">www.automotive-engineering-show.in</a></p>	<p><b>EMO Hannover 2019</b> September 16–21, 2019 Hannover, Germany <a href="http://www.emo-hannover.de">www.emo-hannover.de</a></p>	<p><b>Excon</b> December 10–14, 2019 Bengaluru, India <a href="http://www.excon.in">www.excon.in</a></p>



December 5, 2018,  
Hyatt Regency, Pune





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### **BOMBARDIER APPOINTS SAM ABDELMALEK CHIEF TRANSFORMATION AND SUPPLY CHAIN OFFICER**

Bombardier has announced the appointment of Sam Abdelmalek as Chief Transformation and Supply Chain Officer. Sam will report directly to Alain Bellemare, President and Chief Executive Officer, Bombardier Inc. In this position, Sam will assume responsibility for the continued transformation of the company's operations and lead the company's supply chain activities to reduce costs and improve efficiency and quality to support Bombardier's growth objectives.

"We are very excited to welcome Sam to the Bombardier leadership team," said Alain Bellemare. "He is a strong and dynamic leader, with a proven track record of creating value through effective supply chain management and process improvement at large industrial companies. Sam will work closely with me and the senior leadership team to accelerate our transformation, improve our competitive position and support our long-term growth objectives."



### **OPC FOUNDATION ANNOUNCES NEW PRESIDENT**

The OPC Foundation welcomes Stefan Hoppe as its next President and Executive Director. Burke, the former President and Executive Director, nominated Hoppe as his successor before resigning during the last Board of Directors meeting. Hoppe was elected by the board in the same meeting. Mr. Burke will remain as an officer on the Board of Directors and will continue his widespread evangelism for OPC UA adoption across various domains. Stefan Hoppe took over the operational activities and responsibility for worldwide adaption of the OPC standards and the further development of the organization.

Stefan Hoppe is a long-standing member of the control automation industry and the OPC Foundation. As an electrical engineer, he joined BECKHOFF in 1995 where he developed OPC classic server and in 2006 the world first OPC UA server integrated into an embedded controller. In 2008 he initiated and chaired the PLCopen OPC UA Companion working group which results are adopted in process industries and discrete manufacturing by multiple international well-known vendors. In 2010 Mr. Hoppe was elected for President of OPC Foundation Europe. Since 2014, he is Vice President of the OPC Foundation and member of the OPC Board. During the following years Mr. Hoppe became an OPC UA evangelist increasingly committed to adopting OPC technologies. Experts see OPC UA as a core standard in the emerging Internet of Things and Industrie4.0 movements.

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### **DELPHI TECHNOLOGIES APPOINTS INTERIM CEO**

Delphi Technologies PLC has appointed Hari N. Nair as interim Chief Executive Officer, effective immediately. Nair succeeds Liam Butterworth who is stepping down from his role as President and Chief Executive Officer to pursue other interests. The Board of Directors has commenced a comprehensive search process to identify a permanent Chief Executive Officer.

Nair, who has more than 30 years of automotive executive experience, has also been a director of Delphi Technologies since it became a public company in December 2017. He started his career at General Motors, before joining Tenneco Inc., where he held several senior leadership positions in global operations and the aftermarket sector. He served as Tenneco's Chief Operating Officer from 2010 to 2015 and was a member of the Tenneco Board of Directors from 2009 to 2015.

"We are pleased that a leader of Hari's caliber and experience has agreed to lead the company on an interim basis," said Timothy M. Manganello, non-executive Chairman of the Board of Directors. "With more than three decades of experience, Hari has a deep understanding of our industry and the opportunities ahead of us. Our experienced Board will continue to lend its expertise to Hari and the organization while we identify our next CEO and will ensure a smooth transition. On behalf of the Board, I would like to thank Liam for his service and contributions to the company".

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# Investment in Defence!

Here are answers to some key questions in the context of investment in the defence manufacturing sector.

**Q What is the permissible FDI limit in the defence sector?**

Department of Industrial Policy & Promotion (DIPP) vide Press Note No. 5 of 2016 Series dated June 24, 2016 notified review of Foreign Direct Investment (FDI) Policy on various sectors including which includes conditions related to FDI in defence at Para 5 of the said Press Note. According to the revised guidelines, Foreign Investment Cap up to 49 percent is allowed through automatic route and beyond 49 percent under Government route, wherever it is likely to result in access to modern technology or for other reasons to be recorded. The foreign investment in defence sector is further subject to industrial license under the Industries (Development & Regulation Act), 1951. The detailed guidelines in this regard may be seen under the Press Note available at DIPP website (link, followed by link Acts & Rules).



Courtesy: Ministry of Defence

**Q Which is the Administrative Ministry for the grant of extension for Defence Industrial Licence? Where should the company apply for extension of Defence Industrial Licence?**

Ministry of Defence, Department of Defence Production is the Administrative Ministry for grant of extension of Industrial licence under the I(D&R) Act, 1951 to the private sector. The Company may send their IL extension application to Contract Purchase Officer, Department of Defence Production, Ministry of Defence, D (DIP) Section, Sena Bhawan, New Delhi.

“Capital Acquisition schemes are broadly classified as ‘Buy’, ‘Buy and Make’ and ‘Make.’”

the Armed Forces in terms of performance capabilities and quality standards, through optimum utilisation of allocated budgetary resources. It is worthwhile to mention that the document is not merely a procurement procedure but also an opportunity to improve efficiency of the procurement process to realize the vision of ‘Make in India’ in the defence sector.

**Q What is the FDI inflow in the defence sector since the opening for Private Participation?**

As per the FDI statistics available at DIPP’s website, an FDI inflow of \$ 5.12 million (INR 25.51 crore) has been received in the country till September 2017 (as per data available on DIPP’s website).

**Q How many JVs/ FDI proposals have been approved in the defence sector so far?**

Since May 2001 after opening the defence production sector for 100 percent participation in private sector, so far 36 JVs/ FDI proposals have been approved for manufacture of wide range of licensable defence items.

**Q What is the Defence Procurement Procedure (DPP) 2016?**

The DPP is formulated to ensure timely procurement of military equipment, systems and platforms as required by

**Q How are the capital acquisition schemes classified under DPP?**

Capital Acquisition schemes are broadly classified as ‘Buy’, ‘Buy and Make’ and ‘Make’. In decreasing order of priority, the procurement of defence equipment, under this procedure are categorised as follows:

- 1) Buy (Indian - IDDM).
- 2) Buy (Indian).
- 3) Buy and Make (Indian).
- 4) Buy and Make.
- 5) Buy (Global).

**Q Are there any incentives for MSMEs under DPP?**

DPP 2016 provides great impetus to the MSMEs with certain categories of ‘Make’ products earmarked exclusively for MSMEs.

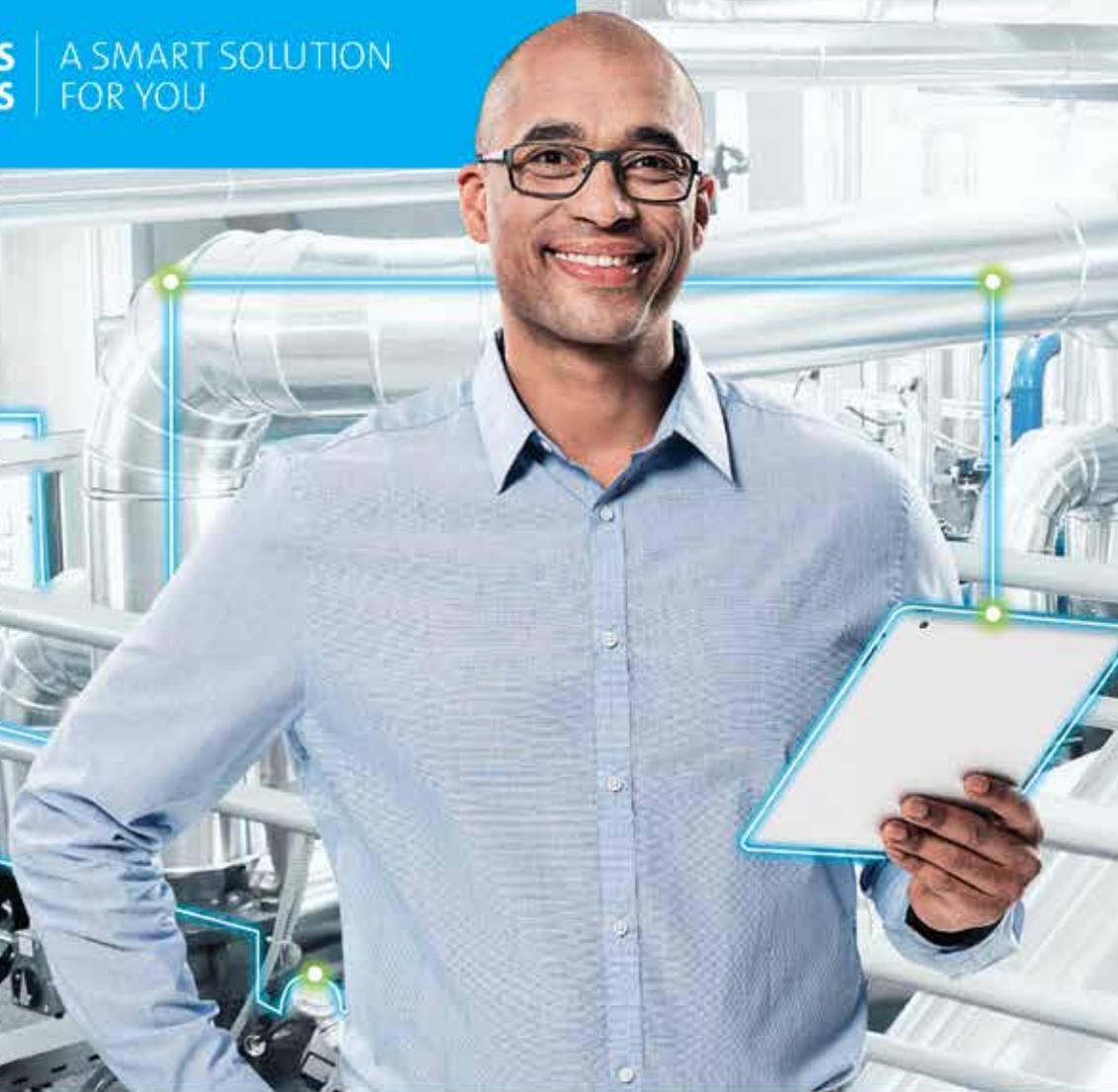
**Q Is there funding provided by the government for certain categories?**

Yes, projects under ‘Make-I’ sub-category involves Government funding of 90 percent, released in a phased manner and based on the progress of the scheme, as per terms agreed between MoD and the vendor.

Source: Invest India

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# Manufacturing health improves strongly in Oct 2018

Consistent growth spell for 15th month in stretch

**M**anufacturing sector growth in India gathered momentum in October as firms responded to stronger order inflows by scaling up production, input purchasing and employment. Price gauges continued to point to upward inflationary pressures, but were similar to September's readings. Inventory trends varied, with companies utilising stocks of finished goods to satisfy greater demand whilst rebuilding their input holdings. Rising from 52.2 in September to 53.1 in October. The Nikkei India Manufacturing Purchasing Managers' Index® (PMI®) highlighted the joint strongest upturn in the health of the sector in 2018 so far. Moreover, the current growth spell was stretched to 15 months.

Ongoing improvements in demand, coupled with technological advancements and favourable market conditions, prompted a stronger upswing in production. The rate of output growth was the second-highest registered in the year-to-date, with accelerations evident in the consumer, intermediate and investment goods sectors. New orders increased

Ongoing improvements in demand, coupled with technological advancements and favourable market conditions, prompted a stronger upswing in production.

solidly during October, which panellists attributed to successful advertising efforts, strengthening underlying demand and competitive price setting. The rise was the fastest since June. Whereas growth of total new orders gathered pace, the upturn in export sales cooled at the start of the fourth quarter. The expansion was the weakest in three months & below the long-run series average. Manufacturers stepped up hiring in October, with job creation the strongest since last December. In turn, businesses were able to lower their outstanding business volumes for the second straight month. October data showed a fifth successive monthly rise in quantities of purchases. The expansion was broadly similar to the moderate pace noted in September. Anecdotal evidence suggested that ongoing growth of new work underpinned the increase in buying levels. At the same time, vendor performance was broadly unchanged.

Amid reports of higher prices for chemicals, energy & metals, average cost burdens increased further. The rate of inflation was marked and broadly in line with its long-run aver-



age. Some manufacturers passed part of the additional cost burden on to their clients by hiking their charges. That said, the rate of selling price inflation was mild in the context of historical survey data and much weaker than seen for costs.

Trends for stocks differed, with a fall in holdings of finished goods contrasting with accumulation of input inventories. The former was associated with the immediate dispatch of products to clients, while the latter was linked to the purchasing of additional materials amid higher demand. Indian manufacturers were confident that output will be higher over the course of the next year, with sentiment underpinned by planned R&D investments and marketing initiatives. That said, optimism was stymied by concerns towards future market conditions. The overall level of positivity was at a 20-month low.

Commenting on the Indian Manufacturing PMI survey data, Pollyanna De Lima, Principal Economist, IHS Markit and author of the report, said: "Manufacturing continued to make up for ground lost in August, with a robust and accelerated rise in new orders boosting production growth in October. Consumer, intermediate and investment goods output all increased at stronger rates. A combination of domestic and foreign orders fuelled the upturn in overall activity, although export orders displayed the slowest expansion since July whilst total new work rose at the sharpest pace since mid-year."

"Purchasing activity expanded further, impacting on suppliers' delivery capabilities. Competition for some scarce raw materials also rose, causing further increases in input prices and weaker stock accumulation.

"The trend for employment was particularly encouraging, with job creation at a ten-month high. Firms sought to increase their competitive edge, with marketing activity and investment in research and development, which meant business sentiment remained positive. However, goods producers see challenges and uncertainties ahead, which in turn translated into the weakest degree of optimism seen in 20 months." 

Source: IHS Markit Ltd

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## Exicom launches battery R&D center at Bangalore

**E**xicom has launched battery R&D center and multi-standard chargers for electric vehicles today at Bangalore, India. The new R&D Centre is equipped with state-of-the-art equipment and infrastructure for comprehensive evaluation of cell quality, battery pack design, rapid prototyping and reliability/environmental testing. The facility ensures adherence to all international safety standards specific to Lithium-ion Battery Packs and facilitates development of battery pack using any cell chemistries and form factor. It will enable Exicom to design and develop automotive battery pack upto 500V and will strengthen Company's ability to produce & deploy customized products and solutions across various automotive applications.



Speaking at the occasion, Anant Nahata, Managing Director of Exicom said, "We are committed to playing a leading role in the transition to shared, connected, and electric mobility. It is our consistent endeavor to offer the most innovative and affordable charging solutions to meet EV charging demands and enabling a stronger penetration of EVs in the country. We see EV chargers as

more than just 'just a plug', they're the gateway to the future of mobility and the first piece of the puzzle in giving people energy independence. Today, we have a full range of AC and DC Fast Chargers suitable for all types of Electric Vehicles ranging from 1 kW - 150 kW, supporting all global standards and both low & high voltage Battery platforms".

## Alstom launches the production of on-board transformers in Kazakhstan



**A**lstom has launched the production of on-board transformers for the electric locomotives in the EKZ joint venture in Astana, Kazakhstan. Starting the production of on-board transformers EKZ became a significant manufacturer for such components for Alstom globally. The production capacity is expected to be 300 transformers per year with 100 employees at full capacity.

Alstom enhances its efforts in developing the EKZ factory in Astana and locally create world-quality products with an export potential, making EKZ one of the main drivers of the Kazakh economy and a hub for the production and export of locomotives to the world, starting with neighbouring countries of Eurasian Economic Union and CIS, such as Azerbaijan or Uzbekistan.

"Start of the new production demonstrates solid and long-term partnership with Kazakhstan. We are proud contributing to Kazakhstan's machinery-building industry through localisation of technology and production, creation of new working places and training for the local personnel", said Bernard Peille, Alstom Managing Director for the Western and Central Asia Cluster.

## IMI Precision Engineering opens facility in Noida

**I**MI Precision Engineering's recently opened a brand new 67,000 square foot facility in the prime industrial area of Noida, Uttar Pradesh. This is IMI Precision Engineering's second largest manufacturing site in the Asia Pacific region, and has been built to meet the demand for its branded products.

IMI is known for brands such as IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal in pneumatic motion and fluid control technologies. With IMI's global manufacturing and product standards at its core, this new 'built to suit' plant has used Lean principals throughout and replicates best practice from its many manufacturing centres throughout the world.

Kuldeep Bhan, Managing Director of IMI Precision Engineering- India said: "This is an exciting time for us to be in India. Our expansion plan is aligned with the government's 'Make in India' strategy and is now moving to the execution phase. Over the next few years, we will be further increasing our product and technical offering.

"By localising production of its most popular pneumatic motion and fluid control components, IMI Precision Engineering will be able to cut lead times by supplying locally manufactured products to global manufacturing standards."

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## Jaguar Land Rover opens manufacturing plant in Slovakia

Jaguar Land Rover has opened its state-of-the-art EUR1.4bn manufacturing facility in Nitra, Slovakia, the first time a UK automotive company has opened plant in this country.

With the heart and soul of its business in the UK, Jaguar Land Rover's investment in Nitra marks the latest step in the company's global expansion strategy following the opening of its Chinese joint venture in 2014 and Brazilian plant in 2016, supported by contract manufacturing in India from 2011 and Austria from 2017. The creation of new international factories allows Jaguar Land Rover to offer its customers even more exciting new models, protect against currency fluctuations and support a globally competitive business.



At the ceremony, Prof. Dr Ralf Speth commented: "Global businesses require global operational footprints. While Jaguar Land Rover's heart and soul remain firmly anchored in the UK, expanding internationally only enriches and strengthens our UK business. Today's opening of our next generation manufacturing plant in Nitra, Slovakia represents the start of a new era in manufacturing for Jaguar Land Rover. It is the latest

milestone in our long-term globalisation programme and the culmination of four years planning. As with our existing manufacturing facilities located in the UK, China, Brazil, India and Austria, this high-tech plant in Slovakia will complement and support our corporate, R&D and engineering functions headquartered in the UK."

## GKN Aerospace opens aero-engine repair facility

GKN Aerospace has officially opened its repair and research facility for aero-engine systems in Johor, Malaysia. At the Farnborough Air Show in July of this year, GKN Aerospace announced the establishment of the aero-engine repair site, and the creation of 150 jobs growing to 300 within two years. A team of 15 people has been built to date. GKN Aerospace has invested \$30 million in the site and in its state of the art equipment and technologies. The expansion to Asia is an important part of GKN Aerospace's long-term growth strategy and global operating model.

The site will initially focus on servicing engine low pressure compressor (LPC) components for CFM56-5B, CFM56-7 and V2500 and will be operational in 2019. Research will be centered around the application of additive manufacturing technology into engine parts repair. The facility will complement GKN Aerospace's existing component repair facility in San Diego, CA to meet growing demand in the Asia Pacific region, with investments targeting the growth in the single aisle market expected in the region.

## Honda opens new factory in Bangladesh

Bangladesh Honda Private Ltd (BHL), Honda's motorcycle business JV in Bangladesh, recently opened a new motorcycle factory in the Abdul Monem Economic Zone, Char Boushia, Gazaria, Munshiganj District, Dhaka Division in Bangladesh. Honda, along with its partner Bangladesh Steel and Engineering Corporation (BSEC), has invested a total of 2.3 billion Bangladeshi Taka on buildings, equipment, facilities and a land area of 25 acres for the new factory in Munshiganj District, Dhaka Division. The factory itself, which currently occupies one-third of the property, took a year to complete following the ground-breaking ceremony held in November 2017. It will have an initial annual production capacity of 100,000 units of motorcycles. In line with market trends, BHL plans to continue to invest in expanding its production capacity to 200,000 units by 2021 and will build its full-phase factory on the remaining property to accommodate future market growth. Yuichiro Ishii, MD and CEO of BHL said, "As the leading motorcycle manufacturer, and with the guidance & expertise of Honda Motor in Japan, we believe that the motorcycle industry will expand & contribute to the national economy by generating more employment, developing a skilled workforce, transferring technology, encouraging the growth of a parts supplier industry and attracting more direct foreign investment."

## Indian Peroxide launches new plant

Indian Peroxide Ltd (IPL) has launched its new hydrogen peroxide plant complex in Gujarat, India. Along with new plant complex, IPL plans to invest Rs. 750 Cr in next 3-5 years including capacity expansion for other chemical units leveraging synergy with the new H<sub>2</sub>O<sub>2</sub> plant. Located in industrial hub of Dahej, the manufacturing facility with an annual production capacity of 45000 tons of hydrogen peroxide started its first commercial delivery on 10th October, 2018. The chemical complex sprawling across 150000 sqm is one of the biggest hydrogen peroxide manufacturing facilities in India.



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# 3D printing technology leads the way

## Rolls-Royce introduces ceramic matrix composites in its future engine programmes

**R**olls-Royce's Advance3 engine is helping pioneer the future of civil aerospace – with 3D printed parts and the introduction of new materials helping to lead the way.

The technology demonstrator engine is proving both technology and a new core for Rolls-Royce UltraFan® engine design which will be available from 2025. Advance3, incorporating around 20,000 parts in total, has achieved more than 100 hours on test. Initial results are showing excellent performance from parts made by a printing technique known as additive layer manufacturing (more commonly known as 3D printing) and also made from ceramic matrix composites.

ALM allows engineers to create new designs for parts, and for those parts to be made and redesigned more quickly. CMCs last longer in high temperatures and are lighter than metal alternatives.

Engineers have downloaded millions of data points from the tests, which began last November and saw the engine achieve full power in July. Advance3 plays an important part in delivering the IntelligentEngine, Rolls-Royce's vision for the future, as it builds on pioneering technology and digital capabilities to deliver important benefits for customers.

Ash Owen, Rolls-Royce, Chief Engineer, Civil Aerospace Demonstrator Programmes, said: "Testing so far has been completely seamless, which is an outstanding achievement when you realise that this is an engine incorporating a range of new technologies as well as a brand new core architecture. We have completed our first phase of testing and analysing the results right now. We like what we see from the CMC and ALM parts performance."

CMC components are able to withstand higher operating temperatures, and require much less cooling air, while delivering a significant weight reduction, all contributing to improved efficiency.

**ALM allows engineers to create new designs for parts, and for those parts to be made and redesigned more quickly. CMCs last longer in high temperatures and are lighter than metal alternatives.**

ALM allows more complex engine elements with multiple pieces to be manufactured in fewer parts or even as a single complete part, improving lead times and allowing components to be redesigned quickly and easily during the development phase. Rolls-Royce has been at the forefront of innova-



Testing so far has been completely seamless, which is an outstanding achievement when you realise that this is an engine incorporating a range of new technologies as well as a brand new core architecture.

**Ash Owen, Rolls-Royce, Chief Engineer, Civil Aerospace Demonstrator Programmes**

tion with this process, flying the world's largest 3-D printed aerospace structure within the Trent XWB-97 engine that was tested in 2015. ALM also increases production efficiency and reduces component weight while providing the ability to manufacture designs and shapes that would not be possible using conventional methods.

The Advance3 demonstrator is testing a new engine core that will deliver optimum fuel efficiency and low emissions. It is a key element in Rolls-Royce's future technology strategy to develop the Advance core for the UltraFan® engine design that will be available from 2025 and will offer a 25 per cent improvement in fuel efficiency compared with a first generation Trent engine.

On the demonstrator, the new core operates between a Trent XWB fan system and a Trent 1000 low pressure turbine, and its compressor system helps to deliver an UltraFan overall pressure ratio of up to 70:1.

The Advance3 demonstrator programme is co-funded through the Aerospace Technology Institute (ATI) in association with Innovate UK and Clean Sky 2. 

Source: Rolls-Royce



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## Artificial Intelligence to transform human resource management

**S**anjay Banga, CEO, Tata Power-DDL, recently spoke at 'Artificial Intelligence and Digitalization HR' programme organised by the National Institute of Personnel Management (NIPM). While speaking at the event, he said, "Human resource management is of prime importance for any organisation to achieve its objectives. IoT, which will be driving the fourth industrial revolution with AI at its core, is going to play a vital role in the way we utilise our manpower. Organisations which embrace technology and reskill their workforce to drive change will reap the benefit and be ahead of the curve. At Tata



Power-DDL, we are implementing AI for predictive analysis for employee needs and satisfaction and social media analytics for sentimental clustering and default prediction, apart from use and implementation in operations."

Stressing on the importance of machine and deep learning, the key highlights of the programme included a discourse on managing expectations of

the next-gen workforce through AI-based HR practices, using HR analytics to make effective talent decisions for organisations and guiding HR professionals in the use of advanced techniques for better business decisions.

## Cyient signs MoU with TASK on Skill Development

**C**yient has signed an MoU with the Telangana Academy for Skill and Knowledge (TASK) to collaborate on skill-building and to improve employability for engineering students by imparting technical and soft skills trainings for the students. The primary objective of this industry-academia partnership is to leverage Cyient's engineering expertise to create a pool of skilled workforce in Telangana that are equipped to meet industry needs.



The two organizations will work toward setting up a 'train-and-hire' model for fourth-year students of mechanical, electrical, electronics, and aeronautical domains in TASK registered engineering colleges. Cyient has designed various training modules across these domains to help students get practical industry exposure. The partnership with TASK is aligned with Cyient's strong focus on skill development and opens up significant opportunities for creating value in the field of engineering education for students and faculty.

## Maruti Suzuki JIM is now ISO 29990:2010 certified

**J**apan-India Institute for Manufacturing (JIM), set up and managed by Maruti Suzuki at Ganpat University, Mehsana, has been awarded with ISO 29990:2010 certification by TUV-SUD. The Japan-India Institute for Manufacturing (JIM) is an outcome of a joint initiative between Government of India and Government of Japan to create a pool of 30,000 skilled manpower for manufacturing industry in India. The certification is awarded to JIM for implementing a Quality Management System for learning services for non-formal education and training in accordance with ISO 29990:2010 standards. The assessment covers important elements like; training content development, training methodology, impact assessment and evaluation, that ensure the institute follows a standard / model for quality and professional mode of operation.

A K Tomer, Executive Director, Maruti Suzuki said, "Quality is integral to Maruti Suzuki's culture. We established Japan-India Institute for Manufacturing to provide quality training to the youth with industry relevant skills and enhance their employability in the growing automobile sector. The ISO certification is an important milestone in the evolution of JIM. It is an effort to ensure we remain focused on maintaining the highest level of standards in skill training and education."

## Union HRD Minister launches the web portal of the SPARC

**T**he Minister of Human Resource Development, Prakash Javadekar launched web portal ([www.sparc.iitkgp.ac.in](http://www.sparc.iitkgp.ac.in)) of the 'Scheme for Promotion of Academic and Research Collaboration' (SPARC) recently. Speaking on the occasion, Javadekar said that SPARC aims at improving the research ecosystem of India's higher educational institutions by facilitating academic & research collaborations between Indian

Institutions & the best institutions in the world. He informed that under this Scheme, 600 joint research proposals will be awarded for 2 years to facilitate strong research collaboration between Indian research groups with the best in class faculty & renowned research groups in the leading universities, in areas that are at the cutting edge of science or with direct social relevance to the mankind, specifically India.



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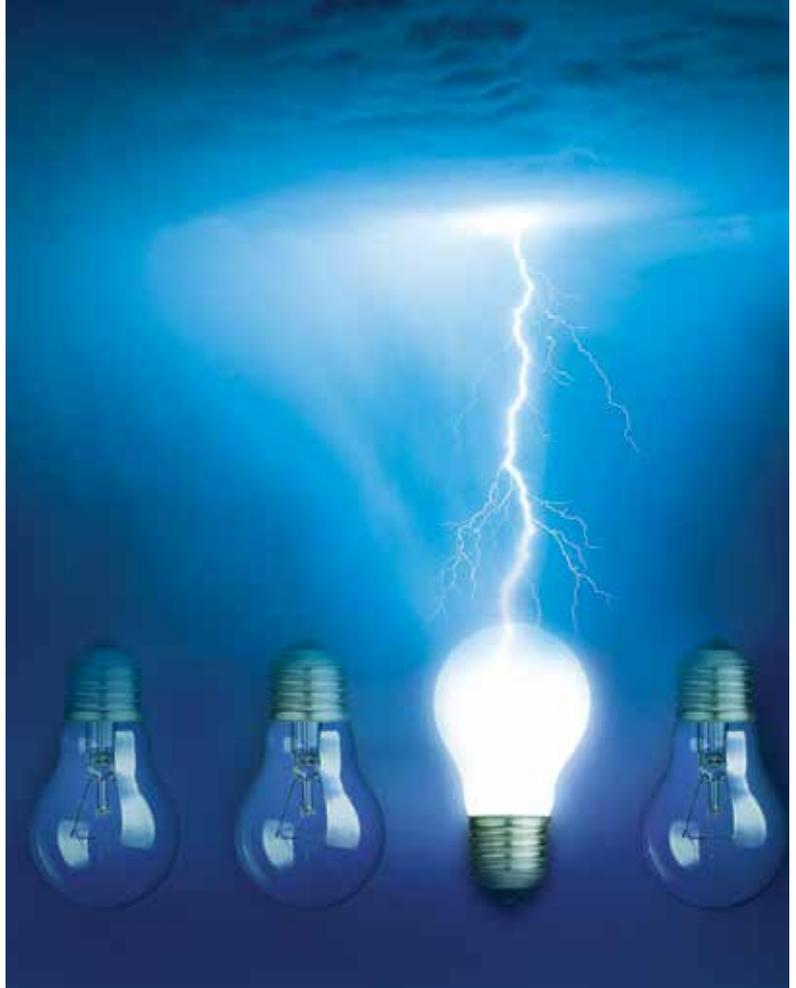
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# Creativity on the Shopfloor

Learn about the ways of bringing creativity on the shopfloor and its advantages.

By Manasi Kirloskar



Over time, industrial history has witnessed changes that have taken place in manufacturing methods and processes. A significant shift in manufacturing began in the 18th century in England. The first signs of manufacturing operations were carefully designed to reduce production costs by specialized labor and machines.

We have traversed from producing customized goods which were usually done by a highly skilled craftsman, to meet the specific requirement to a phase of mass production, characterized by standardized offerings. Now, we are at a stage wherein technological innovations have enabled possibilities of mass customization that can deliver the best advantages of both the earlier phases.

All these changes in manufacturing, whether gradual as in the early part of human history or the rapid progress that we have witnessed in the past millennium, were catalyzed by the innumerable innovations and inventions that were fuelled by human creativity and ingenuity. In fact, William Baumol, the noted economist, stated that virtually all of economic growth that has occurred since the 18th century is ultimately attributable to human innovation. However, with the introduction of a high degree of automation together with advanced manufacturing and associated processes, especially in the case of large and mature organizations, manufacturing innovation of the future

will primarily be driven by further technological innovations, based on the exploiting frontier technologies. Perhaps, in the case of mature firms, there is limited scope for creativity on the shopfloor.

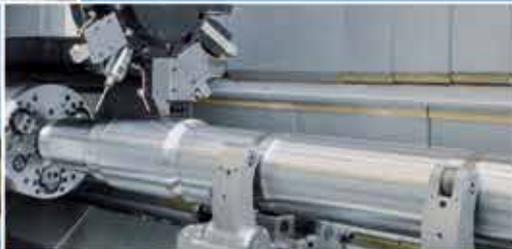
There is a huge and challenging gap between a desire for seeing creativity driving innovation on the shopfloor, and it actually taking place. This challenge is further compounded as the approach to innovations in case of the manufacturing sector, has been traditionally focused more on designing manufacturing lines, systems and processes, with little involvement of those working on the shopfloor. So here, creativity is largely focused on designing technology driven and state-of-the-art manufacturing facilities.

If we truly desire shopfloor creativity, the fundamental point that we have to keep in mind is that a sense of belongingness and being valued are amongst the most basic and essential ingredients. Before we dwell further about the things that we can do to encourage shopfloor creativity, ask yourself – when were you the most creative? I am sure the unanimous answer is that we all were more creative and imaginative when we were kids. Ever wonder why that is so? Firstly, children have no inhibitions and are open-minded. They are not colored by biases or prejudices and are learning to explore the world. Most importantly, they are not afraid of being wrong and hence can air their thoughts more freely without as much

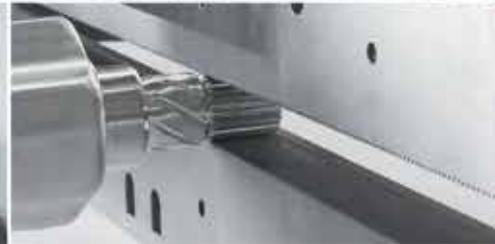
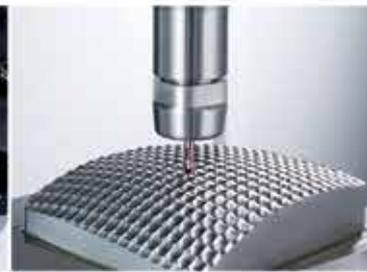
To develop creativity, consider cross fertilize teams and encourage open communication. Look at the internal processes that may stifle creativity and innovation.



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fear of consequence.

Of course, as we grow older, we end up being conformist – Calculating the consequences and risks associated with our actions. The lesson from this is simple. We need to encourage our team members to voice their views uninhibited, by creating conducive environment in which there is no fear of their ideas being ridiculed. To achieve this, the employees need to be trusted, empowered and encouraged to enable the exploring of new ways of working and imagination.

So, the starting point for leaders wanting to encourage creativity on the shopfloor is to understand that if workers feel genuinely connected to the company. If they are not then there's little or no incentive to be creative.

To develop creativity, consider cross fertilize teams and encourage open communication. Look at the internal processes that may stifle creativity and innovation. Think of ways to streamline the process, so people can see their good ideas turn into useful action. In other words, the shopfloor shouldn't merely be a place of assembly lines and allocated workstations, but it should be an experience for each and every shop for worker. An experience can motivate workers imaginative way of thinking and creativity.

Encouraging shopfloor members in the creative process also addresses the most important component that contributes to a continued and sustainable success of any company. And, that component is employee satisfaction and joy of working, leading to employee loyalty. These deliver many more positive by products, such as empathy and compassion which drive collaboration and respect for every individual's idea and perspective.

Empathy and compassion stimulate the identification of problems, which further leads to creative problem solving, through collaboration. This will ultimately achieve the company's goals of high productivity and efficiencies.

India is home to the largest growing youth population in the world. In order to meet the aspirations of millions of youth entering the job market, India aspires to increase the manufacturing share of GSP by 16 to 25 percent by 2022. Men and women, both contribute to the job market and it is important



**There is a huge and challenging gap between a desire for seeing creativity driving innovation on the shopfloor.**



**We need to encourage our team members to voice their views uninhibited, by creating conducive environment in which there is no fear of their ideas being ridiculed.**

for the manufacturing companies to open their shopfloors to more women. An equal gender distribution raises the instance of creativity and open mindedness.

Moreover, a McKinsey report states that USD 2.9 Trillion of additional annual GDP can be achieved by the year 2025 by fully bridging the gender gap in the work place.

There are successful manufacturing companies in India that have employed an equal number of men and women on the shopfloor. Some even have more women than men on the shop floor! It might be a good idea to use these companies as case studies and bench marks to eliminate a somewhat persistent gender bias that is seen in heavy manufacturing industry.

The inclusion of more women, in the manufacturing space will also contribute to India's aspiration of increasing the manufacturing share of GSP from 16 to 25 percent by 2022.

India's large demographic dividend, as discussed, shouldn't become a demographic nightmare. As we continue to employ the youth, can our creative environment benefit them beyond the realm of the factory grounds? Their practice of collaboration, respect for one another, empathy and compassion can also translate to their positive contributions to society. Shop-floor creativity can enable value driven individuals. Furthermore, we can use the creative process to encourage young individuals to be law abiding citizens who make their way up the career chain through passion, hard-work and ethics. To give back to the society, in order to make the world a safer and better place to live in. 

*The author is the Executive Director & CEO of Kirloskar Systems Limited*



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**Akash Surface to Air Missile System successfully flight tested at the Integrated Test Range (ITR), Chandipur.** *Courtesy: PIB*

# A bird's eye view!

Here's a quick overview of the defence sector in the country!

India has the third largest armed forces in the world. The allocation of defence in the India's union budget is approximately US\$ 34.53 billion, and 31.1 percent of the defence budget is spent on capital acquisitions. Sixty percent of defence related requirements are met by imports which offers a huge opportunity for import substitution.

### Reasons to invest

- India's current requirements on defence are catered largely by imports. The opening of the defence sector for private sector participation will help foreign original equipment manufacturers to enter into strategic partnerships with Indian companies and leverage the domestic markets as well as aim at global markets. Besides helping in building

### Foreign investors in Indian defence sector

- Airbus (France)
- BAE India Systems (UK)
- Pilatus (Switzerland)
- Lockheed Martin (USA)
- Boeing India (USA)
- Raytheon (USA)
- Israel Aerospace Industries (Israel)
- Rafael Advanced Defense Systems Ltd. (Israel)
- Dassault Aviation SA (France).

domestic capabilities, this will also bolster exports in the long term.

- Contractual offset obligations worth approximately US\$ 4.53 billion in next 5-6 years
- The offset policy (which stipulates the mandatory offset requirement of a minimum 30 percent for procurement of defence equipment in excess of US\$ 306.69 million) introduced in the capital purchase agreements with foreign defence players. It would also ensure that an eco-system of suppliers is built domestically.
- Favourable government policy which promotes self-reliance, indigenisation, technology upgradation and achieving economies of scale including development of capabilities for exports in the defence sector.
- The country's extensive modernisation plans with an increased focus on homeland security and India's growing attractiveness as a defence sourcing hub.

### Growth drivers

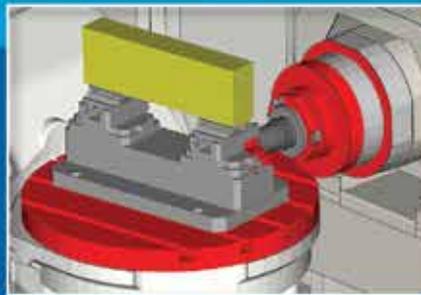
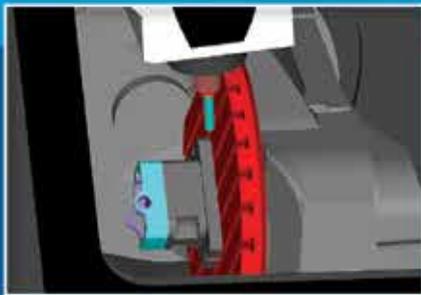
Defence Production Policy, 2011 has encouraged indigenous manufacturing of defence equipment. Defence Procurement Procedure (DPP) has been amended in 2016 to provide for the following:

1. New category of capital procurement - Buy Indian — IDDM (Indigenously Designed, Developed and Manufactured) introduced to encourage indigenous design, development and manufacturing of defence equipment.
2. Preference to 'Buy (Indian-IDDM)', 'Buy (Indian)' and



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**Government bodies / agencies for the Defence sector in India**

- Ministry of Defence, Government of India
- Department of Defence Production, Ministry of Defence
- Department of Industrial Policy and Promotion, Ministry of Commerce & Industry, Govt of India
- Department of Commerce, Ministry of Commerce & Industry, Government of India
- Defence and Strategic Industries Association of India.

‘Buy and Make (Indian)’ over ‘Buy (Global)’ categories of capital acquisition.

3. Clear and unambiguous definition of indigenous content.
4. Provision for Maintenance TOT (Transfer of Technology) to Indian Industry partners.
5. Provisions to allow foreign OEM (Original Equipment Manufacturer) to select Indian Production agency.
6. Requirement of minimum indigenous content has been enhanced/rationalised.
7. ‘Services’ as an avenue for discharging offsets have been re-introduced.
  - a. Defence products list for industrial licensing, has been articulated in June 2014, wherein large numbers of parts/components, castings/ forgings etc. have been excluded from the purview of industrial licensing.
  - b. The defence security manual for the private sector defence manufacturing units has been finalised and put in public domain by the Department of Defence Production. The manual clarifies the security architecture required to be put in place by the industry while undertaking sensitive defence equipment.
  - c. The MAKE procedure, which aims to promote research & development in the industry with support from the government and the placement of orders, has been promulgated with provision for 90 percent funding by Government and preference to MSMEs in certain category of projects.

**FDI Policy**

100 percent FDI in defence sector: Up to 49 percent under automatic route; FDI above 49 percent, through Government route where it is likely to result in access to modern technology.

The defence industry is subject to industrial licenses under the Industries (Development and Regulation) Act, 1951 and manufacturing of small arms ammunition under Arms Act, 1959

The requirement of single largest Indian ownership of 51 percent of equity removed.

A lock-in period of three years on equity transfer has been done-away with in FDI for defence.

FDI in the defence sector is subject to other security conditions.

**Sector policy**

Procurement policy: The defence procurement is governed by the Defence Procurement Procedure (DPP 2016). Latest revision of DPP was released in March 2016.

Offset policy: The key objectives of the defence offset policy is to leverage capital acquisitions to develop the domestic defence industry. Mandatory offset requirements of a minimum of 30 percent for procurement of defence equipment in excess of US\$ 307.69 million have been envisaged.

Procedures for the grant of industrial licenses have been streamlined: The initial validity period of industrial licenses has been increased from three years to 15 years with a provision to grant extension for a period of three years. Guidelines for the extension of validity of industrial licenses have been issued. Partial commencement of production is treated as commencement of production of all the items included in the license.

**Financial support**

Key provisions of union budget - 2017-18, 2018-19:

Development of two Defense industrial production corridors.

“India’s current requirements on defence are catered largely by imports. The opening of the defence sector for private sector participation will help foreign original equipment manufacturers to enter into strategic partnerships with Indian companies and leverage the domestic markets as well as aim at global markets.”

Announcement of an industry friendly Defence Production Policy 2018 to promote domestic production by public sector, private sector and MSMEs.

**Key achievements**

Indigenous defence products unveiled - Akash Surface to Air Missile System, Dhanush Artillery Gun system and Light Combat Aircraft

The Defence Procurement Procedure (DPP) - 2013 amended to introduce Buy Indian-IDDM (Indigenously Designed, Developed and Manufactured) The policy on Strategic Partnerships to encourage participation of the private sector, in the manufacture of defence platforms and equipment such as aircraft, submarines, helicopters and armoured vehicles.

‘No Objection Certificate (NOC) for export: A web-based single window interface created to issue ‘No Objection Certificate’. The process is transparent and time bound, with the maximum processing time reduced to 25 days and 70 percent of the NOCs issued in 15 days. 

Source: Make in India



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# Miracle Material!

A US based automotive OEM is looking to use a new material - Graphene – for the under the hood applications, a first in automotive!

It's in cell phones and even some sporting goods – and soon, for the first time in automotive, it will be under the hood in Ford vehicles. Ford Motor Company is announcing the use of graphene – a two-dimensional nanomaterial – in vehicle parts, timely with National Nanotechnology Day.

Graphene has recently generated the enthusiasm and excitement in the automotive industry for paint, polymer and battery applications.

Dubbed a “miracle material” by some engineers, graphene is 200 times stronger than steel and one of the most conductive materials in the world. It is a great sound barrier and is extremely thin and flexible. Graphene is not economically viable for all applications, but Ford, in collaboration with Eagle Industries and XG Sciences, has found a way to use small amounts in fuel rail covers, pump covers, and front engine covers to maximize its benefits.

“The breakthrough here is not in the material, but in how we are using it,” said Debbie Mielewski, Ford senior technical leader, sustainability and emerging materials. “We are able to use a very small amount, less than a half percent, to help us achieve significant enhancements in durability, sound resistance and weight reduction – applications that others have not focused on.”

Graphene was first isolated in 2004, but application breakthroughs are relatively new. The first experiment to isolate graphene was done by using pencil lead, which contains graphite, and a piece of tape, using the tape to pull off layers of graphite to create a material that is a single layer thick – graphene. This experiment won a Nobel Prize in 2010.

In 2014, Ford began working with suppliers to study the material and how to use it in running trials with auto parts such as fuel rail covers, pump covers and front engine covers. Generally, attempting to reduce noise inside vehicle cabins means adding more material and weight, but with graphene, it's the opposite.



Dubbed a “miracle material” by some engineers, graphene is 200 times stronger than steel and one of the most conductive materials in the world.

“We are able to use a very small amount, less than a half percent, to help us achieve significant enhancements in durability, sound resistance and weight reduction – applications that others have not focused on.”  
**Debbie Mielewski**, Ford senior technical leader, sustainability and emerging materials.

“A small amount of graphene goes a long way, and in this case, it has a significant effect on sound absorption qualities,” said John Bull, president of Eagle Industries.

The graphene is mixed with foam constituents, and tests done by Ford and suppliers has shown about a 17 percent reduction in noise, a 20 percent improvement in mechanical properties and a 30 percent improvement in heat endurance properties, compared with that of the foam used without graphene.

“We are excited about the performance benefits our products are able to provide to Ford and Eagle Industries,” said Philip Rose, XG Sciences’ chief executive officer. “Working with early adopters such as Ford Motor Company demonstrates the potential for graphene in multiple applications, and we look forward to extending our collaboration into other materials and enabling further performance improvements.”

Graphene is expected to go into production by year end on over ten under hood components on the Ford F-150 and Mustang and eventually, other Ford vehicles. 

“Working with early adopters such as Ford Motor Company demonstrates the potential for graphene in multiple applications, and we look forward to extending our collaboration into other materials and enabling further performance improvements.”  
**Philip Rose**, CEO, XG Sciences

Source: Ford Motor Company

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COVER STORY



# Armed for future!

Punj Lloyd is developing capability and infrastructure, which can be effectively leveraged for defence programmes, says **Ashok Wadhawan**, the President of Defence, Aerospace and Homeland Security division at the Group.

By **Niranjan Mudholkar**

**Q Tell us about your manufacturing capabilities and capacities. What are the different kinds of weapons that Punj Lloyd is capable of manufacturing?**

The Punj Lloyd Group has strategically diversified into defence & aerospace and has established itself as a credible player for defence equipment with focus on state-of-the-art technology. Our aim is to indigenously develop genuine force multipliers that will contribute to providing a decisive edge to the Indian Armed Forces. We are developing capability and infrastructure, which can be effectively leveraged for defence programmes. Punj Lloyd has two facilities at Malanpur, Madhya Pradesh.

Starting with the latest, Punj Lloyd and its JV partner set up, the country's first private sector small arms manufacturing plant in Malanpur, Madhya Pradesh on May 4, 2018. The joint venture company, Punj Lloyd Raksha Systems (PLR) will be manufacturing small arms for the Indian Defence Forces and also for export.

The second facility, Punj Lloyd's first investment in manufacturing was made in 2012. The Manufacturing and Systems Integration facility, called MSID, was set-up to cater to the requirements of Defence and Aerospace. MSID is a world-class production facility with high-precision machines from Italy, France, US and Germany. The large bed machines are capable of working on huge components and exotic material and can manufacture components in a variety of sizes and complexities, meeting the rigorous standards and tight schedules of the Aviation and Defence industries.

Both the facilities are ISO 9001 (Quality), ISO 14001 (Environment), ISO 18001 (OHSAS), ISO 50001 (Energy), AS9100 (Aerospace) certified.

Punj Lloyd Raksha, a JV of Punj Lloyd and Israel Weapon Industries manufactures small arms in India. We are the country's first private sector company that has been granted license by MHA, Government of India for same. World renowned IWI weapons like Tavor and X95 Assault Rifle, Galil Sniper Rifle, Negev Light Machine Gun and UZI Sub Machine Gun are already in service with the Indian Armed Forces, CAPFs and State Police Forces. The company recently made India's first 'Made in India' X-95 Rifle.

**"The capital-intensive nature of the defence business, of having to invest much before you actually receive an order is a big challenge."**



Punj Lloyd has upgraded the existing ZU-23 2B Gun by replacing the manual laying system with a rugged Electro Optical Fire Control System (EOFCs). The EOFCs gives the gun capability to engage aerial targets during day and night in the plain, desert and mountainous terrain. The gun has been modified with a day and night camera, laser range finder and a digital fire control system. The elevating and traverse gear boxes, which were manually operated in the original gun, have now been replaced with electric drives that can be operated using a gun-mounted battery pack, with a provision to be charged online using a silent generator. The EOFCs and electric drives enable the gun to carry out optical tracking of targets for a much-enhanced engagement ratio. The upgraded gun can successfully engage all standard NATO targets up to a range of 2500 m.

**Q Since defence 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?**

As one of the early private entrants into the defence business, we had the advantage of building our people capabilities. We have a fairly good mix of people from Armed Forces and the industry. We also hire fresh talent through NEEM, an apprenticeship scheme, and develop this talent to meet the requirement for defence business. As our machinery is highly advanced, we do face the challenge of hiring people capable of working on multiple machines and different makes, but we are able to address that through training and skill upgradation through trainings by our

global partners or sending our teams to them.

**Q Working in the defence segment requires working with difficult materials as well as sophisticated machinery complying with various international codes and inspection requirements. How has Punj Lloyd built these capabilities in terms of equipment as well as know-how?**

Punj Lloyd has been a pioneer in setting up a dedicated private defence manufacturing facility. As a result, we invested in state-of-the-art machines way ahead of others. Punj Lloyd

**Focus areas for Punj Lloyd defence business**

Punj Lloyd is primarily focussing on five main areas in Defence:

1. Land Systems including Air Defence and Artillery.
2. Aerospace.
3. Small Arms.
4. Homeland Security
5. Component Manufacturing.



**“As one of the early private entrants into the defence business, we had the advantage of building our people capabilities. We have a fairly good mix of people from Armed Forces and the industry.”**

Manufacturing & Systems Integration Division (MSID) is a top of the line AS 9100 certified fabrication and assembly facility for defence systems in Gwalior on 65 acres of land, capable of machining, welding & fabrication of land system components, assembly, integration and testing of weapons, maintenance and repair facility for existing weapons of the Indian Army. The machinery, comprising high end imported machines, has the capability to process a multitude of material including exotic material such as Weldox, Armoured Steel, Titanium and Special Grade. Some of the equipment we have includes 5 Axes Double Column Gantry Machining Centre, 5 Axes Floor Type Machining Centre, 5 Axes Horizontal Machining Centre, 5 Axes Mill Turn, 4 Axes Turn Mill, Water Jet Cutting Machine, CAR Bottom Furnace, TIG/MIG Welding and Laboratory Equipment including CMM, Micro Hardness Tester, Spectrometer, etc.

**Q Do you have any kind of technical collaborations or partnerships with in-**

- Punj Lloyd’s multi-pronged defence strategy aims to**
- Become a technology partner of choice.
  - Provide impetus to the Make in India programme.
  - Be a preferred partner for transfer of technology from global primes by setting up manufacturing facilities in India.
  - Be an intrinsic part of the global defence equipment supply chain.
  - Be at the forefront of indigenous design and development of Defence and Aerospace products.
  - Undertake maintenance, repair and overhaul of defence equipment.
  - Work in partnership with global primes to meet offset requirements as per the Indian Defence Procurement Procedure.

**ternational companies? Tell us about the same.**  
Depending on the defence programmes we pursue, we enter into technical collaborations with reputed companies. Punj Lloyd has agreements with leading global primes for collaboration in Indian programmes for a wide range of products including artillery systems and air defence gun systems. As mentioned earlier, Punj Lloyd has a Joint Venture with IWI of

**“Punj Lloyd has agreements with leading global primes for collaboration in Indian programmes for a wide range of products including artillery systems and air defence gun systems.”**





Punj Lloyd Raksha (PLR) Systems Pvt. Ltd. is the first Indian private company to receive the license to manufacture Small Arms & Ammunition in India. Punj Lloyd Raksha brings to India production, design and development of various weapons like the Tavor Assault Rifle, three caliber X95 Assault Rifle and SMG, the reliable Negev Light Machine Gun, the well-known Galil ACE Assault Rifle, the Galil Sniper Rifle, the brand new DAN Bolt Action Sniper Rifle and the legendary UZI SMG and its latest evolution UZI PRO will be produced for domestic and international markets at Punj Lloyd Raksha Systems Manufacturing Plant. All these weapons are in compliance with the most stringent military standards (MIL STD) and ISO 9000 standards. These weapons are already in service with all Indian elite forces like Indian Army Special Forces, Garud (IAF), MARCOS (Indian Navy), CoBRA Force (CRPF) and BSF to name a few.

“We have multiple programmes with HAL. We are working on wing and engine components for Sukhoi aircraft other than components for Dornier.”

Israel, world leader in innovative small arm systems.

**Q What are the different challenges faced by the defence manufacturing sector in India?**

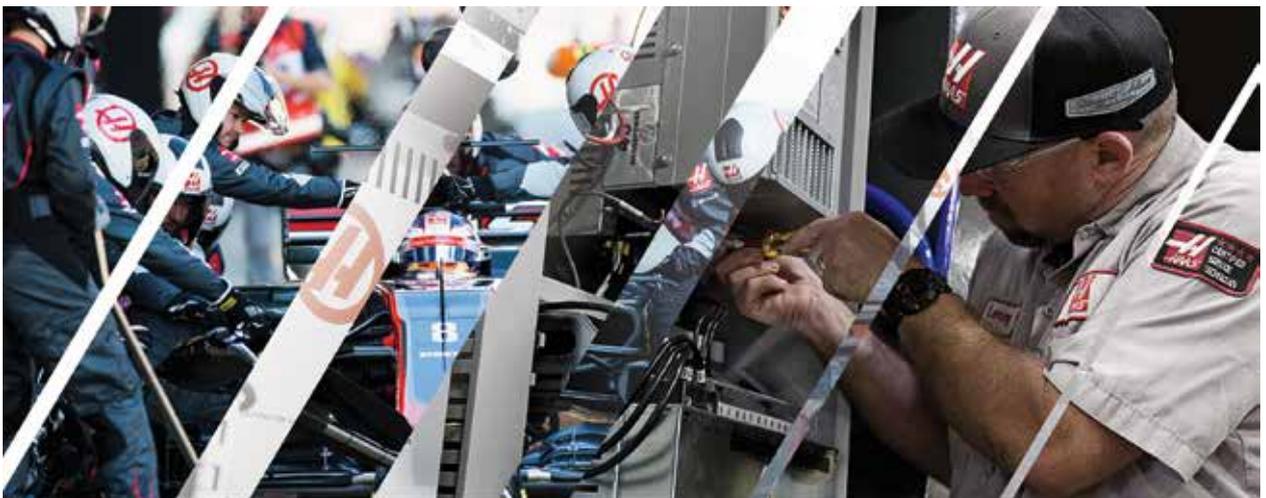
Long gestation period in defence has always been a deterrent. In the meanwhile, companies need to maintain and continuously upgrade their facilities and manage workforce. This capital-intensive nature of the defence business, of having to invest much before you actually receive an order is a big challenge.

**Q What are your on-going programmes with Hindustan Aeronautics Limited?**

We have multiple programmes with HAL. We are working on wing and engine components for Sukhoi aircraft other than components for Dornier.

**Q Tell us about the various Indian Army programmes that you are currently working on?**

We are working across a range of defence businesses including artillery, air defence, small arms and homeland security. 



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# Digital Transformation of Manufacturing in India

An overview of the impact of digitization on the Indian manufacturing industry

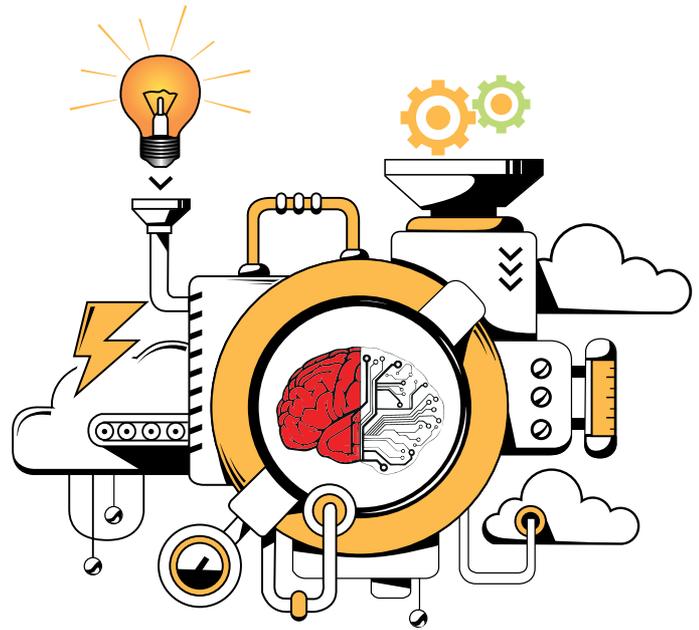
By Ashim Sharma

**D**igital transformation refers to application of digital technologies to change the existing processes, organizational structures and even business models to enhance value creation and increase efficiency. Manufacturing, in particular, can derive several advantages from digitization such as elimination of quality deficiencies and enhancement of labour productivity. However, the digital journey needs to be a well-planned one to reap maximum benefits.

## Drivers of digital transformation in manufacturing

1. **Rising Price Pressures-** Manufacturers are finding it increasingly hard to maintain profit margins in a competitive business environment. Spiralling cost of production cannot be passed onto the customer due to risk of losing them to competitors. In the Indian manufacturing sector, the aggregate operating margin (EBITDA excluding other income) fell to a 10-year low of 11.4% in FY15 from 15.2% in FY05.
2. **Lack of Skilled Labour-** Manufacturers across the world count skilled labour shortage amongst their primary concerns. In India, a report by National Skills Development Corporation mentioned the need for additional 119 million skilled labour by 2022. The NSDC report claimed skill gaps exist against almost every task in the manufacturing sector.
3. **Mass Customization and Flexible Platforms-** There is a great demand for customised product variants necessitating the need for quick and efficient assembly line changeovers e.g. BMW allows a customer to configure a host of features: the model (series 1 – 7, X, i), fuel type (diesel/ petrol/ xEV), body style (sedan/ limousine/ compact/ SUV) etc.
4. **Increased Focus on Quality-** In recent years, the cost of repair/ rework of finished goods not adhering to quality

IOT along with cloud computing can transform a traditional manufacturing setup into a smart factory with machines on shop-floor interconnected using intelligent sensors and smart devices



benchmarks has amounted to huge aggregate costs as a percentage of annual sales for manufacturers. In just last two years, 2015 and 2016, ~38 million cars were recalled by four major OEMs in US.

## Impact of digitization in manufacturing

Digital technologies are positively impacting many aspects of manufacturing as outlined below:

### I. Impact of IoT and Cloud Computing

IOT along with cloud computing can transform a traditional manufacturing setup into a smart factory with machines on shop-floor interconnected using intelligent sensors and smart devices. This enhances shop floor visibility and allows real-time decision making for predictive maintenance and detection of tolerance errors leading to productivity improvement.

### II. Impact of Big Data & Advanced Analytics

Big Data and advanced analytics deployment can simply help manufacturers predict future events/ trends or indulge in pre-emptive risk management, based on patterns visualised in data-driven insights. Advanced analytics in manufacturing is critical to optimise operations and process efficiencies on a continuous basis leading to cost savings. Big data analytics offers a gamut of applications in optimizing machine hours, increasing energy efficiency of factory, production planning, inventory level optimization etc.

### III. Impact of Robotics & Automation

Raising automation levels in factories leads to consistent

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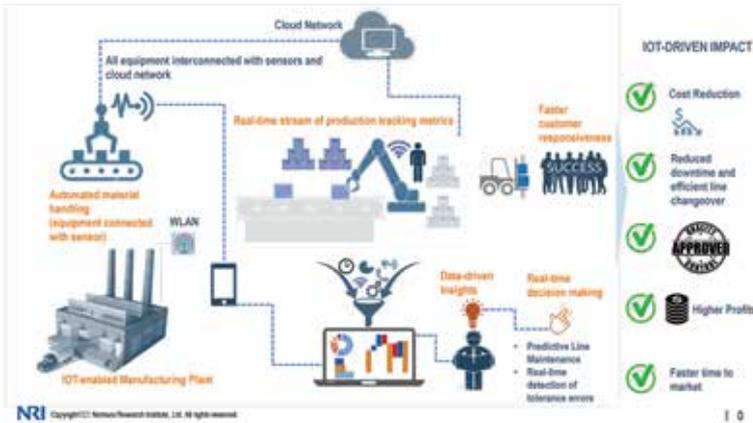
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production quality, increase flexibility in incorporating product design variations and enable faster rate of production. Collaborative robots are becoming popular for tasks ranging from material handling to product assembly.

#### IV. Impact of Virtual Reality and 3D Printing

3-D printing can assist manufacturing-on-demand and impacts traditional manufacturing setup with shift in material cost and product pricing. Virtual reality in manufacturing can lend valuable insights to companies in early stages of product Digital Mock Up (DMU) to check for part collision or interference of parts during new vehicle development is one such example.

#### Digital transformation of India's manufacturing sector

As per World Bank data, manufacturing sector accounts for 16% of Gross Value Added in India. The same number stands at 31% for China, 29% for Korea, 22% for Germany and 20% for Japan. A key reason why India is lagging its global counterparts is the relatively low penetration of new-age digital technologies. A 2016 industry survey stated that only 10% of Indian manufacturing firms have adopted advanced technologies till now. Few common problems that continue to plague the sector can be resolved by digital technologies as discussed below:

- **Enhancing Labour Productivity**

India's labour productivity is significantly less than global peers mainly because of high propensity of use of manual labour for basic tasks and sub-optimal work distribution. Using smart wearables for real-time tracking of workers can reduce idle time. Further, analytics can be used to benchmark performance of workers against their peers and optimize man-machine allocation.

- **Improving Asset Utilization**

As per Ricoh India, machines in a typical manufacturing shop floor are idle up to 30 % of the

time. Further, reasons and durations for machine downtime are often uncertain. Connecting shop-floor to the top floor through remote monitoring by IoT sensors would help diagnose the need for preventive maintenance. This will result in improved asset utilization and minimizing unplanned downtime.

- **Delivering Better Quality**

'Made in India' products have long suffered from the perception of 'low cost implying low quality' and consistency in quality is a major issue. Low levels of automation, lack of quality standards and manual errors in production / testing lead to such inconsistencies. Solutions include industrial use cameras for improved

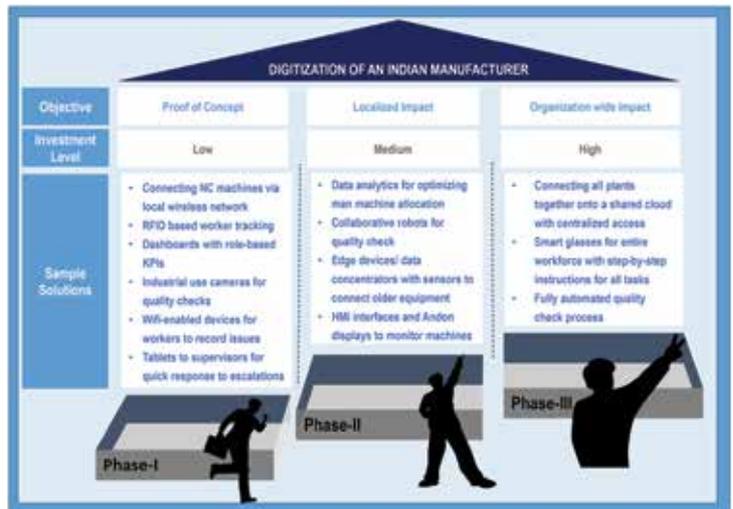
manual inspection or use of automation cameras, image processing software to minimize manual involvement.

- **Superior Supply Chain Management**

As per a World Bank report, 22% of orders in electronics components and 17% of orders in heavy engineering sectors are delivered after the promised date in India. This results in increase in % of inventory to be kept as buffer stock and production being held up at assembly plants. Cloud-based ERP can be used to make it easier for all parties within the supply chain to get visibility and adjust accordingly. Manufacturer can easily see if a supplier has suffered a breakdown and automatically increase orders from another supplier or modify production schedules.

- **Continuous Improvement and Future Planning**

Comprehensive factory evaluation can be done using big data techniques to identify areas of improvement in various processes on the shop floor. Data recorded on shop floor such as running hours, units of electricity consumed and hours in maintenance can be used to optimize current operations as



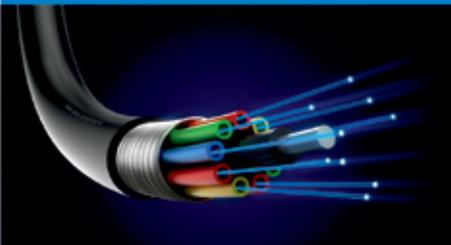
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well as provide valuable insights to be used in designing future plants. Aggregating data from all machines in operation and running it through data analytics software can help identify which machines need to be automated to what extent and how to improve flexibility while setting up a new factory.

**Implementation roadmap for digital transformation**

Digital transformation is neither a one-size-fits-all solution nor a one-time activity. Indian manufacturers firstly need to evaluate their preparedness for digital transformation by using a Manufacturer Maturity Index (MMI) that evaluates business maturity, process maturity and technological maturity. Accordingly, manufacturers rating high on this index should take the lead in going digital, followed by those ranking in the middle. Those on the lower end of the rankings should focus first on improving on the concerned parameters and then start their digital journey.

The implementation itself should be in three phases. First Phase involving incremental steps in the current setup to score some easy wins and get people at various levels in the organization to buy into the process by demonstrating proof of concept. It could be simple steps like connecting NC machines using a local wireless network or launching RFID based location tracking for the workforce / incorporating industrial use cameras providing microscopic view of product characteristics to improve quality checks. In addition, manpower produc-

tivity can be enhanced by using low cost solutions such as dashboards with role-based KPIs and Wi-Fi enabled handheld devices with a simple mobile app where they can select issue category and upload pictures that would be available to supervisors in their offices for faster response in case of escalations.

The second phase would involve slightly complex initiatives and higher level of investments such as employing data analytics tools for optimal man-machine allocation and using collaborative robots for assisting quality check personnel.

The third phase would include initiatives requiring highest investment with highest impact on bottom line. Connecting all plants together onto a shared cloud with centralized access, equipping workforce with smart glasses with step-by-step instructions for task execution and fully automated quality check process are some initiatives that could be undertaken in this phase.

Phase-wise implementation of digital transformation is gradually finding favour in the industry. There are many digital solutions available in the market today, however, manufacturers should try to focus on solutions that are suitable to achieving their goals. Frugally engineered and indigenously developed solutions could incorporate the manufacturers' needs better and might be cost effective as well. 

*The author is the Partner & Group Head at NRI Consulting & Solutions in Gurgaon (India)*

**MARKET**

# India improves in Ease of Doing Business

The World Bank released its latest Doing Business Report (DBR, 2019) in New Delhi recently (October 31, 2018). India has recorded a jump of 23 positions against its rank of 100 in 2017 to be placed now at 77th rank among 190 countries assessed by the World Bank. India's leap of 23 ranks in the Ease of Doing Business ranking is significant considering that last year India had improved its rank by 30 places, a rare feat for any large and diverse country of the size of India. As a result of continued efforts by the Government, India has improved its rank by 53 positions in last two years and 65 positions in last four years.



The Doing Business assessment provides objective measures of business regulations and their enforcement across 190 economies on ten parameters affecting a business through its life cycle. The DBR ranks countries on the basis of Distance to Frontier (DTF), a score that shows the gap of an economy to the global best practice. This year, India's DTF score improved to 67.23 from

60.76 in the previous year.

India has improved its rank in 6 out of 10 indicators and has moved closer to international best practices (Distance to Frontier score) on 7 out of the 10 indicators. But, the most dramatic improvements have been registered in the indicators related to 'Construction Permits' and 'Trading across Borders'. In grant of construction permits, India's rank improved from 181 in 2017 to 52 in 2018, an improvement of 129 ranks in a single year. In 'Trading across Borders', India's rank improved by 66 positions moving from 146 in 2017 to 80 in 2018. 

India has improved its rank in 6 out of 10 indicators and has moved closer to international best practices.

As per the Advertisement in Deccan Herald on 05-10-2018  
the last date for submission of Applications is  
extended upto 31-12-2018, 5.00 p.m.

Last date  
extended to 31-12-2018



## TUMAKURU MACHINE TOOL PARK (TMTP) (A Special Purpose Vehicle of GOI & GOK)



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Date: 06.09.2018

## NOTIFICATION

### APPLICATIONS ARE INVITED FOR ALLOTMENT OF INDUSTRIAL PLOTS AT TMTP EXCLUSIVELY FOR MANUFACTURERS OF MACHINE TOOLS AND THEIR ANCILLARY UNITS

Government of Karnataka (Through SPV) is developing an Integrated Machine Tool Park with State-of-the-Art Industrial Infrastructure coupled with an eco-friendly layout in an extent of about 530 acres of land at Vasanthanarasapura, Tumakuru District, with assistance from Department of Heavy Industry, Government of India to attract investments in the machine tools sector. It is an integral part of Tumakuru Industrial Node on the proposed Chennai - Bengaluru-Chithradurga, Industrial corridor and is located adjacent to proposed Japan Industrial Park.

This is a golden opportunity for manufacturers of Machine Tools, accessories, attachments, sub-system assemblies, components and parts, dies and moulds, tools and tooling, consumables and others directly related to machine tool industry and service providers and units providing support to the machine tool industry to set up their units in TMTP.

The Karnataka State Industrial Policy 2014-19 intends to offer special impetus with incentives & concessions and special rate for industrial plots.

Applications from the prospective and interested entrepreneurs can be submitted online in the website of Karnataka Udyoga Mitra (<http://kum.karnataka.gov.in>), (<http://ebizkarnataka.gov.in>). The filled in applications should be submitted by **5.00 p.m. on 06.10.2018**. Further details and detailed notification is available on the website. For any further guidance with respect to Machine Tool Park, the agencies may contact Sri Revannagowda, Managing Director, (Mobile : 9845521224), Karnataka Udyog Mitra, 3<sup>rd</sup> Floor, Khanija Bhavan #49, Race Course Road, Bengaluru-560001 or any of the following officers.

**Smt. T.K. Swaroopa**  
Additional Director,  
Policy & Promotion  
Industries & Commerce  
Mob: 9341966609

**Sri. L.S.Harti**  
Chief Finance Officer  
TMTP  
Mob: 9845520837

**Sri. Ifthekar Ahmed**  
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Mob: 9901604074

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**Sri. Anirudh Sravan P., IAS**  
Chief Executive Officer  
TMTP

Sd/-

**Sri. Darpan Jain, IAS**  
Commissioner for Industrial Development & Director  
Department of Industries and Commerce, GoK



# Driving Change in Mobility

Here is an overview of The ET Polymers Global Conference on Plastics in Automotive (GCPA) 2018, which was held at Pune recently.

The Economic Times Polymers - sister magazine of The Machinist - held its annual Global Conference on Plastics in Automotive 2018 (GCPA 2018) on the theme of Driving Change in Mobility. The conference took place in Pune, an automotive hub of India. This conference program discussed key trends and challenges in the automotive industry with regards to use of plastics. Apart from being a knowledge forum, the platform also recognised industry veterans' contribution through the ET Polymers Automotive Hall of Fame 2018.

### Automotive Hall of Fame 2018

Prestigious ET Polymers Automotive Hall of Fame was bestowed upon —Tarang Jain, Managing Director, Varroc Group and Colin MacDonald, CEO & Managing Director, Renault Nissan India.

While accepting the recognition Jain said, "It is an honour and privilege to be here. Being part of the plastics industry in the automotive sector has been most rewarding part of my life. Varroc story started in 1990 with plastic injection moulding



machines being installed in our first factory in Aurangabad. Those were the days when automotive industry used sheet metal and aluminium extensively. It was defining moment in my journey when I believed what great future plastics would have and decided to invest in plastics injection moulding machines."

In his acceptance speech, MacDonald said, "Thank you for

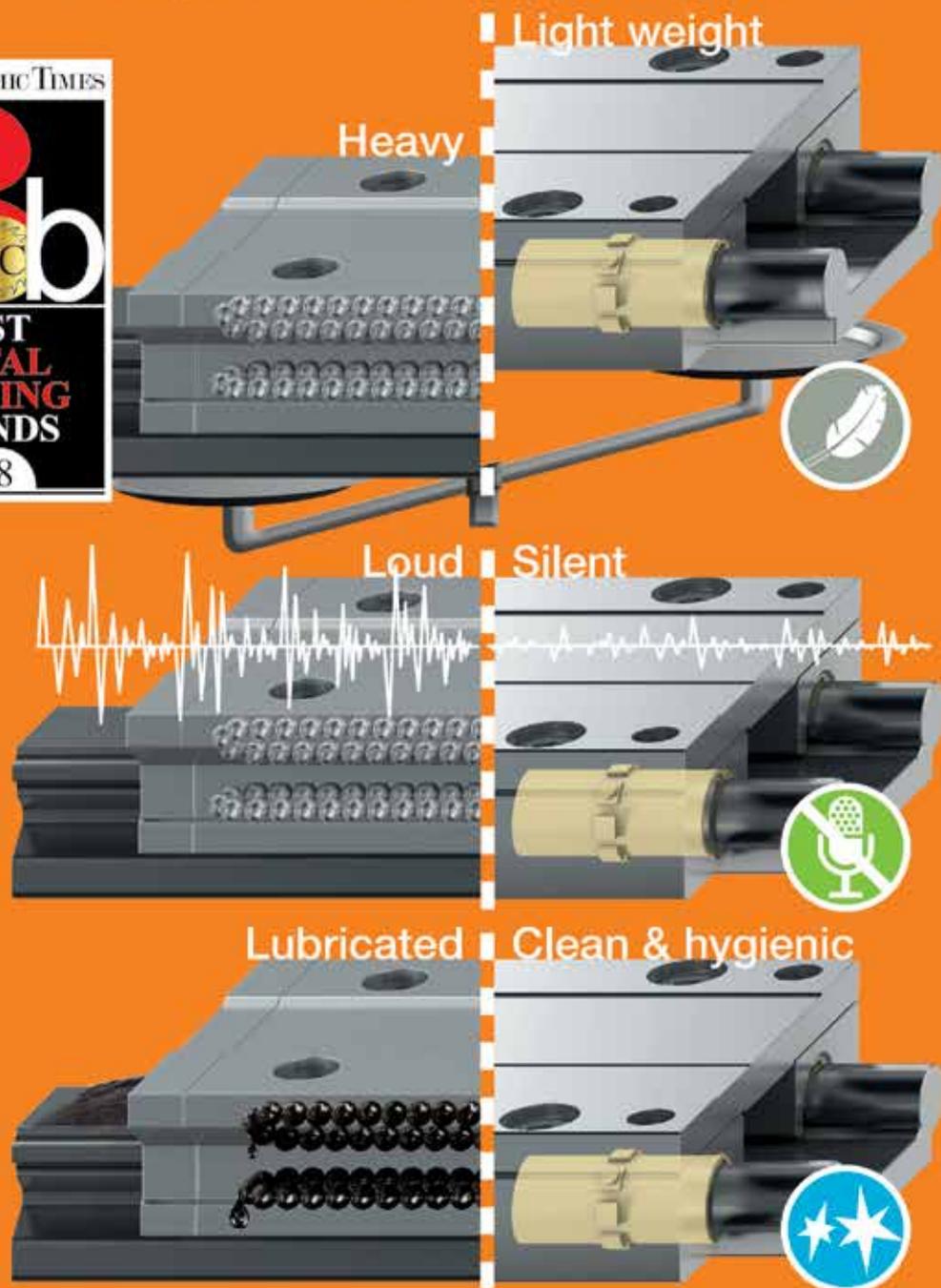
honouring me on this platform. It is a pleasure to be here. I have been in India and this country is truly incredible." Further he commented on trends in the automotive manufacturing. "Speaking about the automotive industry, I hear lot of people saying automation is a key to future. My suggestion to them is — Beware! Check for payback time on your invest-

It was defining moment in my journey when I believed what great future plastics would have and decided to invest in plastics injection moulding machines

Tarang Jain, Managing Director, Varroc Group

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**While making investment in automation, check for payback time. Our clear strategy is unless it gives you payback in two years' time, there is no point in investing**

**Colin MacDonald, CEO & Managing Director, Renault Nissan India**

ment. Our clear strategy is unless it gives you payback in two years' time, there is no point in investing," he said.

**CEO Panel Discussion**

The high-profile CEO Panel Discussion on the theme of Driving Change in Mobility discussed the future course of mobility in India. Colin MacDonald along with Biranchi Mohapatra, Managing Director, Plastic Omnium Auto Exteriors; Shrikrishan Yogi, Regional President, Brose India Automotive Systems Pvt Ltd; Varadan Devanathan, President, Yanfeng India Automotive Interior Systems Pvt. Ltd.; Dr. Harish Pant, Chief Business Transformation Officer, NTF India Pvt. Ltd. and D S Sethumadavan, Business Head – Polymer Business, Varroc Group participated in the CEO Panel Discussion and threw light on the topic.

**Other highlights**

The event also witnessed two interesting panel discussions on the topics of 'Lightweighting in a new light' and 'The journey forward to become the global best tool room'. Firoz Siddiqui, Sr. Leader Innovation – vehicle interiors, Faurecia Interior System; Amod Prakash, HOD Quality, Mutual Industries Ltd; Dr. Mohammad R Parvez, Lead Material Specialist (Product Development), Varroc Lighting Systems and Aditee Patwardhan, Sr. Manager, R&D/Product Development, Tata AutoComp discussed on the various approaches of lightweighting the vehicle. The panel also discussed the way forward in this direction.

On the other hand,

panel consisting of K. Thiruvengadam, President, Venture Automotive Tooling India Pvt. Ltd.; N. Chandramohan, Director, Craftsman Automation Ltd.; Sanjay Paranjpe, Business Development, Bharat Technoplast Pvt Ltd and George Joseph, General Manager, Basis Mold India Pvt. Ltd. discussed on the journey forward to become the global best tool room. B.Thej Kumar, Senior General Manager- Product Development and Quality, Toyoda Gosei South India Private Limited (TGSIN) moderated this session.

Sandeep Waykole, Director Programs, Faurecia Interior Systems India presented a case study on Soft Touch Instrument Panel Development in India. This case study gave audience a sneak peek into the innovations taking place in India.

Additionally, a presentation 'New developments in hot runners and automation', by Vishal Agarwal, President, Yudo Hot Runner India Pvt. Ltd. and Yudo Suns Pvt. Ltd. gave attendees an idea on development happening in the sector. Tushar Parida, Country Head, DOMO EP India presented his thoughts on 'Engineering Plastics Solutions For Automotive'. Additionally, Walter Min, Asia Automotive Business Development Manager, Branson Ultrasonics Shanghai a division of Emerson Electricals gave presentation on 'Clean joining techniques for plastics in automotive'.

This edition of The Economic Times Polymers Global Conference on Plastics in Automotive was a grand success. Audience appreciated the thoughtful topics that were included on the program as it acted a true knowledge gaining platform for them. 



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# Focus on die-casting technology

ALUCAST 2018 would explore the emerging trends which are bound to have a considerable impact on the future of the Industry.

**A**LUCAST 2018- The International Conference and Exhibition on Die Casting Technology will be held at the India Expo Mart (IEML), Greater Noida, U.P. (Delhi-NCR), India, on December 6–8, 2018. The Theme for the event is “Emerging Trends in Die Casting Technology”.

A technical conference spanning all three days will feature presentation of articles by internationally recognised experts on diverse aspects of die casting technology which are emerging and are likely to greatly influence the manner in which die cast parts are conceived, produced and used.

The technical papers will be supplemented by product presentations, introducing some of the most significant recent advances. The manufacturing process, manufacturing equipment, materials used, and part design are the four pillars which derive strength and benefit from any advancement in die casting technology.

The conference at ALUCAST by focusing on the above topics, aims to assist the Die Casting community in India to remain technologically advanced and competitive.

Prasan Firodia, President – ALUCAST, MD, Force Motors & JayaHind Industries is upbeat about the upcoming edition of the event “ALUCAST 2018 would not only present knowledge and information about the core industry, but also explore the emerging trends which are bound to have a considerable impact on the future of the Industry. To remain competitive, sustained efforts are needed to continuously raise the bar on productivity, quality, ease of manufacture and appropriate technology. ALUCAST 2018 will present and highlight leading players from the segment offering innovative solutions.”

Concurrent to the conference, the exhibition with over



“A technical conference spanning all three days will feature presentation of articles by internationally recognised experts on diverse aspects of die casting technology.”

7,000 sq m area, housing approximately 150 exhibitors who will showcase machines, accessories, dies, materials, and services with the latest technology. This will be an ideal opportunity for practising die casters to network with the best in the business and derive maximum benefit from the experience.

The event will also be an occasion to felicitate and reward Foundries that have shown outstanding performance in the year gone by. Additionally, the best casting award will recognize and reward the outstanding casting designs of the year.

Indian auto-components industry is expected to register a turnover of US\$ 115 billion by FY 20–21 and US\$ 200 billion by 2026. This augurs well for the die-casting Industry as the auto industry accounts for 70% of the consumption.

Sonia Prashar, MD, NürnbergMesse India is optimistic about the growth of the event and the Industry “With a 15 percent growth over last edition, ALUCAST 2018 promises to be bigger and better than before. These impressive numbers correspond to the growing importance of the die casting industry in India. At ALUCAST, we offer a business platform which gives participants an opportunity to showcase their latest products and technology on offer and network with a global audience.” 

To remain competitive, sustained efforts are needed to continuously raise the bar on productivity, quality, ease of manufacture and appropriate technology.

**Prasan Firodia,**  
President – ALUCAST, MD, Force Motors & Jaya Hind Industries.

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# Connecting People and Technology!

Given the competitiveness of the market, Astrum Holdings Ltd is focused on adding about 8-10 new products each quarter to stay ahead of the market as a brand, says **Manoj Kumar Pansari**, its Chairman & Managing Director.

By **Niranjan Mudholkar**

**Q Tell us about your personal journey with Astrum Holdings Ltd so far.**

My personal journey with Astrum Holdings Ltd has started in 2008 in Hongkong with an aim to enable people get worldwide access to new technologies in the field of consumer electronics. In 2009, we set up our R&D office in Shenzhen and later in 2011 we got a subsidiary for South Africa. From 2013, we had started product portfolio diversification with an aim to get new product launched in each quarter. The company got subsidiary for India last year and now we have Pan India presence. Currently, my company has invested Rs.100 crore to set up a factory in Andhra Pradesh to manufacture its products in India too.

Astrum is a brand that continues to pride itself as a major and competitive innovative tech-former in the IT hardware accessories and smart technology industry. Many of our range of products were nominated and received ground breaking awards around the Asia pacific region. In 2017, we received the ABFA Awards 2017 for Outstanding Franchises & Outstanding Individual Brand. In 2018, we received 'Made in Hongkong, designed in Hongkong' Award. We have received other awards too and hope to continue on this path.

**Q What is the thought behind the name Astrum?**

Astrum is derived from the Latin culture which means 'Star'. It is the celestial body in universe which is mysterious, vast, full of wisdom and modern technology. The pictures of the starry sky and the pattern of polygonal star are the key elements that inspire the logo. Therefore, the origin of brand astrum is star and planet. The word 'Astrum' gives a mix concept of nature, mystery, humanities and technology!

**Q Tell us about Astrum's manufacturing facility with regards to its location, size, capacity, product portfolio and so on.**

Astrum's manufacturing facility in India is going to be located

"Since we are into technology the opportunity of foraying into electric vehicles battery segment excites us and we hope we may sometime look into it in near future."



"Astrum's manufacturing facility in India is going to be located in Tirupati (Andhra Pradesh) with a size of 16,000 sq m. It will have multiple production line and categories such as audio, mobile chargers, power banks, etc. For this facility, we are investing Rs.100 crore."

in Tirupati (Andhra Pradesh) with a size of 16,000 sq m. It will have multiple production lines and categories such as audio, mobile chargers, power banks, etc. For this facility, we are investing Rs.100 crore in Tirupati (Andhra Pradesh).

**Q You operate in a very competitive industry and also operate in a market where customers are both demanding as well as price sensitive. What is your strategy to tackle with this situation?**

We understand the nerve of our customers. We know that they come with an expectation of newer technology with every passing minute and we try to match that with our ever-



"We have our in-house team in china for both R&D and design capabilities. Since, design is one of our focus areas, we also use third party services. We also have a joint venture with one of China's leading company who provides us with a CBD (Creative Users, business and designers) system."

developing technology. However, we keep it price competitive so that it is available to more people and more people can use our products and enjoy or rave the benefits of it. We believe in the perfect marriage of quality and technology within the budget of people.

**Q Tell us about your R&D and design capabilities.**

We have our in-house team in china for both R&D and design capabilities. Since, design is one of our focus areas, we also use third party services. We also have a joint venture with one of China's leading company who provides us with a CBD (Creative Users, business and designers) system.

**Q Do you plan to further increase your product portfolio?**

Given the competitiveness of the market, we are focused on adding about 8-10 new products each quarter to stay ahead of the market as a brand. We want to give our customers an

experience of the products that can bring technology to their home and enhance their lifestyle.

**Q The electric vehicles segment is an emerging segment in India. Having established your expertise in the power bank segment, would you consider foraying into the electric vehicles battery segment?**

Although it is an emerging market we are not looking at it currently. However, since we are into technology, the opportunity of foraying into electric vehicles battery segment excites us and we hope we may sometime look into it in near future.

We are focused on adding about 8-10 new products each quarter to stay ahead of the market. We want to give an experience of products that bring technology to their home and enhance their lifestyle.

**Q What is your vision for Astrum?**

The vision for Astrum is to break down barriers between People and Technology. Technology, quality, market and environment are the critical success factors on which Astrum is constantly focusing to further develop its business and bring added value to its customers; our aim is to see people using Astrum to create their world. 



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## Jaguar Land Rover starts manufacturing F-Pace petrol in India

Jaguar Land Rover India has announced the start of local manufacturing of the petrol derivative of Jaguar's first performance SUV, the F-Pace. Available in the Prestige derivative and powered by a 2.0 l 4-cylinder, 184 kW Turbocharged Ingenium petrol engine, the locally manufactured Model Year 2019 F-PACE is priced at ₹ 63.17 Lakh (ex-show-room price in India).

Rohit Suri, President & Managing Director, Jaguar Land Rover India Ltd (JLRIL), said: "In the two years since its launch in India, the Jaguar F-PACE has captivated the imagination of Jaguar fans and our discerning customers. With the launch of the locally manufactured Ingenium petrol derivative



of the F-Pace, the appeal of our first Jaguar SUV is further enhanced."

## ZF expands commercial vehicle product portfolio in India



ZF Friedrichshafen AG continues its growth and expansion in the region by announcing the start of its new shock absorber production line in India. The new production line will be part of ZF's regional headquarters based in Chakan, Pune, with an annual installed manufacturing capacity of 0.7 million units. It plans to increase the capacity to three million units in the coming three to four years.

Commenting on the occasion, Suresh KV, President, ZF India, said, "With the dynamic business environment of the country and initiatives like 'Make in India', ZF is focusing on significantly expanding its manufacturing capabilities in the country. With our wide array of products for commercial vehicles, we are already actively shaping the three megatrends in the Indian auto industry: Safety, Efficiency and E-mobility."

The completely localized production line will manufacture a comprehensive range of shock absorbers for commercial vehicles and industrial applications like trucks, buses and includes cabin and axle shock absorbers. The production line will be established in the existing multi-product facility and will offer operational synergies with the current set-up - helping the company to optimally utilize its resources. Furthermore, manufacturing processes used in different global plant locations will be followed at this new production line.

## M&M to supply BS-VI engines to Ford

Mahindra Group and Ford have signed two definitive agreements. The two definitive agreements on powertrain sharing and connected car solutions reinforce the progress made in the strategic alliance between the two companies, first announced in September 2017 and followed up with five Memoranda of Understanding (MoU) in March 2018.

Under the definitive agreement on powertrain sharing, Mahindra Group will develop and supply a low-displacement petrol engine to Ford India for use in its present and future vehicles, starting in 2020. The BS-VI compliant powertrain



will help Ford extend and strengthen its existing offering of petrol engines, that currently includes the all-new 3-cylinder TiVCT family.

Building on their intent to co-develop a suite of connected car solutions, Mahindra and Ford also announced joint development of a telematics control unit. Once developed, the connected vehicle solution will be deployed across both Mahindra and Ford vehicles.

Speaking on the occasion, Dr. Pawan Goenka, Managing Director, Mahindra and Mahindra Ltd. said, "Today's announcement further builds on commitments made so far, leading to a fruition of exciting new opportunities. We are confident to meet customer expectations by working together on a number of joint development areas. Going forward we will continue to identify the synergies that exist between the two companies."

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## Schaeffler completes merger of Indian entities



Further to the announcement made in August 2017 and following clearance of the transaction by the key stakeholders and relevant regulatory authorities, Schaeffler India Ltd announced the successful completion of the merger of INA Bearings India Pvt Ltd and LuK India Pvt Ltd with Schaeffler India Ltd effective October 2018. The combined

entity is one of the leading Indian Automotive and Industrial supplier with over INR 41.0 billion in revenues and around 3,000 employees.

Schaeffler Group, a leading global Automotive and Industrial supplier, also inaugurated a new production hall at its state-of-the-art facility in Pune marking the “One Schaeffler” entity. The new production facility will boost local manufacturing capabilities of Schaeffler Group in India. It will manufacture engine and transmission components, serving the domestic and export markets.

The facility was inaugurated by Georg F. W. Schaeffler – Chairman of the Supervisory Board and Klaus Rosenfeld – CEO, of Schaeffler AG; Avinash Gandhi – Chairman of Board, Schaeffler India Limited and Dharmesh Arora – CEO of Schaeffler India Limited, in presence of other Board members of Schaeffler India Ltd.

## WABCO and FAW Jiefang form a joint venture

WABCO Holdings Inc. has signed an agreement to establish a new joint venture for vehicle control systems with FAW Jiefang Automotive Company to advance the safety and efficiency of commercial vehicles in China. This includes accelerating WABCO’s single-piston air disc brake (ADB) technology leadership in China.

An innovative and market-leading commercial vehicle manufacturer, FAW Jiefang has built its world-class manufacturing capabilities, industry expertise and trusted-partner reputation over 60 years. Combined with WABCO’s technology leadership and advanced manufacturing capabilities, the joint venture will commence with the manufacture of WABCO’s advanced MAXXTM single-piston ADB from 2019. With over six million single-piston ADB systems sold, WABCO is the long-established global market leader for this advanced technology. A major focus of the joint venture will be heavy-duty trucks given WABCO’s mastery of single-piston ADB technology for 30,000 Nm applications which have a compact, lightweight design with fewer components and are proven to deliver the highest standards of safety, performance and reliability. Superbly engineered, WABCO’s industry-leading, high-performance single-piston ADB technology is best suited for all types of commercial vehicles – light, medium and heavy-duty platforms.

## Magna opens new facility in Czech Republic

Magna recently celebrated the grand opening of its new seating facility to support BMW business. The new plant in Chomutov, Czech Republic, will be supplying seating systems in various configurations for several



BMW models. Production is expected to start before the end of this year.

The state-of-the-art facility uses smart factory manufacturing concepts to increase efficiency and quality output for customers as well as provide a flexible work environment for employees. The plant has a production area measuring 6,000 square meters and the capacity to produce more than 360,000 seat sets per year. The plant has created 150 new jobs and is expected to add an additional 150 employees throughout 2019.

“This is a big win for our employees as well as our community, where we are making a positive economic impact. Our facility is using the latest technology with special attention given to high flexibility so that we can react quickly to new developments and changing requirements of our customers,” said General Manager Martin Polívka of Chomutov Seating.

## Volkswagen expands SUV family with T-Cross

Volkswagen has launched T-Cross, the company’s first small car SUV. The new model combines style, practicality, flexibility, connectivity & economy, and it sets new standards for its class in many respects. The urban crossover model thus reveals itself to be an ideal companion in everyday life and beyond. Ralf Brandstätter, Chief Operating Officer of Volkswagen Brand, introduced the new T-Cross together with Cara Delevingne, British supermodel, actress, musician and testimonial for the T-Cross.



## Anti-vibration blades for grooving

A range of effective anti-vibration tools that allows achieving high metal removal rates

Throughout the world, on a daily basis, machine tool operators must contend with unwelcome vibrations when metal cutting. Vibrations may occur due to issues related to the machine tool itself, problems due to a tool's length and/or its clamping method, the programming of a controller, or a combination of any of these factors.

The unremitting development of advanced cutting tools and the introduction of innovative methodologies to overcome metal cutting vibrations continue to be a major objective for ISCAR. Over several years, the company's prolific R&D department has created a wide range of effective anti-vibration tools that allow users to achieve high metal removal rates and to increase their efficiencies and profitability. ISCAR continues to be a leading innovator in the field of anti-vibration tools.

ISCAR's Whisper Line tools, designed for turning and grooving applications are referred to as tuned or damped tools which provide effective solutions for the elimination of vibrations. The popular Whisper Line provides a series of key benefits for increasing productivity and for achieving substantial cost savings when grooving and turning. These are common applications where long tool overhangs are required, specifically in grooving blades. When using ISCAR's Whisper Line tools, grooving and turning applications become quieter in difficult to access component areas. Tools with long overhangs are now becoming increasingly popular in these problematic machining zones, specifically in heavy duty and aerospace applications.

Whisper Line tools provide the user with, not only improved surface finish characteristics, but also considerably increased tool life. Whisper Line tools boost production to new levels while providing a quiet operation and cost-efficiency.

Due to the ever increasing complexity of parts, over the last few years ISCAR has launched many deep grooving / parting solutions, mainly for the heavy duty and aerospace industries. Some of these industries' applications require tools with very long overhangs when compared to the width and height of the blade. Such tools in a conventional design format tend to cause vibrations, which result in unbearable levels of noise, poor surface quality and shorter insert tool life.

While many anti-vibration tools exist in the market for internal machining applications, ISCAR is the only company that offers anti-vibration blades for external applications. The company's vast experience and unmatched designing skills have



enabled ISCAR to produce an ingenious damping mechanism that is small enough to be assembled onto blades, and created the optimal blade for a large range of overhangs. This unique ISCAR damping mechanism consists of two plates connected by a screw and fixed to the blade by an O-ring. Each blade is pre-calibrated by ISCAR for optimal performance at an overhang of 100 mm. Even though this groundbreaking new arrangement is suitable for a wide range of overhangs, if needed, the end-user can easily adjust and fine tune the calibration of the tool for optimal results. Even when employed in shallow grooving applications, where standard conventional tools can be used, the new anti-vibration blades provide a wide range of benefits in terms of surface quality and inset tool life.

An example of the benefits gained through the use of the new damping mechanism blades is a deep grooving application where a long tool overhang of 70 mm was applied to a 200 mm workpiece. Outstanding results were achieved. The insert's tool life performance was 4 times greater when mounted on an ISCAR anti-vibration blade for a 20mm grooving application. The machined component's surface finish proved to be excellent and overall productivity was dramatically increased.

In addition to offering the company's standard blades, ISCAR also specializes in special tailor made tools available in many shapes that feature an effective anti-vibration mechanism for all types of groove-turn applications.

*For more information, contact:  
ISCAR India Ltd., sales@iscar.in*



## Click and Ready!

PushPull connectors enable all kinds of plug profiles to be securely connected in no time at all.

The word plug comes from to plug in. That's how easy it usually is to transfer data or power with household appliances or smartphones. Plug in and ready to go. In industry, however, the requirements are much higher and interfaces must be locked in order to ensure proper protection. To be able to connect data, signals and power more quickly and without tools in the future, HARTING is expanding its portfolio of PushPull plugs. Secure connections in a single hand movement.

Interfaces in industrial applications are subject to higher demands. On the one hand, there are external factors such as moisture, dust, noxious gases or vibrations, which can impair or interfere with a connection. On the other hand, it is important to consider handling and ease-of-use by operating personnel. The protection of a connection has the highest priority in order to prevent the worst case scenario of system failure or destruction. Nevertheless, plug operation must be easy and user-friendly. Over the years, different companies have developed such a diverse array of plug types and ensured their continued presence on the market. Plugs are usually sealed and made resistant against dirt or unintentional loosening through vibration by means of a lock. This can be achieved using threaded connections, e.g. by screwing the connector itself, by levers, clips or many other systems. However, this approach often requires tools for assembly, as well as trained installation personnel to estimate the correct fit of the plug.

The PushPull system has been a successful part of HARTING's range for some time now. Types 4, 14 and Power L are classic rectangular connectors, which originate from the automotive industry and industrial device cabling.

Since the installation of systems and devices often takes places under far from ideal conditions, i.e. with suitable tools and trained personnel, it was necessary to re-design the interface itself.

The PushPull system has been a successful part of HARTING's range for some time now. Types 4, 14 and Power L are classic rectangular connectors, which originate from the automotive industry and industrial device cabling. Factors such as durability and fast, but at the same time safe, installation remain in the forefront. Here, the saying "time is money"



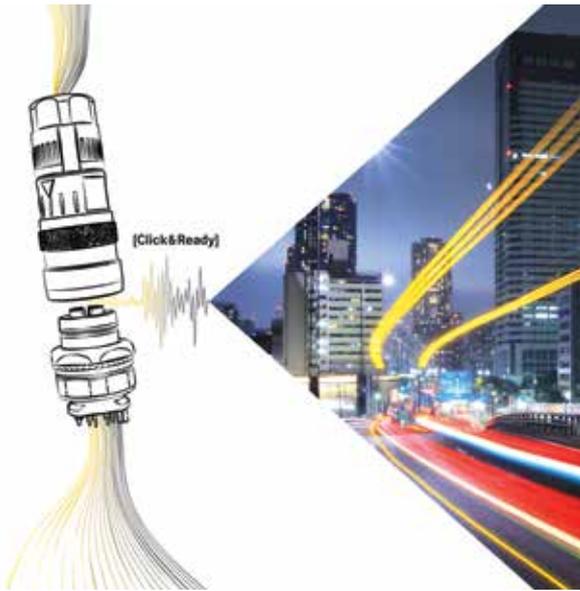
still applies. PushPull connectors enable all kinds of plug profiles to be securely connected in no time at all. An audible click informs the installer that the connection is now waterproof and closed. No tools, no torques, no special training for personnel.

Various types of plug profile can be accommodated in the universal "containers" of the housing for types 4 and 14. Depending on the application, these can be RJ45, optical fibres in plastic or glass or even USB for the transmission of data. If signals are to be bundled and forwarded, users can choose between 10 and 20-pole plug profiles. However the power supply can be safeguarded using the tool-less interface up to 690 V at 16 A. Together, this provides device manufacturers with all necessary solutions from a single source as part of a uniform and standardized system.

The newest member of the PushPull family came about due to the desires and requirements of the market. The type 4 Mini DisplayPort interface serves the increased use of HMIs in the form of screens and keypads, which are fed video signals. In order to avoid additional conversion of video signals into Ethernet, the DisplayPort interface supports direct forwarding of video signals. Of course, in addition to all the rectangular elements of the PushPull system, it is important not to forget circular plug types.

### Rectangular and circular plugs

The M12 is the most common representative in the field of metric circular plugs. It is a classic signal plug with a threaded connection for sensors and actuators. In recent years, this interface has increasingly become the go-to connector for D and X coding for Fast Ethernet and Gigabit Ethernet applications. However, they all feature threaded locking systems,



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faces are back-compatible and can still be used with conventional M12 screw locks. This means the switch to PushPull can be made gradually. The other alternatives in the M12 range are adapters that convert a standard M12 screw socket to a PushPull socket.

**Who benefits?**

PushPull's time savings are particularly well received by users and represent an important purchasing criterion when selecting a device. PushPull can be positioned more compactly on housings, because users require less space for each individual interface when connecting without tools. This brings us to the main point and the actual target group: the user, in other words fitters, setters, service personnel or unskilled workers. The fact that tools are no longer required, together with the quick locking system, mean that, in the case of the M12 PushPull for example, assembly times can be reduced by as much as 70% when compared to M12 screw types. Of course, this is most likely to become a decisive factor when connecting a large number of plugs, however the simplified operation also offers significantly more process reliability when employing unskilled personnel thanks to the system's clear feedback and user-friendliness.

*For more information, contact:  
Harting India, [in@harting.com](mailto:in@harting.com)*

which must be checked with a special torque wrench to ensure the specified IP 65/67 protection class. Obviously assembly takes a longer due to screwing and checking, and the packing density of interfaces on switches is rather limited as a certain amount of space for the tool is always required.

Due to the increasing number of use cases for the M12, HARTING has already been offering it with the PushPull mechanism for a long time and deployed it initially within the railway market. The requirements in the rail sector are among the highest available. If an interface can overcome demands here, it can be used in other application areas without raising concerns. Since feedback from railway manufacturers has been consistently positive and in general the trend in all industrial business sectors is towards increased modularity, HARTING has decided to supplement the PushPull connectors of all series with new types and, in future, to use printed circuit board connections for circular plugs within the PushPull system. This will not inconvenience previous users, because the inter-

**UPDATE**

**Demand for domestic iron and steel products grows**

Efforts made by the Ministry of Steel have ensured placement of orders for domestic iron and steel to the tune of Rs. 8129 crore from June 2017 to October 2018. Ministry of Railways, ONGC, GAIL, EIL and HPCL have placed orders with domestic iron and steel manufactures for various categories of rails, pipe and tubes. These products were earlier imported but are now being procured from domestic producers. Discussions are on with Ministry of Railways to increase consumption of rails manufactured indigenously either through SAIL or other domestic manufactures. Efforts are also being made to on-board sectors like Defence and CPWD so that use of steel products manufactured in India grows.

In order to give preference to domestically manufactured iron and steel products (DMI&SP) in Government procurement, Ministry of Steel promulgated a Policy, which was noti-

fied in May 2017. To ensure that the Policy is implemented in letter and spirit, a Standing Committee under the Ministry of Steel chaired by Secretary Steel has been constituted to oversee its implementation. A Grievance Committee has also been constituted to carry out grievance redressal which may arise while implementing the DMI&SP Policy.

The Ministry of Steel organized a Conclave in Bhubaneswar in October this year for domestic manufacturers of capital goods meant for the steel sector. In this Conclave MoUs worth Rs.39,400 crore were signed between foreign capital goods manufacturers and technology providers with Indian capital goods manufacturers and steel producers. This will result in the manufacturing of capital goods for the steel sector within the country in the next four years. This is a major shot in the arm for the 'Make in India' initiative of the Government of India.



## The CHIRON Group launches three new machining centers

### New machine generations for high-precision and dynamic CNC machining

Visitors at the AMB trade fair 2018 in Stuttgart experienced three all-new innovations at the CHIRON Group's trade fair stand. The turnkey specialist will be demonstrated the new machine generations for high-precision, dynamic CNC machining from CHIRON and STAMA. "The FZ16 S five axis and the DZ16 W from CHIRON were designed to meet the growing requirements in machining production and the increasing complexity of machined workpieces," explained Dr Claus Eppler, Head of Research and Development at CHIRON. "The STAMA MT 733 two is the complete machining solution for high-precision components with numerous machining steps and tools in mixed milling/turning processes," commented Dr Guido Spachtholz, Managing Director at STAMA. "Our initial machining results indicate that we can expect an increase in productivity of up to 30% compared with the previous system," he added.

In addition, the two CHIRON Group companies CHIRON and STAMA are using their new series to enhance their market profiles. Productivity and precision are key market attributes of both brands when it comes to CNC vertical milling and milling/turning machining centers. The CHIRON brand is also known for excellent dynamics, while STAMA focuses on stability. This enables maximum cutting forces when working with high-strength materials that are difficult to machine. Thanks to their gantry design, both series are characterized by high rigidity.

#### Precision and dynamics with the CHIRON FZ16 S five axis and DZ16 W

When CHIRON developed the FZ16 and DZ16, the focus was on current customer requirements – in particular, pre-



"The FZ16 S five axis and the DZ16 W from CHIRON were designed to meet the growing requirements in machining production and the increasing complexity of machined workpieces."

**Dr. Claus Eppler**, Head of Research and Development, CHIRON

cision, dynamics and a high surface quality for increasingly complex workpieces. Designs incorporating a moving gantry are completely new for CHIRON. The moving gantry significantly increases rigidity, enabling far greater levels of precision in machining. The single-spindle FZ16 S five axis and the double-spindle DZ16 W machining centers are available from the market launch. Customers with special accuracy-related requirements for five-axis machining will find in the FZ16 S five axis a machine that impresses with top levels of dynamics and rigidity and therefore guarantees high productivity. If large quantities are involved, the DZ16 W produces complex parts with a precision that has never been seen before. Additional benefits in terms of productivity and flexibility are provided by the fact that the machining centers can be equipped with up to 162 tools without taking up any more floor space. Furthermore, customers have a wide range of options to choose from; for example, a chip conveyor and coolant system can be fitted either to the rear or the left-hand side of the centers.

#### STAMA MT 733 two for complete machining

The new 733 series from STAMA allows all six sides of a workpiece to be machined on a single five-axis center. The machin-



"The STAMA MT 733 two is the complete machining solution for high-precision components with numerous machining steps and tools in mixed milling/turning processes."

**Dr Guido Spachtholz**, Managing Director, STAMA





ing center's gantry design lends it optimized static, dynamic and thermal rigidity. This offers advantages when machining complex or difficult-to-machine workpieces, which can now be milled and turned with particularly high levels of accuracy using the MT 733. The high process stability means that even the very first part to be produced is always correctly dimensioned, both when manufacturing single items and in series production. An optional feature of the new series is active temperature control for linear guides, chip channels and the whole machine structure. This allows for even higher precision in combined milling/turning machining. An integrated automation system facilitates the supply and removal of bar stock and/or chuck parts to and from the machine. Customers can choose from four MT 733 models in total, and can custom-

ize their machining centers to suit their specific requirements.

**TouchLine operating system with context-sensitive information**

The FZ16, DZ16 and MT 733 machining centers from CHIRON and STAMA are fitted with the newly developed "TouchLine" operating system from their market launch as



standard. The system guides the user step by step through operation, adapting its interface depending on the task and the context. If required, the full machine documentation and the maintenance instructions can also be called up on the 24" panel. This means that folders and paper are things of the past. TouchLine can be operated intuitively and interactively with the same familiar motions as for smartphones and tablets:

Press, drag and swipe. The user receives further support in the form of condition messages, which display critical parameters, detect causes and suggest rectification solutions.

Source: *The CHIRON Group*

**Powerful double clamping vise with encapsulated drive**

The family of manual SCHUNK KONTEC KSC Basic-Line is known for high clamping forces, ease of use, short set-up times and excellent price-performance ratio. SCHUNK, the competence leader for gripping systems and clamping technology is now expanding its modular system with the SCHUNK KONTEC KSC-D, a lightweight and flat double clamping vise especially designed for demanding applications in automated machine tools with workpiece storage. An induction-hardened base body, long jaw guidances, fitted slide, case-hardened chuck jaws and a fully encapsulated drive ensure a high degree of precision, maximum wear resistance, and minimal cleaning effort. Completely nickel-plated, the vise is perfectly protected against corrosion for continuous use in pallet systems or on tombstones.



es can be inserted next to each other, fixed, and securely clamped together. Due to the trapezoidal threads, high clamping forces can be achieved with little manual effort. As part of the SCHUNK modular system for highly efficient workpiece clamping, the clamping force blocks offer further advantages: the clamping pins of the SCHUNK VERO-S quick-change pallet system without adapter plate

can be directly screwed into the base body of the vise. The clamping force blocks can also be fitted with a wide variety of jaws from the SCHUNK standard chuck jaw range. The double clamping vise is available in three sizes with jaw widths of 80 mm or 125 mm, clamping forces of 25 kN or 40 kN, and base body lengths of 300 mm, 320 mm and 740 mm.

For more information, contact:

Satish Sadasivan

Schunk Intec India Private Limited

Email: [info@in.schunk.com](mailto:info@in.schunk.com), [www.in.schunk.com](http://www.in.schunk.com)

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By means of a convenient third hand function, two workpiec-



## Keeping machine tools in good geometric condition

Maintaining your machine tools' good geometric condition is a crucial factor for keeping the competitive-edge in the metal cutting industry.

The general trend for machine tools is clear, machines become more advanced. 5-axis machines and multi-task machinery is now becoming a standard at most shopfloors. Increased flexible machine solutions with higher degree of automation is used for shorter series or a mix of products produced on the same machine.

Complex solutions often go hand in hand with increased investments putting a higher focus on return of investment. Keeping machines running together with high availability has become increasingly important to keep this time short. Correct geometrical condition is a vital requirement to increase the availability and by that, increasing the Life Cycle Profit (LCP) of your machine tool.

### Why?

What do high availability in the machine means? Short answer is to produce correct parts with no or minimal number of parts outside tolerance, decrease lead time and time for fine tuning programs and to minimize the software corrections factors every time changing parts produced in the machine.

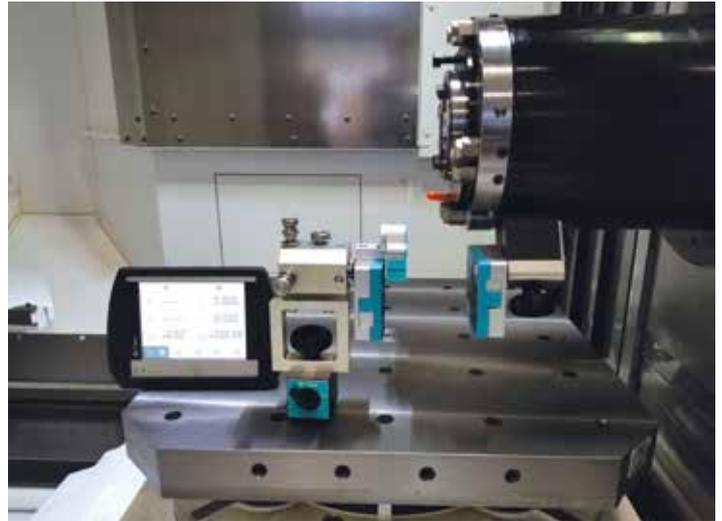
Good geometric condition of the machine results in improved machining conditions on parts being produced. It also has a positive effect on tool life time (less wear and breakages on tools), which contributes to a better economy. If the geometry in the machine is correct, it results in decreased wear of internal components (linear bearings, ball screws, spindle bearings, etc.) which further leads in lowering the cost for spare parts and resulting in fewer unplanned productions stops for maintenance.

### How is the problem solved today?

Traditional solutions for checking geometry include a lot of equipment. Test mandrels, granite squares, precision straight edges, special tooling, dials, levels and special fixtures. In many cases, big and heavy equipment to use, transport and also difficult to handle inside the machine. In addition, these solutions often require skilled and experienced technicians to obtain accurate and reliable results. With traditional equipment, the results are often manually recorded and creating proper measuring protocols is a time consuming task. This situation often results that machine owners are dependent of these experts and their availability for checking their machines.

### Our solutions

The MEAX system from Acoem is a innovative solution to make the task of checking the geometry condition in machine



tools in an easy, accurate and fast way. The system uses different measuring sensors in combination with a handheld display to record, evaluate and document the geometric condition. Measurements like levelling, straightness, angular deviation, spindle direction, coaxiality, squareness, run-out, parallelism can all be performed with the MEAX system. The handheld display unit has a graphical user interface that guides the user throughout the different procedures making it usable even for non-experts. The MEAX system is highly flexible and can be used in various machine types, lathes/turnings centers, milling machines, machining centers, grinding machines, etc.

All the sensors in the MEAX system use wireless connection to the handheld display unit making it possible to use while the machine doors are closed, making it safe to operate without compromising any safety regulations.

The graphical presentation of the results makes it easy to interpret and clearly shows direction and amount of errors. The system can show measuring values live when performing mechanical corrections resulting in considerable times saving compared to traditional methods.

Additionally, results can be saved on the handheld display unit, making it easy to produce a measuring protocol on-site. It's also possible to transfer the results to a database to keep track of the historical data for all measurements in different machines. The MEAX system is especially designed for geometry checks in machine tools and the software is developed to follow the type of measurements described in ISO-standards (e.g. ISO 13041-1, 13041-2, 10791-1, 10791-2, etc.)

*For more information, contact:  
ACOEM Group, India@acoemgroup.com*



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## igus equips energy chains with QR-codes

Internet-based e-chain technology offers easy part identification, procurement and assembly instructions

From a purely mechanical product up to an online calculable and networked machine component – igus continues to digitalise its tribo-products. In addition to online tools and self-monitoring smart plastics, the company now equips its energy chains with a QR-code. Integrated directly into the e-chain, it offers the machine builder online information about the chain, including assembly instructions, or how to identify and order spare parts, with just a quick scan using a smartphone or tablet.

To make the process of identifying, configuring, operating and maintaining machine components even easier for the engineer, igus takes advantage of the huge potential that digitalisation offers. In addition to the 33 online tools and smart plastics products, which increase plant safety through sensors and the artificial intelligence, the motion plastics specialist now equips its energy chains with QR-codes. This connection of the "offline" and "online" worlds has a very tangible benefit for the machine builder: faster information, easier assembly and spare part procurement via the Internet.

### Assembly instructions

To use the code, the engineer uses a smart phone or tablet camera to scan the QR codes, which are located on the cross-bars and side parts. The engineer is directed to the online portal, where igus provides all the important information about the product. These include photos and videos that show the engineer assembly instructions. Important assembly steps are shown in slow motion for better understanding. This helps engineers reduce set-up times and simplify initial installation.

The QR-code also simplifies the process for ordering spare parts for energy chains. Intuitive illustrations on the website help the engineer to understand the structure of the igus part numbers and to recognise different components. The compo-



Integrated directly into the e-chain, it offers the machine builder online information about the chain, including assembly instructions, or how to identify and order spare parts, with just a quick scan using a smartphone or tablet.

nents are dispatched for delivery from 24 to 48 hours later.

With a QR-code app and camera, all the necessary information about the respective e-chain can be easily and conveniently accessed via smartphone or tablet. Just try it with the QR-code in the picture.

*For more information, contact:*

*Harish Bhooshanan*

*Product Manager - E-ChainSystems®*

*igus® GmbH*

*ocyrus@igus.de , www.igus.de/del/presse*

## UPDATE

### BKT to build production facility in the US

Balkrishna Industries Ltd (BKT) has announced a US\$ 100-million construction project for a new production site to serve the US market as well as the entire American region. This new production site will be the multinational group's first manufacturing site outside of India.

Europe is presently BKT's largest sales market accounting for more than half of the company's overall turnover. Yet, the Americas are becoming an increasingly interesting and expanding market. The more than positive outlook led to the decision of establishing a new wholly-owned subsidiary company in the USA to set up a greenfield project for the construc-

tion of a new tire manufacturing plant in the USA designed for a yearly production capacity of about 20,000 MT in the entire Off-Highway tire segment. Target markets are both the replacement market and OEMs in the USA. The remaining tire demand will still be catered for directly from India.

The project for the construction of the US tire manufacturing plant providing for a total capital expenditure of approximately 100 million US dollars is presently at its initial stage. The company is looking for an appropriate terrain and land acquisition will take place by the end of the first quarter 2019. Project completion is expected by March 31, 2021.

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