

A Times Group publication

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

# THE MACHINIST

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*Journey  
Towards  
Excellence*

*India achieves greater heights  
in the aerospace industry*

Interview

Arvind Mehra

Executive Director & CEO  
Mahindra Aerospace

Automotive

Interview with

P. Kaniappan, MD  
WABCO India

Insight

Solar power  
makes future  
clean & bright

# CoroDrill® 870 – Exchangeable tip drills

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

## APPLICATION

- Optimized for steel, cast iron and stainless steel
- For pre-holes for taps and bolt holes
- Hole tolerance: H9 – H10
- Hole depths up to 10xD
- Hole diameter range: 10,00-33,00 mm
- Can be tailored for intermediate sizes



## Benefits with CoroDrill® 870

- Easy handling and secure tip changing while the tool is still in the holder reduces down time and increases process security
- High precision interface between drill body and tip for extra stability
- Safe cutting process with excellent chip control
- Low cost per hole and excellent hole quality

## Product range

### Drill bodies

Diameters with drill tip mounted mm (inch)	Shank type	Length (×DC)
10.00–33.00 (0.394–1.299)	Cylindrical with lat according to ISO 9766	3, 5, 8
10.00–26.99 (0.394–1.063)	Cylindrical with lat according to ISO 9766	10

### Drill tips

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

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- Boring
- Helical interpolation
- Plunging
- Radial adjusted drilling
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- Hole diameters:
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  - Tailor made up to 129 mm (5.078 inch)



## Benefits with CoroDrill® 880

- Up to 100% productivity increase
- Wiper geometry for excellent surface finish or higher feed possibilities
- Step technology for perfect cutting force balance
- Excellent chip control and evacuation

## New grades for reliable operations



P M K H

GC4344 produced with ZERTIVO™ technology

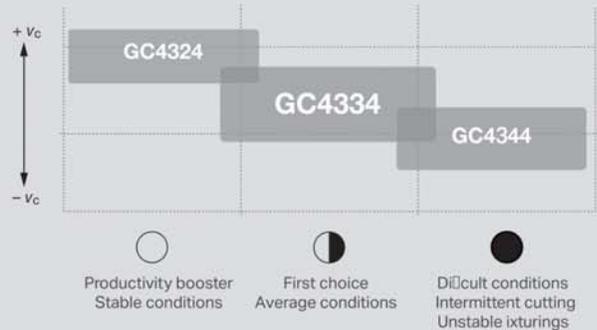
- Great edge-line security
- Reliable tool life and high wear resistance

More info [www.sandvik.coromant.com/zertivo](http://www.sandvik.coromant.com/zertivo)

GC4324 and 4334 with INVEIO™ coating

- Hard, wear-resistant against abrasive wear
- Improved crater and flank wear resistance

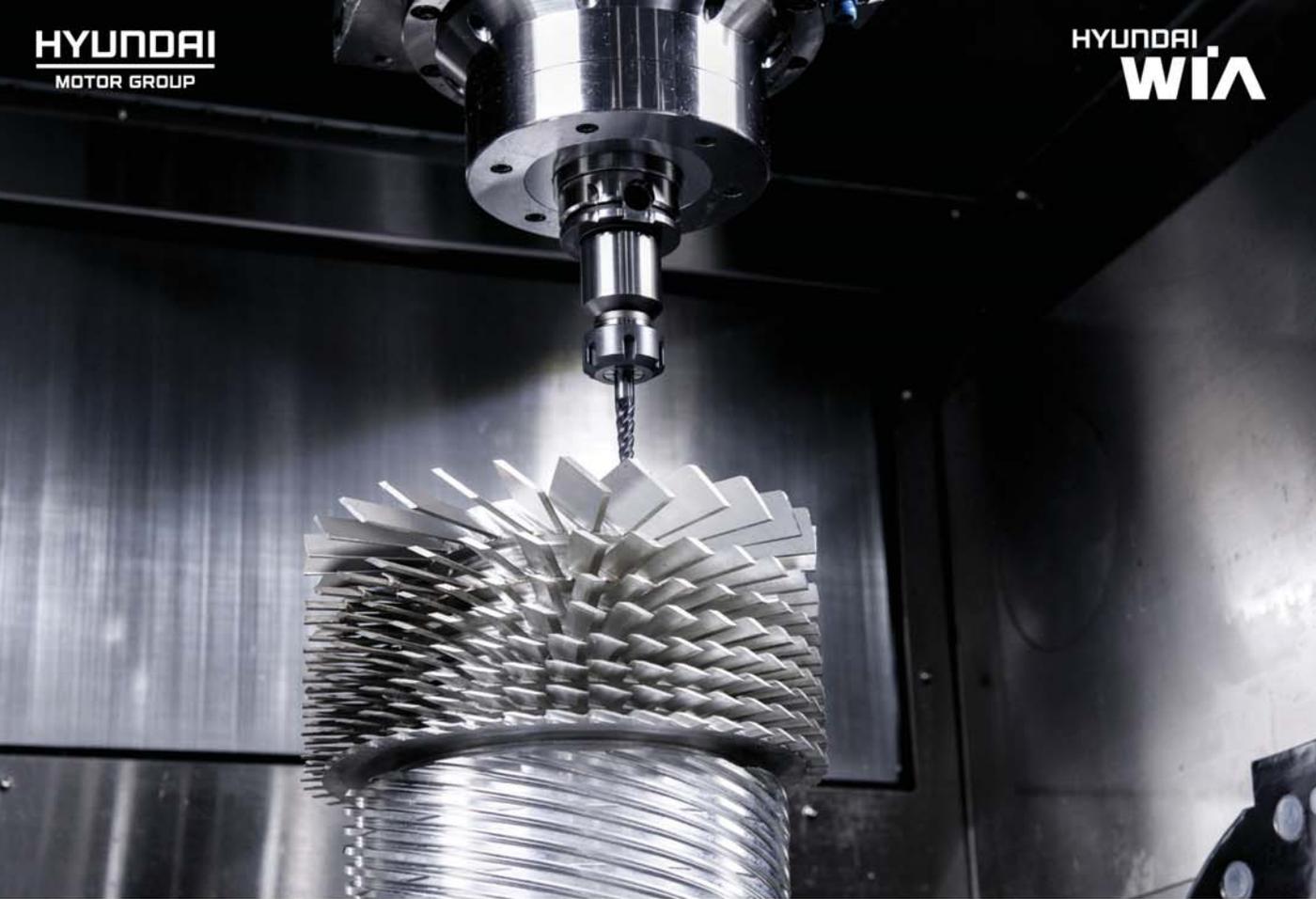
More info [www.sandvik.coromant.com/inveio](http://www.sandvik.coromant.com/inveio)



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

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## INSPIRATION In TECHNOLOGY - PROGRESSIVE TECH



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**XF6300** (Flexible Performance & state-of-the-art 5-Axis VMC)

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# EXPERIENCE nvu THE NEXT-GEN



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**PX Series nvu**  
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**VMC Performance Series nvu**  
CNC High Performance Vertical Machining Centers



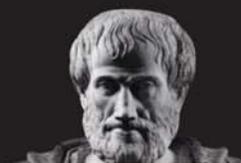
**KMILL Series nvu**  
CNC Bridge Type Vertical Machining Centers



**NX Series nvu**  
CNC Double Column Vertical Machining Centers



**K3X8 Five Series nvu**  
CNC 5-Axis Bridge Type Machining Centers



We are what we repeatedly do.

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

Aristotle



## Revival ahead!

see revival ahead. As per the Nikkei India Manufacturing Purchasing Managers' Index for November 2017, Indian manufacturing sector registered its strongest improvement in business conditions for 13 months. In fact, it recorded 'marked and accelerated increases in output and new orders'. Another good news is that Indian manufacturers also witnessed a renewed increase in new export orders. Importantly, due to larger production needs, job creation happened the fastest in November 2017 since September 2012.

Things surely are getting back on track. Also, Moody's upgrading the Government of India's local and foreign currency issuer ratings to Baa2 from

**"INDUSTRY IS NOW GETTING ACCLIMATISED TO THE GST CHANGES AND MANY ARE NOW ABLE TO ACTUALLY FORESEE THE BENEFITS THAT THIS TAXATION REFORM PROMISED TO BRING."**

Baa3 after 13 long years reflects the overall encouraging and conducive environment for business and economy in the country. Industry is now getting acclimatised to the GST changes and many are now able to actually foresee the benefits that this taxation reform promised to bring.

I met a machine manufacturer recently at his expanded manufacturing facility in a Tier 2 city in South India. Interestingly, about two years ago he decided to become a manufacturer inspired by the 'Make in India' campaign after being a trader for almost two decades. The fact that he has had to expand his facility to meet the growing demands shows that he has been successful in his venture. And he did mention that while GST caused some issues initially, manufacturers like him have started realising the benefits that this transformation entails. "It has opened up the market for us and expanded our customer base," he said. Well, that says it all. It's always good to be optimistic. And it's better when that optimism is rooted in facts and figures!

Editor & Chief Community Officer



Chief Executive Officer **Deepak Lamba**

Chief Financial Officer **Subramaniam S**

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

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

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

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

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

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

### ADVERTISING

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

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

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

### SUBSCRIPTIONS

subscriptions.rmd@timesgroup.com  
022 22733274 / 66354083

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## Unique geometry that minimizes chatter and vibrations.



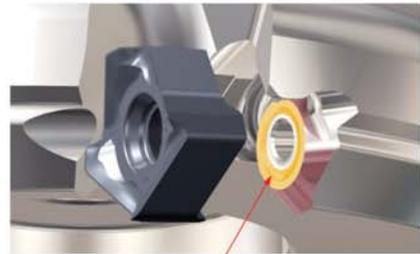
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Focus on cutting edge strength



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First recommendation for general applications. A good balance of edge strength and sharpness is provided by the optimized positive land and rake angle.



### Rbreaker

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### Hbreaker

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# NEWS

## Government of India and World Bank sign a US\$98 million loan agreement

**THE GOVERNMENT OF INDIA** and the World Bank recently signed a US\$98 million Loan Agreement and US\$2 million Grant Agreement to help India increase its power generation capacity through cleaner, renewable energy sources.

The Shared Infrastructure for Solar Parks Project will finance the Indian Renewable Energy Development Agency Limited (IREDA), to provide sub-loans to select states to invest in various solar parks, mostly under the Ministry of New and Renewable Energy's (MNRE) Solar Park Scheme. The first two solar parks to be supported under the project are in the Rewa and Mandasaur districts of Madhya Pradesh, with targeted installed capacities of 750 MW and 250 MW,



respectively. In addition, other states where potential solar parks could be supported under this project are in Odisha, Chhattisgarh and Haryana.

"The Government of India is committed to set-up an enabling environment for solar technology penetration in the country. This Project will help establish large-scale solar parks

and support the government's plan to install 100 gigawatts (GW) of solar power out of a total renewable-energy target of 175 GW by 2022," said Sameer Kumar Khare, Joint Secretary, Department of Economic Affairs, Ministry of Finance. "The use of this clean and green technology will also help contribute to global efforts to meet the challenges of climate change."

## Moody's upgrade India's rating to Baa2 from Baa3

**MOODY'S INVESTORS SERVICE ('MOODY'S')** has upgraded the Government of India's local and foreign currency issuer ratings to Baa2 from Baa3 and changed the outlook on the rating to stable from positive. India's rating has been upgraded after a period of 13 years. India's sovereign credit rating was last upgraded in January 2004 to Baa3 (from Ba1).

Government of India welcomes the upgrade and believes, as rightly noted by the Moody's that this is in recognition of major economic and institutional reforms undertaken by Government of India. These reforms include introduction of path breaking Goods

and Services Tax (GST); putting in place a sound monetary policy framework; measures taken to address recapitalisation of public sector banks and a number of measures taken to bring formalisation and digitalisation (The JAM agenda) in the economy - demonetization, the Aadhaar system of biometric accounts and targeted delivery of benefits through the Direct Benefit Transfer (DBT) system.

Moody's have also rightly recognized the Government's commitment to macro stability which has led to low inflation, declining deficit and prudent external balance and Government's fiscal consolidation programme which has resulted in a reduction of fiscal deficits from 4.5% of GDP in 2013-14 to 3.5% in 2016-17 and its consequential sobering impact on general government debt. Government intends to stay the course on fiscal consolidation in the medium term.

## ADB approves \$500 million facility to improve roads

**THE ASIAN DEVELOPMENT BANK'S (ADB)** Board of Directors has approved a multitranches financing facility (MFF) for the Second Rural Connectivity Investment Program totaling \$500 million to improve rural roads in five Indian states.

"All-weather roads are crucial for economic growth, especially in India's rural areas," said Andri Heriawan, an ADB Transport Specialist. "Building on the success of our previous assistance in the rural roads sector, ADB will work closely with the Government of India to provide the connectivity to improve rural communities' access to markets, health centers, education facilities, and other opportunities."

Rural roads are vital components of India's overall road network, comprising 80 percent of all paved roads in the country and connecting rural areas with major district roads, state roads, and national highways. Recognizing this, the investment program will construct and upgrade over 12,000 km of rural roads in the states of Assam, Chhattisgarh, Madhya Pradesh, Odisha, and West Bengal. It will also support the state governments to improve rural road maintenance and safety.

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# NEWS

## Virgin Hyperloop One signs Memorandum of Understanding with Karnataka

**VIRGIN HYPERLOOP** One recently announced its partnership with the Government of Karnataka to conduct its preliminary study to understand hyperloop's feasibility and economic impact in the region. The US-based company signed a Memorandum of Understanding (MoU) with the Karnataka Urban Development Department (KUDD) aimed at identifying potential routes to improve mobility in the Bengaluru metropolitan area and connect high growth cities such as Tumakuru, Hubli-Dharwad and Hosur within the state. This MoU sees promise in hyperloop following the recent announcements on the company's partnership with the Government of Maharashtra, the Government of Andhra Pradesh, and further expansion to other regions that are planned in India.

Virgin Hyperloop One's technology strongly aligns with India's planned industrial and economic corridors and will show potential promise in terms of transit-oriented develop-



ment to accelerate the country's economic growth. The company will be working with partners in the region and KUDD will help navigate the regulatory requirements and support the report with data. The preliminary study is intended to analyse the applicability and benefits of hyperloop technology, identifying high priority routes within the State based on demand analysis and socio-economic ben-

efits, and inform the Government of Karnataka in any future decision to progress to the full project stage.

"Bengaluru has been the IT hub of the country and all major giants have been functioning out of the region. The introduction of a technology like hyperloop will further add to the pace at which the state wants to grow," said Honorable Minister Priyank Karghe, ITBT & Tourism, Government of Karnataka. "We are happy to partner with Virgin Hyperloop One for its preliminary study in our region and we hope to bring out some concrete solutions for the state swiftly."

## GST implementation caused temporary slowdown : ASSOCHAM-EY Study

**AFTER ITS LAUNCH** in July 2017, there has been a temporary slowdown post implementation of Goods and Services Tax (GST) even though Government of India has ideated and implemented a number of initiatives to improve business conduciveness, noted a recent ASSOCHAM-EY joint study.

"But a consensus view is that India is poised towards a sustainable growth in the near future," stated the report titled, 'Ideate, Innovate, Implement: Invest in India,' jointly conducted by ASSOCHAM and EY.

It said that after GST implementation, with various inter-state check gates being removed and central sales tax (CST) not becoming a cost, inter-state movement of goods has smoothed.

The study also said that GST will have a significant impact on all aspects of businesses operating in the country including supply chain, sourcing and distribution decisions, inventory costs and cash flows, pricing policy, account-



ing and transactions management.

It further stated that GST will have an impact on prices agreed for contracts entered under pre-GST regime and proposed to be executed either partly or completely under post-GST regime.

"Also, introduction of GST should entail a reduction in overall process on account of reduced tax costs," it said.

The ASSOCHAM-EY report suggested that central and state governments need to work in tandem by executing investor friendly policies to further strengthen the investment prospects.

"The government is continuously focusing on improving the business en-

vironment in the country, but there is still significant scope to attract further investments," it said.

Highlighting that a complex legal framework makes investors wary of investing in an otherwise promising market, the study suggested that government must urgently carry out effective judicial reforms.

It also stated that factors like robust domestic consumption, investor-friendly strategies, skilled manpower, transparency in Government procedures and responsive policy making, with an immediate focus on effective implementation of reforms, will continue to position India as a preferred investment destination.

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• MARK YOUR DIARY •

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

<p><b>ArabiaMold Sharjah</b> December 11–14, 2017 Sharjah, UAE <a href="http://www.arabiamold.com/">http://www.arabiamold.com/</a></p>	<p><b>ExCon</b> December 12–16, 2017 BIEC, Bengaluru <a href="http://excon.in">http://excon.in</a></p>	<p><b>IMTEX 2018</b> January 25–30, 2018 BIEC, Bengaluru <a href="http://imtex.in">http://imtex.in</a></p>	<p><b>Auto Expo Components</b> February 8–11, 2018 New Delhi <a href="http://www.autoexpo.in">www.autoexpo.in</a></p>
<p><b>ELECRAMA</b> March 10–14, 2018 India Expo mart, Noida <a href="http://elecrama.com/">http://elecrama.com/</a></p>	<p><b>SIMTOS</b> April 03–07, 2018 Seoul, South Korea <a href="http://www.simtos.org">http://www.simtos.org</a></p>	<p><b>Die &amp; Mould India International Exhibition</b> April 11–14, 2018 Mumbai, India <a href="http://www.diemouldindia.org">www.diemouldindia.org</a></p>	<p><b>Hannover Messe</b> April 23–27, 2018 Hannover, Germany <a href="http://www.hannovermesse.de/home">www.hannovermesse.de/home</a></p>
<p><b>CeMAT</b> April 23–27, 2018 Hannover, Germany <a href="http://www.cemat.de/">http://www.cemat.de/</a></p>	<p><b>ACMEE</b> June 21–25, 2018 Chennai Trade Centre, Chennai <a href="http://www.acmee.in/">http://www.acmee.in/</a></p>	<p><b>AMTEX 2018</b> July 06–08, 2018 New Delhi, <a href="http://www.amtex-expo.com/amtex_delhi">http://www.amtex-expo.com/amtex_delhi</a></p>	<p><b>Busworld India 2018</b> August 29-31, 2018 Bengaluru <a href="https://india.busworld.org/">https://india.busworld.org/</a></p>

OUR INHOUSE UPCOMING EVENTS



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### AIRBUS NAMES **C. JEFFREY KNITTEL** NEW CHAIRMAN & CEO

Aerospace industry veteran C. Jeffrey Knittel, formerly both Chief Executive of C2 Aviation Capital and President of CIT Transportation Finance, will join Airbus early next year, taking the reins of the company's business in the Americas.

Knittel, who brings more than 25 years of global aerospace leadership experience to the position, will join the company at its Americas headquarters in Herndon, Virginia, on 12 January, 2018, as Airbus Americas Chairman and Chief Executive Officer.

Airbus Americas' current CEO, Barry Eccleston, announced that he will retire 28 February, 2018, following more than 12 years of service to Airbus. Allan McArtor, current Chairman of the Board for Airbus Americas since 2001, will remain with the company as Chairman Emeritus.



### **FELIX BRÄUTIGAM** APPOINTED CHIEF MARKETING OFFICER OF JLR

Jaguar Land Rover has announced the appointment of Felix Bräutigam as Chief Marketing Officer and member of the Board of Management. Bräutigam joins the business immediately but takes full responsibility on January 1, 2018, and reports directly to Dr Ralf Speth, Jaguar Land Rover Chief Executive Officer. Bräutigam replaces Gerd Mäuser, who is retiring from the business at the end of the year but will continue as Chairman of Jaguar Racing to lead next season's Formula E campaign.

Dr Speth said, "I am delighted to welcome Felix to the team. He will join Jaguar Land Rover at an exciting time as we aim to increase the success of our world-class brands with an even greater portfolio of new models designed to delight our customers, delivering experiences they will love for life.

"I would also like to thank Gerd Mäuser for his exemplary service to Jaguar Land Rover. He has presided over an unprecedented period of growth in our business, bringing consistency and creativity to our global marketing operations."

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

On January 1, 2018 Volker Hansen will become the new General Manager of Fleetboard GmbH, the world's most successful provider of connected services for commercial vehicles. In this position he also becomes Head of Digital Solutions & Services at Mercedes-Benz Trucks. Responsibility for both areas was previously held by Dr Daniela Gerd tom Markotten, who moved on to become General Manager of moovel GmbH on 1 November 2017.

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



### **STEFAN HANTKE** TO TAKE OVER AS GM OF SCHNEEBERGER GROUP

Effective January 1, 2018, Stefan Hantke (50) will take over the position of CEO of Schneeberger Holding AG. In his new position, Hantke will be Chairman of the management team of Schneeberger Group and will be responsible for the entire linear bearings, system technology and mineral casting production business. He is succeeding Dr. Hans-Martin Schneeberger, who will continue serving as Chairman of the Board of Directors of Schneeberger Holding AG. Hantke has more than 25 years experience in mechanical engineering, specifically in the area of bearings and linear technology. After completing his degree in mechanical engineering at the University of Applied Sciences for Engineering and Economics in Saarbrücken, Hantke started his professional career in 1992 with the Schaeffler Group in the INA Linear Application Technology division in Homberg. After holding several management positions within the Schaeffler Group and other companies, in 2005 he took over management of the linear technology business unit at Schaeffler for which he was responsible for all industrial business in North America for two years.

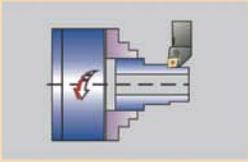
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SC-14  
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SC-25  
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## CNC Internal Grinding

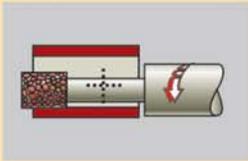


FIG-200 SPL CNC  
BIG BORE GRINDER

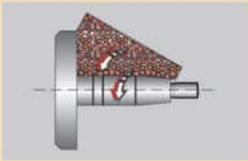


FIGT-300 CNC  
FOUR STATION TURRET



FIGE-150 CNC  
ID / OD GRINDER

## CNC Cylindrical Grinding



AWH-1500 CNC  
LONG SHAFT GRINDER

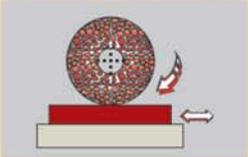


AWH-2000 CNC  
HEAVY DUTY GRINDER



SWH-400 CNC  
AUTO LOADING

## Surface Grinding



SG-106 CNC  
CREEP FEED GRINDER



SGR-60  
ROTARY GRINDER



SG-63  
HYDRAULIC / PLC

## Automats



A15/25

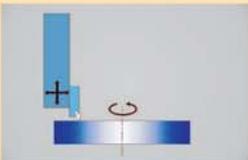


TD36  
AUTOLOADING



A42/60

## Vertical Turning Lathe



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1.5 M



VC - 75C  
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## Aerospace giants' partnership launches hybrid-electric flight demonstrator

**A**irbus, Rolls-Royce, and Siemens have formed a partnership, which aims at developing a near-term flight demonstrator which will be a significant step forward in hybrid-electric propulsion for commercial aircraft.

The three companies together announced the groundbreaking collaboration, bringing together some of the world's foremost experts in electrical and propulsion technologies, at the Royal Aeronautical Society in London.

The E-Fan X hybrid-electric technology demonstrator is anticipated to fly in 2020 following a comprehensive ground test campaign, provisionally on a BAe 146 flying testbed, with one of the aircraft's four gas turbine engines replaced by a two megawatt electric motor. Provisions will be made to replace a second gas turbine



with an electric motor once system maturity has been proven.

## Airbus to retrofit 14 A380 aircrafts of Singapore Airlines



**A**irbus has been selected by Singapore Airlines (SIA) to provide cabin retrofit services for 14 A380 aircraft currently in service with the carrier. The retrofit programme, which will be undertaken at SIA Engineering Company in Singapore, will see the airline's recently launched cabin products installed on the aircraft. The new cabin products will debut on five new A380s to be delivered this year and next year.

Under the agreement, Services by Airbus will be responsible for Service Bulletin (SB) and aircraft cabin parts-kit delivery. Its teams will also contribute their A380 design knowledge and engineering expertise to integrate SIA's customised cabin fittings into the A380's spacious double-deck interior. The retrofit work is expected to start in late 2018, with all 14 aircraft scheduled for completion by 2020.

Singapore Airlines' new A380 cabin offers more personal space in all classes. The aircraft will accommodate a total of 471 passengers, with six private Suites and 78 Business Class seats on the upper deck and 44 Premium Economy Class and 343 Economy Class seats on the main deck.

## Rolls-Royce accelerates digital transformation with TCS

**R**olls-Royce and Tata Consultancy Services (TCS) have expanded their long-standing partnership in order to exploit future data innovation opportunities. The partnership will help Rolls-Royce to accelerate its digital transformation, deliver further value to customers, improve existing services and create new areas of growth.

As part of this agreement, TCS – a leading provider of IT services, consulting and business solutions – will provide digital platform capability, allowing data to be captured, shared and analysed more easily across Rolls-Royce, so that new products and services can be developed at pace. This will enable Rolls-Royce to use data to innovate within all of its businesses and collaborate more effectively with partners and customers.

Neil Crockett, Rolls-Royce, Chief Digital Officer, said: "This is an example of how we intend to unleash data innovation through collaboration. TCS is an outstanding partner with excellent experience in delivering a flexible and agile platform capability across many different markets. We expect to be able to realise both short-term and long-term benefits through collaboration with partners and customers on the TCS IoT Platform. It will allow us to take advantage of fast-paced data innovation – including accelerating our application of industrial artificial intelligence – and a range of other cutting edge breakthrough opportunities."

Rolls-Royce already has more than 20 years of experience in combining its engineering expertise with data analytics, in order to offer operational efficiencies to airline customers. Building on these foundations, alongside progress in many areas of the business, Rolls-Royce is expanding its digital capabilities to deliver increased value from existing services and introduce new services to customers across the group.

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## Bombardier and CemAir sign order for two new Q400 aircraft

**B**ombardier Commercial Aircraft announced today that CemAir (PTY) Ltd of South Africa has concluded a firm purchase agreement for two new Q400 turboprops, and has also signed the lease of a used Q400 aircraft that was delivered this month, paving the way for the new aircraft to be delivered afterwards. The letter of Intent (LOI) from CemAir, which was signed on June 21 at the 2017 Paris Air Show, has now been converted into a firm order.

Based on the list price of the Q400 aircraft, the firm order is valued at approximately \$66 million US.

“We are delighted that CemAir has selected the Q400

aircraft to expand its fleet”, said Jean-Paul Boutibou, Vice President, Sales, Middle-East and Africa at Bombardier Commercial Aircraft. “The Q400 is the next natural step in the growth of CemAir’s fleet of Bombardier CRJ Series and Q Series aircraft, as it brings more flexibility to increase the capacity on key routes while their aircraft’s superior performance and unbeatable economics support CemAir’s growing market position against competitive forces. The Q400 will open several market opportunities to CemAir on domestic and future regional routes.”

## Maini Precision inaugurates new aerospace facility

**M**aini Precision Products (MPP) has recently inaugurated its new dedicated aerospace manufacturing plant at Bommasandra Industrial Estate, Bengaluru. The 60,000 sqft large facility was inaugurated by R V Deshpande, Minister for Medium and Heavy Industries, Government of Karnataka. MPP’s concentration is building up in three verticals of aerospace – Engines, Structures, and Systems. This demanded that the company have a much larger factory to accommodate their growth trajectory. For customer partners too, it was essential that they be able to visualise and have confidence that the company had assigned an exclusive aerospace unit to meet the long-term programmes and requirements of its partners. The facility that originally housed Maini Materials Movement (MMM) and subsequently Reva Electric Car Company has been completely renovated with additions at a cost of INR 7 crore comprising an area of office and factory of 60,000 sqft. Earthwork has started on Phase 2 and will be completed by June 2018 with an additional 40,000 sqft. This will create a base for the aerospace division to grow on an exponential basis to at least 400 percent from the current level it is at,” said Gautam Maini, MD, Maini Precision Products.

## Global Aerospace Data Recorders Market 2017-2025 - Market to Reach \$2.37 Billion

**R**esearch and Markets recently added a report on the ‘Aerospace Data Recorders Market 2025 - Global Analysis and Forecasts by Types (Cockpit Voice Recorder, Flight Data Recorder, Data Loggers, Quick Access Recorder); & Application (Commercial Aircrafts, Military Aircrafts)’

The global aerospace data recorder market is anticipated to surge over the period from 2017 to 2025 at a CAGR of 5.8% to account for US\$ 2379.5 million as compared to US\$ 1460.9 million in 2016.

The report segments the market on basis of types, application and geographical locations. The various types of aerospace data recorders are cockpit voice recorders, flight data recorders, data loggers and quick access recorders. Based on application, the market for aerospace data recorders is bifurcated as commercial aircrafts and military aircrafts.

The flight data recorder held the largest market share in aerospace data recorders in 2016, while the cockpit voice recorder segment is expected to be the fastest growing type segment during the forecast period from 2017 to 2025. The rising demand for recording every details of pilot’s conversation with the first office, air traffic controls, on board crews in order to fetch maximum data from the recorders during any investigation, the manufacturers are integrating cockpit voice recorders with enhanced technologies. This is leading to more procurement of enhanced cockpit voice recorders, as a result, the segment is estimated to be the fastest growing type segment.

## Brahmos flight-tests missile from Indian Air Force's aircraft - Sukhoi-30MKI

**F**or the first time, Brahmos successfully flight-tested a missile from the Indian Air Force’s (IAF) frontline fighter aircraft Sukhoi-30MKI against a sea based target in the Bay of Bengal. The missile was gravity dropped from the Su-30 from fuselage, and the two stage missile’s engine fired up and straightway propelled towards the intended target at the sea in Bay of Bengal. The successful maiden test firing of Brahmos Air Launched Cruise Missile (ALCM) from

Su-30MKI will significantly bolster the IAF’s air combat operations capability from stand-off ranges. Brahmos ALCM weighing 2.5 ton is the heaviest weapon to be deployed on India’s Su-30 fighter aircraft modified by HAL to carry weapons. Brahmos, the world-class weapon, is now capable of being launched from Land, Sea and Air, completing the tactical cruise missile triad for India. Brahmos is a joint venture between DRDO of India and NPOM of Russia.

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# Long-term player

After spending nearly two years in customer approvals and First Articles, Mahindra Aerospace's emphasis now is on serial production efficiencies and meeting demanding customer requirements for on-time delivery and quality, says **Arvind Mehra**, its Executive Director and CEO

By Niranjan Mudholkar

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

Mahindra Aerospace was formed in 2008 to lead the Group into the global aerospace manufacturing industry. In line with the Government's initiatives to increase private sector role in this sector, we entered two domains – utility aircraft and aerostructures.

The aircraft business is based in Australia and we have more than 200 of our 8-seat aircraft (Airvan 8) in service worldwide. We have also gained type certification for our new 10-seat turboprop aircraft (Airvan 10) this year.

In aerostructures, we inaugurated a modern greenfield facility in Bangalore in late 2013 and gained AS9100 and numerous customer approvals in 2014. Commercial deliveries started in 2015. We are thrilled that in this short time we could become a Tier 1 to both major global aircraft OEMs. We are also honoured to have the support and confidence of our customer base which includes respected global Tier 1s.

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

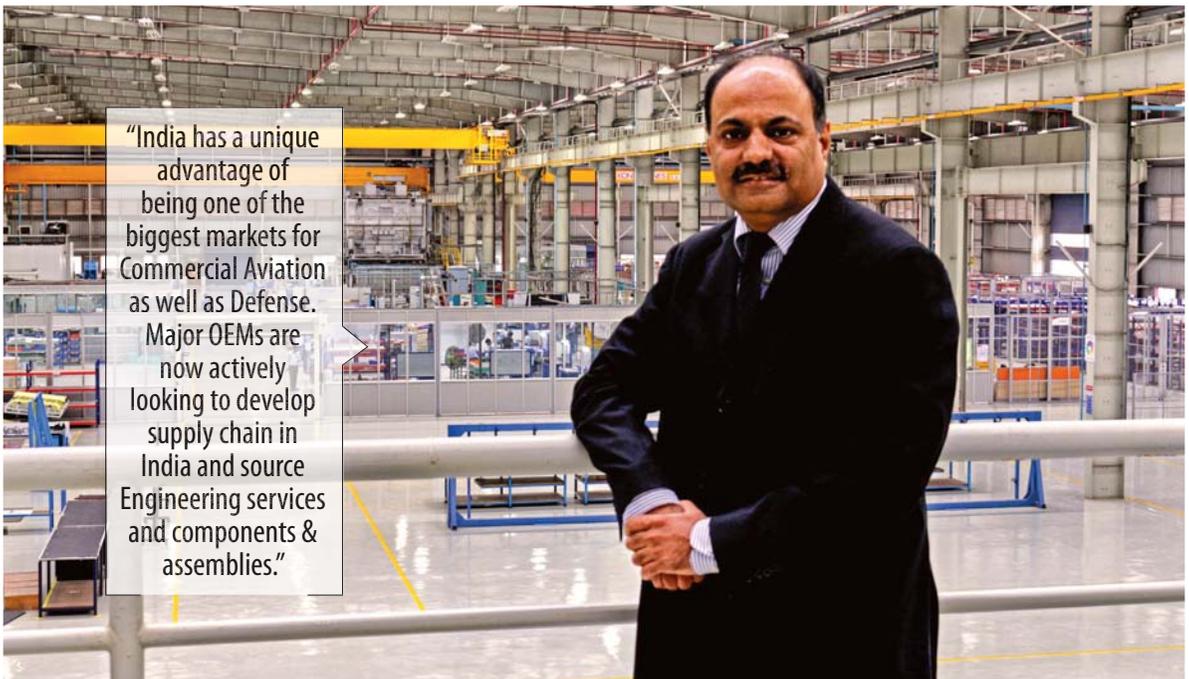
**next two years?**

We are in the early growth phase in aerostructures. After spending nearly two years in customer approvals and First Articles, our emphasis now is on serial production efficiencies and meeting demanding customer requirements for on-time delivery and quality. On the aircraft side – we are focusing on launching the Airvan 10 and will continue to develop new features for the Airvan 8 in line with customer desires.

**Q Tell us about your overall manufacturing capabilities and capacities**

Our aerostructures facility in Bangalore consists of a 25,000 sq m factory building with a component shop, an automated surface treatment line, two paint bays and dedicated assembly space. The component shop can handle Aluminium, Titanium and aerospace Steels and includes some niche capabilities like CNC laser-cutting, stretch forming and hydroforming. The surface treatment shop has large tanks for three types of anodizing as well as alodining and passivation. We also produce assemblies for the Airvan 8 which we ship to our sister concern in Australia.

The aircraft manufacturing business is assembling Airvan 8 and Airvan 10 aircraft. It is equipped with multiple assembly



"India has a unique advantage of being one of the biggest markets for Commercial Aviation as well as Defense. Major OEMs are now actively looking to develop supply chain in India and source Engineering services and components & assemblies."



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work cells, engine and system integration capabilities, paint shop, and a prototype shop.

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

Finding the right talent is certainly one of the primary challenges in both our businesses. Hence, we are investing in human resources and skill development. We partnered with a large Tier 1 for on-the-job training of the core team at their Europe and American facilities. These trained persons then became the nucleus of operations and developed our QMS and processes in India. For subsequent growth we have identi-

**Key highlights in 2017**

- As per an MoU signed at the Paris Air Show, Elbit Systems–Cyclone of Israel will source content for their existing work packages from Mahindra, and the two companies will also team up on new work opportunities, leveraging each other's strengths, capacities and capabilities.
- Airbus Helicopters has awarded a contract to Mahindra Aerostructures to make airframe parts for the AS565 MBe Panther.
- Mahindra Aerospace AIRVAN 10 has been awarded its FAR 23 Type Certificate from the Australian Civil Aviation Safety Authority, which was followed, by the US Type Certificate being issued by the Federal Aviation Administration.
- Saab has awarded a long-term contract to Mahindra Aerostructures for the supply of sheet metal components for Airbus door assemblies. The components include skins and detail parts that will be produced by Mahindra in their facility near Bengaluru. The parts will be shipped to Saab facilities in Sweden for integration into door assemblies for the single-aisle program.
- Signed MoU with France-based Segnere SAS to collaborate on airframe manufacturing opportunities and to support each other's growth in capabilities to meet changing requirements for the global aerospace market.

**“Our aerostructures facility in Bangalore consists of a 25,000 sq m factory building with a component shop, an automated surface treatment line, two paint bays and dedicated assembly space.”**

fied specific technical institutes and universities in India to attract capable youngsters, and have initiated an onsite training school with subject matter experts to tutor them in industry-specific requirements.

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

We have signed multiple strategic partnerships with reputed Tier 1s and Tier 2s in Europe and elsewhere to partner on specific opportunities, especially for aerospace assemblies.

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

It is an excellent policy initiative to spur growth in this niche manufacturing sector. India needs to build a robust ecosystem for aerospace if it has to evolve to the next level in this segment. Companies will have to invest in creating capability, take advantage of this proactive policy by Government but most importantly be ready to invest for long-term.

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

We believe that there is a great potential for Indian Aerospace sector to grow in coming years. India has a unique advantage of being one of the biggest markets for Commercial Aviation as well as Defense. Major OEMs are now actively looking to develop supply chain in India and source Engineering services as well as components & assemblies. Driven by the Make in India initiative and powered by State Govt. support, we see potential for growth.

**Q How do you see Mahindra Aerospace evolving in the next five years?**

We are committed to grow in Aerospace and have been consistently investing on growing our products and capabilities. In aerostructures - our aspiration is to complete our ongoing ramp-up on detail parts and small assemblies, then expand into larger assemblies and aerostructures. For this we will build partnering models with established expertise in areas like complex machining and composites. The goal is to integrate India into the global supply chain and cater to multiple product lines.

In our Utility Aircraft business, we will launch our new turboprop Airvan 10, and want to expand our market share. We are keenly interested in India's air-connectivity solutions and will also revisit the Twin-Turboprop Utility aircraft business case. 

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# On the rise!

The Indian manufacturing sector recorded its strongest improvement in business conditions for 13 months, recording marked and accelerated increases in output and new orders.

**T**he Indian manufacturing sector recorded its strongest improvement in business conditions for 13 months, recording marked and accelerated increases in output and new orders. Furthermore, manufacturing companies observed a renewed increase in new export orders during November. On the job front, greater production requirements led to the fastest rate of employment creation since September 2012. Meanwhile, there was a pick-up in inflationary pressures, with input costs increasing to the greatest extent since April.

At 52.6 in November, the Nikkei India Manufacturing Purchasing Managers' Index (PMI) rose from 50.3 in October. This indicated a substantial improvement of operating conditions in India's manufacturing sector. At the broad market group level, growth in consumer and intermediate goods offset a marginal deterioration in investment goods category.

The upward movement in the headline index was driven by a marked increase in output. Furthermore, the rate of ex-

**"On the job front, greater production requirements led to the fastest rate of employment creation since September 2012."**

pansion quickened to the strongest since October 2016. A combination of higher order book volumes and a decrease in GST rates reportedly contributed to greater production. That said, the rate of growth remained weaker than the trend seen since the inception of the survey in March 2005.

Following the negligible decline in the prior month, new orders increased in November. Although weaker than the long-run average, the rate of growth accelerated to the fastest in 13 months. The only market groups category to not record a rise in new work was capital goods, as was the case with output.

At the same time, overall new export orders increased for the first time in three months, albeit marginally. It was a positive picture for factory employment in November, with manufacturers raising their payroll numbers at the sharpest rate since September 2012. Panellists commented on greater inflows of new work. All three monitored broad categories reg-



istered expansions, led by intermediate goods. Amid reports of delayed payments by clients, outstanding business rose in November. That said, the rate of growth was marginal. Manufacturers attempted to replenish their input stocks by purchasing greater quantities of raw materials and semi-finished items in November. That said, the overall rate of growth was modest and below the long-run series average. Meanwhile, pre-production inventories declined for the fifth consecutive month in November. On the price front, input cost inflation quickened to the fastest since April and was solid overall. Among the items reported as being up in price were chemicals, steel and petroleum products. While input prices rose at a stronger pace, the rate of output charge inflation was marginal. Anecdotal evidence indicated that firms were unable to fully pass on higher cost burdens to customers amid intensive competitive conditions.

Commenting on the Indian Manufacturing PMI survey data, Aashna Dodhia, Economist at HIS Markit and author of the report, said: "India's manufacturing economy advanced on its path to recovery as disruptions from the recent tax reform (GST) continues to diminish. Growth in output and new orders picked up to the fastest since October 2016, reportedly supported by reductions in GST rates and stronger underlying demand conditions. Nevertheless, the headline PMI remained below the average seen since the inception of the survey in March 2005. "Stronger factory production levels translated into the fastest rate of employment creation since September 2012. Meanwhile, export growth rose for the first time in three months as overseas demand for Indian goods improved. "Underlying data indicated that the central bank is less likely to adopt an accommodative stance as input cost inflation intensified to the fastest since April. At the same time, firms were unable to fully pass on higher cost burdens to price-sensitive clients. "The current phase of expansion led to business sentiment picking up as growth momentum seems likely to continue over the near-term." 

Sources: Nikkei, IHS Markit

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# Driving into the future

P Kaniappan, Managing Director, WABCO India speaks to The Machinist about industry trends and the company's plans for the market.

By Swati Deshpande

**Q How do you look at the Indian market? From WABCO's perspective, what is the significance of Indian market?**

We are very positive about the Indian market from a long-term perspective as it has emerged as the global hub for auto component sourcing today. Various government initiatives and policies such as Automotive Mission Plan 2016-26, renewed and focused approach to R&D have helped the auto-component industry achieve considerable growth over the years. Government's drive towards improving road infrastructure across the country, implementation of BSIV norms, Smart City initiative, Make in India initiative and many other such measures makes India an interesting place to be in now.

The Commercial Vehicle market has seen a rebound and started to grow rapidly in the last couple of months. Higher localization by OEMs and growing infrastructure along with adoption of new age technologies has opened up a wider market for companies like WABCO India. We continue to expand our capacity keeping in mind the tremendous scope India offers today. Today, WABCO India has emerged as the second pillar for WABCO with its five world class manufacturing facilities spread across India and global software development centre in Chennai.

**Q As the Indian automotive industry is changing, how do you plan to align yourself with the new norms and regulations?**

OEMs are working towards making vehicles more energy and fuel-efficient. Taking a cue from which, WABCO has adapted smoothly to the changing dynamics and evolved technologically to be prepared for any situation/trend in the automotive industry.

WABCO has been the pioneer and innovator of futuristic vehicle technologies and solutions for OEMs and fleet owners. The mission of the company has always been to develop competitive products that ensures safety, efficiency and connectivity of the commercial vehicles. WABCO leverages WABCO India's frugal engineering practices and lean manufacturing processes to jointly develop products which are globally competitive and cost effective.

Moreover, the new norms and regulations have paved way for more adoption and great acceptance of WABCO's technologies by the Indian OEMs. Some of the key products that WABCO India has been focusing on to enhance safety, efficiency and connectivity of commercial vehicles include:

Anti-Lock Braking Systems (ABS) is the first electronic system fitted in Indian trucks that monitors and controls wheel speed during braking. It helps steering control and vehicle stability during braking manoeuvres and is engineered to fulfil the braking legislations for commercial vehicles globally.

WABCO Automated Manual Transmission – (OptiDrive) is a modular transmission automation technology that is easily adaptable to a wide range of existing manual gearboxes. It relieves the driver fatigue of gear shifting operations and ensures appropriate gearing according to the traffic condition thereby resulting in better fuel efficiency of up to five percent.

WABCO India has also introduced Air



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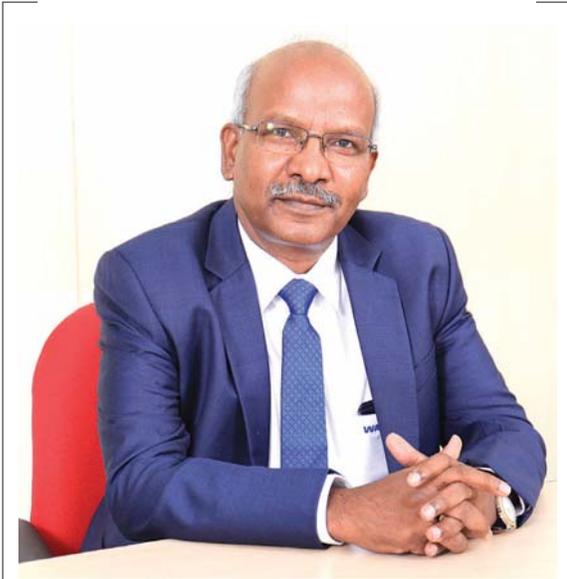
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Government's drive towards improving road infrastructure across the country, implementation of BSIV norms, Smart City initiative, Make in India initiative and many other such measures makes India an interesting place to be in now.

Disc Brake (ADB) recently and is testing it with OEMs in India. ADB is lighter and capable of significant weight reduction and a 10 percent gain in the braking distance. We soon plan to localize ADB in India.

WABCO India has plans of introducing products revolving around Advanced Driver Assistance Systems (ADAS) like Advanced Emergency Braking System (AEBS) in the future.

**Q Please tell us about 'Electronic Stability Control (ESCsmart) technology for trucks and buses that was launched by the company recently in India.**

WABCO India launched ESCsmart in October 2017 with Tata Motors at our Chennai test track. With this launch, Tata Motors became the first OEM in India to deploy WABCO's ESCsmart technology on their range of Prima trucks. WABCO's ESCsmart functionality builds on WABCO's industry-leading Anti-lock Braking System (ABS) and Electronic Braking System (EBS) platforms. It is an active safety system that monitors the roll and directional stability of vehicles. The system can automatically intervene, independent of the driver, when a high risk of instability is detected, thus helping to reduce the probability of accidents particularly associated with rollover, skidding and jack knifing. WABCO has pioneered ESC for commercial vehicles since 2001 and has sold more than one million ESC systems since its introduction.

WABCO's ESCsmart system offers two features namely -

YAW Control for low friction surfaces and Roll Stability Control for high friction surfaces.

YAW Control captures movement of vehicle around vertical axis and prevents oversteering / understeering (vehicle spin) by reducing vehicle speed and correcting direction by means of independent wheel braking.

Roll Stability Control captures vehicle roll around longitudinal axis and prevents vehicle roll over by reducing driving torque via engine control and service brake activation.

ESCsmart is the commercial vehicle industry's first and most efficient technology to homologate ESC, saving significant time and effort for truck and bus manufacturers. It increases vehicle stability during manoeuvres such as turning corners and changing lanes. It detects the likelihood of tilting / rolling / swerving and jack-knifing during normal driving (in commercial vehicles with a high centre of gravity and weight). It has been designed to adapt to changing vehicle load characteristics and delivers outstanding control quality.

It is easily applicable to a wide range of vehicles/platforms and offers significant savings on logistic costs by reducing parts inventory.

**Q WABCO has recently acquired AssetTrackr in India. How will it complement WABCO's business?**

WABCO aims to be a leading solution provider in the connectivity space and as part of this, it acquired AssetTrackr. With this acquisition, WABCO will be further able to enhance its Fleet Management Solutions. The company will link AssetTrackr's local market and systems expertise with its own telematics solutions and look to combine the Vehicle Tracking System (VTS) with AssetTrackr's portfolio. This acquisition presents a huge opportunity for WABCO to integrate analytics and optimize telematics capabilities for fleet operators and provide a much more robust Fleet Management Solutions in the country.

WABCO will continue to leverage the rich pool of entrepreneurial talent, digital expertise and local development capability to advance the growth of its fleet management solutions business in India and across other markets worldwide. We feel that the integration of comprehensive real-time data gathered from WABCO's advanced on board systems with AssetTrackr's innovative asset tracking, analytics and optimization services will help fleet operators to drive operational efficiency and vehicle safety in India and in other rapidly developing markets worldwide.

**Q Globally, energy efficiency and light-weighting are key trends in the automotive industry. In this regard, how does WABCO help OEMs to make energy efficient and lighter vehicles?**

OEMs are working towards making vehicles more energy and fuel-efficient. Taking a cue from which, WABCO has adapted smoothly to the changing dynamics and evolved technologically to be prepared for any situation/trend in the



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In tune with the same, WABCO recently introduced 360-degree sensor detection as well as expanded breakthrough modular braking system platform to provide yet another advanced functionality.

automotive industry.

For example, the Air Compressors from WABCO are air system solutions that are engineered for optimised performance with less energy consumption.

Light-weighting is another important aspect in the transportation sector. In order to address the Light weighting demands, WABCO offers PAN range of Air Disc Brakes (ADB) for commercial vehicles that not only improves the braking performance of the vehicle but also offers significant weight reduction. WABCO's PAN range of ADBs adapts patented single piston technology with optimized construction that helps to reduce weight by up to 25 kg per wheel for Heavy Duty vehicles. WABCO's PAN range of ADBs are light in weight as compared to competition. WABCO plans to localize ADB in India to make it cost competitive.

WABCO's door control system MTS2 is a modular door control system for buses. MTS2 system is an Electronic Control Unit (ECU) based door control system loaded with all safety features that meets global and Indian regulations. The system has lesser parts using one door control valve, which is integrated with all features. This reduces the number of joints thereby, eliminating air leakage in the system, which in turn helps to reduce air compressor duty cycle.

WABCO has developed and introduced a new range of Air processing system called Air Processing and Distribution Assembly (APDA). This comprises of one device, which does the function of Oil Separation, Drying, Regeneration, Pressure regulation and Distribution of air to the brake system of the vehicle. As compared to the Drying and Distribution unit (DDU) offered today by WABCO for Air processing, APDA comes with added features without increasing the weight. The system is more compact and offers robust performance across all vehicle platforms. It also has the option of additional filters called Air System Protector (ASP) filters that helps to remove oil / aerosol content completely from compressed air delivered

to the brake system.

MTS2 and APDA are yet to be launched by WABCO in the Indian market.

**What are the other key trends in the automotive market at the global level?**

Some of the emerging global trends, which will have a far-reaching impact on the auto industry, are:

- Autonomous driving or self-driving vehicles,
- Connected vehicles which talk to each other
- Advent of electric vehicles

Additionally, the digital transformation in the automotive market will meet the growing customer needs and transform the experience for fleet owners and commercial vehicle manufacturers. Digitization will reduce the costs across the supply chain and will allow manufacturers to collect data and gauge customer behaviour to make it better. The Internet of Things (IoT) will make it easier for automotive companies to monitor data constantly, improve the maintenance of a vehicle and enhance the efficiency of the products. Companies will look to take giant strides towards achieving better performance, robust systems and maintain a steady line of communication between the company and its OEMs.

**Autonomous driving, connected cars are some of the upcoming trends. What efforts is the company taking to keep up with the trends?**

WABCO has been at the forefront of developing products for autonomous driving of commercial vehicles through its industry-leading safety and efficiency-enabling technologies such as electronic braking, electronic stability control, air disc brakes, adaptive cruise control, collision mitigation and avoidance, lane departure warning, blind spot detection, modular braking system platform, advanced emergency braking, manual transmission automation, electronically controlled air suspension and intelligent air management, among other breakthroughs.

In tune with the same, WABCO recently introduced 360-degree sensor detection as well as expanded breakthrough modular braking system platform to provide yet another advanced functionality. The company has also added new capabilities for vehicle control, adding to the recently announced industry-first evasive manoeuvre assist that is developed jointly by WABCO and ZF and connects active steering with active braking.

**Also, the world is moving towards embracing e-vehicles. How will this transformation affect your business and how do you plan to gear up for the same?**

Air assisted systems will be needed in electric vehicles, so our range of air related products will continue to be relevant in the future. We have products like Electronic Braking System (EBS) for e-vehicles. We will continue to anticipate the evolving trends and develop products and systems that will meet future needs of customers.

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# Well-cooked success!

The cookware market is exploding with innovation, need for enhanced convenience in the household is driving the rapidly growing demand, says **Sunil Agrawal**, Director - Vinod Cookware.

By **Niranjan Mudholkar**

**Q Vinod Cookware was established in the year 1986 with a single product. How's been the journey since then and are you satisfied with it?**

Vinod Cookware has been in the market for more than two decades. It was set up with a vision to mitigate the daily struggle and challenges faced by housewives in traditional Indian Kitchens. Determined to provide innovative kitchen solutions, our products help to uplift the methods of working in a kitchen, which has helped us to build an instant connect with homemakers of all ages. Today, after a decade's experience and with a repertoire of over 400 products spread across four different categories, Vinod Cookware is established as one of the most preferred names in Indian as well as global markets. We have been successful in striking the right chord with consumers and are one of the most desirable brands in the cookware industry, standing strong at number three position in the country. Our devotion towards revolutionising kitchens, with quality

and innovative products, continues and we at Vinod firmly believe in 'Jo bhi ho Khana, Vinod mein hi Pakana'.

Indeed, the journey is the most satisfying not just to us but also to the consumers who have bought an entire bouquet of products in their kitchens with the latest in technology, longer life span and affordable prices. At every step, there has been a learning not just for technology and innovation but also with regards to adaptation to changing consumer preferences. We challenge you -There won't be a single Home without Vinod Cookware!

**Q How has the industry and the market evolved over the same time?**

Cookware industry in India has received a major boom in the scenario and is fast growing. The industry is pegged to grow at around 21 percent; some of the key drivers which shall build the segment can be understood as follows. The cookware market is exploding with innovation, need for enhanced convenience in

*"Notably, Vinod Cookware is a debt-free company, with strong reserves, which enables it to expand organically and inorganically. With a big manufacturing unit in Palghar spread over seven acres (near Mumbai), Vinod Cookware has been growing steady and strong."*

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“Fuelling the needs, we recently have bought land in Gujarat and are currently working aggressively on its set up. Our current capacity at the plant holds 6000 metric tonnes and we intend to revise the figures very soon.”

the household is driving the rapidly growing demand. The increased purchasing power and evolving lifestyle has made the market extremely attractive. Due to high degree of urbanisation, proliferation of nuclear families and technological advancement, there have been far-reaching changes in the nature of cookware products, overall the Indian markets have evolved over the years. All these factors combined builds a humongous potential for the market along with infinite opportunities to expand and serve numerous consumers.

Technological advancements in any particular field too plays a vital role for its survival and cookware industry is no different. Technology has played an essential role helping us reach beyond the conventional boundaries.

With every passing era, there are new set of products making an entry in the market. It all started with Non-stick cookware and fifty years later, the cookware market furthermore keeps on developing. To summarize, the cookware industry has become more like the technology market. Every now and then there is a new innovation, a new update or a new launch seeking public attention at its best, expanding the industry as never before.

**How does your product portfolio look today?**

We have the right product mix addressing the diversified and dynamic needs. Accepting the pulse of the modern Indian kitchens we have intro-

duced a whole new categories and products. Some of the key mentions here includes our very recent launches Platinum and Ultimate Cookware sets. Our Platinum Cookware is one of the most path breaking products not just at Vinod Cookware but also for the Indian Kitchens. Our ‘Platinum Series’ - a testament to the modern Kitchens, with three-layer construction. First layer is a coat of SS304 Food Grade Stainless Steel; second is an aluminium core for even, consistent heating and the third layer is SS430 Magnetic Stainless Steel which is specially designed for both the home and industrial kitchens as it is induction friendly. Next being Ultimate Cookware, India’s first Cold forged technology blending Indian cooking methods and keeping it in priority.

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

We tend to launch around 2-3 Products in a Quarter. The frequency of our launches varies. I can’t be specific but generally it is defined by the ongoing festivity too. In terms of our newest launches we have the ‘Platinum Cookware’ one of the first in India with Triple layered construction, superior food grade 18/8 stainless and SS 430 magnetic stainless steel supports Induction cooking. Platinum is designed three times more energy efficient than cast iron. With Vinod Platinum experience the ease of fast and stress-free cooking is here. The next being Ultimate Cookware set. Appealing to the eye, this

“Technological advancements in any particular field too plays a vital role for its survival and cookware industry is no different. Technology has played an essential role helping us reach beyond the conventional boundaries.”





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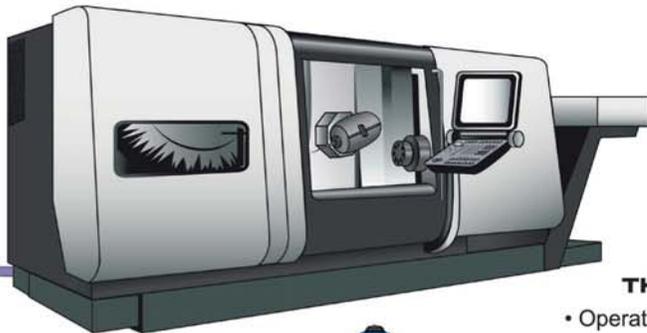


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“A market leader in its core business, Vinod Cookware has seen no slow down and is well placed to overcome the industry pressure making it the only company showing a steady growth as compared to a de-growth for the industry.”

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**Q Obviously, you have a big focus on innovation. Tell us about your R&D activities and infrastructure.**

A market leader in its core business, Vinod Cookware has seen no slow down and is well placed to overcome the industry pressure making it the only company showing a steady growth as compared to a de-growth for the industry. Notably, Vinod Cookware is a debt-free company, with strong reserves, which enables it to expand organically and inorganically. With a big manufacturing unit in Palghar spread over seven acres (near Mumbai), Vinod Cookware has been growing steady and strong. Our R&D Team is focussed on changing consumption patterns, new trends and bring confluence of technology and needs.

Vinod Cookware products have been loved and appreciated. Fuelling the needs, we recently have bought land in Gujarat and are currently working aggressively on its set up. Our current capacity at the plant holds 6000 metric tonnes and we intend to revise the figures very soon.

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

Yes, the business has been a very dynamic year – GST, Demonetization etc – All key events packed in one year together. However, Vinod Cookware has sailed through, and though it was a turbulent period, it was quite short lived for us. The business for ongoing fiscal has been dy-

amic and compared to earlier fiscal has been slow.

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

We are a Rs.150crore + company and in terms of targets we aim to be Rs.180 crore.

**Q Who are your key competitors and what is your market share vis-a-vis these rivals?**

Prestige and Hawkins remain our key industry competitors. In terms of market share we strike dominance in the pressure cookers & non-stick category.

**Q Any plans for expansion?**

We have recently begun operations in Nepal which has definitely worked in our favour. Expansion into new segments and geographies has helped drive revenues and increase market share of Vinod Cookware. We have the largest share of retail markets across major cities in India and have been targeting the regional market segment with competitive products in line. About 50 percent of the company’s turnover comes from the Northern Region which has made a strong foothold in Vinod’s Growth and business. Apart from which we have strong presence in Western India where Mumbai, Pune and Gujarat have been key for us. While for the East market, we strongly dominate Orissa and Bengal.

**Q Tell us about your exports business / plans.**

Export has been our strongest pillar, along with retail presence we have clocked good numbers there too We are the largest exporters of Stainless steel utensils from India. 🇮🇳



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# Evolving Indian manufacturing industry

The Machinist organised Global Manufacturing Summit 2017 in Indore. Here are glimpses of the event.

By Swati Deshpande

**G**lobal Manufacturing Summit (GMS) 2017 that was held in Indore on 16th November 2017 was great success. This summit was conceptualised in the view of gathering the Indian manufacturing industry under one roof to discuss the trends and challenges that are global in nature. On this backdrop, the theme of the event was 'Manufacturing 4.0 – Skilled, Smart, Safe and Successful.'



The program started off with the CEO Panel Discussion wherein Anil Kumar, Executive Director (Chemicals), DCM Shriram Ltd, & President, Alkali Manufacturers Association of India; Viraj Kalyani, Founder & Chairman – Kalyani Studio, Executive Director – Kalyani Forge and Puneet Gupta, Managing Director, Kach Motors, discussed how the evolving economic scenario is impacting the manufacturing industry. The discussion was moderated by Niranjana Mudholkar, Editor, The Machinist.

While highlighting on how digitalisation has affected the manufacturing industry, Ashish Kawale, Principal Business Consultant, Infor SouthAsia, threw light on Smart Manufacturing & The way forward. During his presentation, Kawale mentioned, "It is interesting to observe that digitalisation has

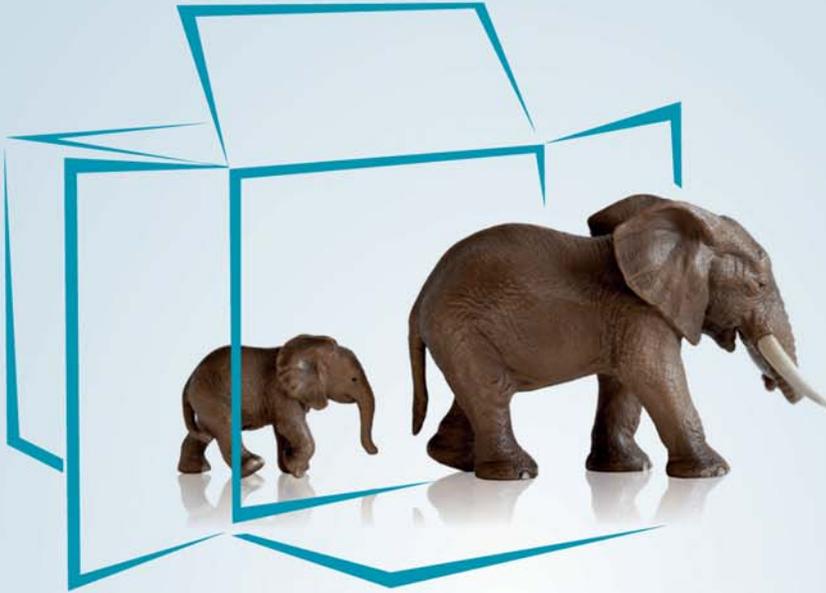
affected our day to day life. Our documents, presentations, etc. have moved from physical to digital platform. So, complete change has occurred in last few years. Speaking about the manufacturing industry, as per one of the studies, 76 percent Indian companies have already started working on smart manufacturing projects. Economic value addition that smart manufacturing is expected to bring



With the changing environment in the manufacturing sector, the role of lubricant is also changing. Globally, sustainability has become an important aspect.

Although in India rules with this regard are not as strict but large companies prefer to adapt sustainable solutions. In this scenario, while opting for lubricants, one must keep aspects such as health & safety, disposal cost, etc. in mind. Price is an important factor but it's not the only factor to choose the best lubricant.

**Yatendra Kumar**, Business Head, MotulTech India



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It is interesting to observe that digitalisation has affected our day to day life. Our documents, presentations, etc. have moved from physical to digital platform. So, complete change has occurred in last few years. Speaking about the manufacturing industry, as per one of the studies, 76 percent Indian companies have already started working on smart manufacturing projects. Economic value addition that smart manufacturing is expected to bring in next five years is between \$500 million to \$1.5 trillion.

**Ashish Kawale**, Principal Business Consultant, Infor SouthAsia

in next five years is between \$500 million to \$1.5 trillion.”

Audience also witnessed an insightful presentation on how lubricants can significantly impact operational efficiency. While speaking on the role of lubricants Yatendra Kumar, Business Head, MotulTech India mentioned, “With the changing environment in the manufacturing sector, the role of lubricant is also changing. Globally, sustainability has become an important aspect. Although in India rules with this regard are not as strict but large companies prefer to adapt sustainable solutions. In this scenario, while opting for lubricants, one must keep aspects such as health & safety, disposal cost, etc. in mind. Price is an important factor but it’s not the only factor to choose the best lubricant.”

Abhay Madanlal Kothari, Regional Manager, dry-tech bearings, igus India and Bishnu Prasad, Sales Manager - Projects, East India, e-chain systems, igus India, explained how smart plastic solutions are beneficial to the manufacturing sector.

As transformation takes place in the manufacturing industry, there is also a need to bridge the gap between academia and the industry. In this regard, a fireside chat was organised during GMS 2017. Dr. Chandan Chowdhury,

Associate Dean - Career Services, Indian School of Business and Prof. Neelesh Kumar Jain, Dean, Academic Affairs, Indian Institute of Technology (IIT), Indore participated in the chat. They discussed that offering hands on training to the students is important to make them industry ready.

The other panel discussion focussed on the evolving role of Manufacturing Heads. Maneck Behramkamdin, Head of Manufacturing, Godrej Interio; Udayan Joshi, Head of Manufacturing Engineering, John Deere; Sanjay Khanvilkar, Head Quality and Business Excellence, Crompton Greaves Consumer Electricals Ltd and Dr. Chandan Chowdhury, Indian School of Business spoke about the various challenges that occur while implementing Industry 4.0 solutions.

A highlight of the event was the Hall of Fame 2017. In recognition of his contribution to the Indian manufacturing industry, Dr. Mahesh Gupta, Founder & Chairman, Kent RO Systems Ltd., was honoured with The Machinist Hall of Fame 2017.

To make the event more exciting, a contest was held for delegates. For this, attendees answered a question of “Why or how Industry 4.0 is relevant for you as a manufacturing professional?” in 30 words. Amit Bansode from

Arpit Automech Engineering Pvt. Ltd. and Jeetendra Saraswat from Cummins Technologies Ltd. won this competition.

The Global Manufacturing Summit was truly local in nature and global in spirit as it discussed current scenarios and also touched upon future of the industry. It was also highlighted the challenges that the Indian companies are facing and also underlined global trends. It was also emphasised that if the industry delivers quality products, Indian manufacturing will have bright future in the global market. 

While a transformation takes place in the manufacturing industry, there is also a need to bridge the gap between academia and the industry.



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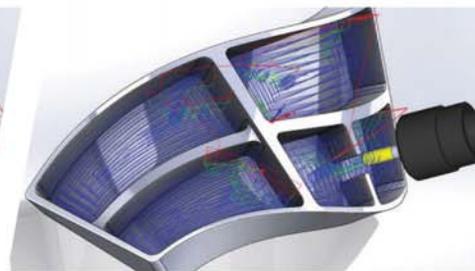
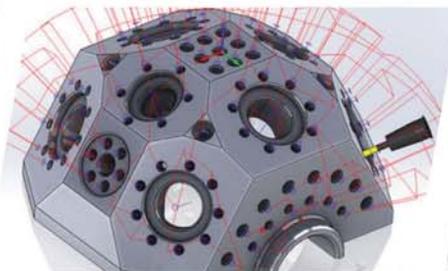
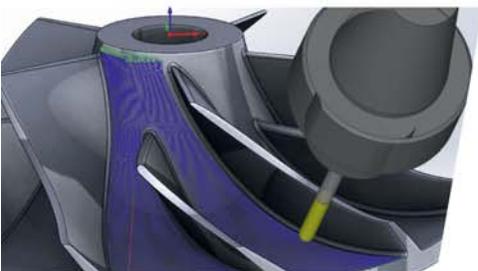


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# Enabling digital transformation

The business landscape is fast evolving and it is very important for manufacturers to remain relevant in this highly competitive environment and keep with the change, says **Ashish Dass**, Vice President and Managing Director, South Asian Subcontinent, Infor

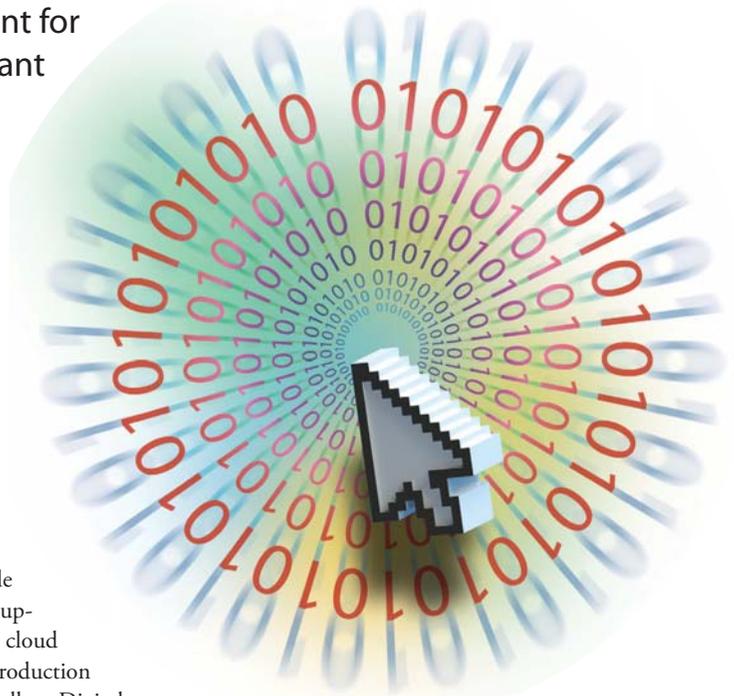
By Niranjan Mudholkar

## How important is the Indian market for Infor?

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Additionally, we see a huge opportunity in cloud. I observe a significant mind shift in the way technology is viewed and consumed. When I took over the reins at Infor, last year, we acquired three large cloud customers within the first two quarters. This means the CEOs of large companies and mid-sized companies’ owners are talking cloud. Earlier, cloud fell within the purview of EDP department but now business leadership is talking about cloud. That is the real change that the industry is witnessing - CEOs want to optimise their business and make it more efficient using the cloud model.



## How's been business for Infor in India in the ongoing fiscal compared to the previous fiscal?

We had a solid start to the year where Infor has recorded triple-digit (YoY) growth in Q1FY18 and are counting more than 700 customers in India. This comprises businesses ranging from large conglomerates to emerging companies including Godrej, Future Group, MyEco Energy, Dixcy Textiles, and many more. With a strong focus on India, we aim to triple the revenues in three years' time.

## You are obviously growing in the Indian market. What is driving this growth?

A three-pronged approach involving new customer wins across multiple industries, a laser sharp focus on innovation to deliver purpose-built software for cloud, and a robust partner network is bolstering Infor's growth in India. Apart from the growing customer base, channel partners also play a key role in the growth of Infor. They serve the needs of Infor customers across a wide expanse of industries and micro-verticals. Additionally, we also have a strong R&D base in the country – our Hyderabad CoE which supports global customers like Boeing and Ferrari.

## Which industry sectors are you catering to primarily?



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“Speed, agility, innovation and mobility, have moved from the “nice to have” category to a standard way manufacturers connect with colleagues, collaborate with partners, and gain access to critical data, anytime, anywhere.”

**Please name a few of your customers from different segments.**

Infor caters to around 16 wide ranging industry sectors including industrial manufacturing, industrial machinery and equipment, retail, fashion and financial services. Some of our customers from different segments are Thermax, Future Group, L&T, Jewelex, MyEco Energy, ITI Ltd.

**Manufacturing businesses today require speed, agility, innovation and continuous upgradation while being customer-centric. How are you helping them achieve this?**

Concerns of the manufacturing industry include pressures to improve performance owing to increasing competition. Additionally, supply chain partners, contractors, fabricators and suppliers all tend to gravitate to companies that are easy to do business with and who enjoy the conveniences of modern solutions.

Technology adoption seems to be the clear strategy to resolve this and Digital Transformation is not just a buzzword but the reality in the industry today. However, the shift is that many technologies that were considered disruptive only a few years ago have already received substantial traction and are largely considered “must have” capabilities. Speed, agility, innovation and mobility, have moved from the “nice to have” category to a standard way manufacturers connect with colleagues, collaborate with partners, and gain access to critical data, anytime, anywhere. An IDC report says 74 percent of manufacturers are using mobility solutions today, with that

figure expected to reach 98 percent by 2020.

Cloud deployment is another technology that is quickly gaining traction among manufacturers. The early resistance to cloud solutions for critical applications is steadily eroding. IDC says 52 percent of surveyed manufacturers are already seeing major impact from cloud technologies. The landscape is fast evolving and it is very important for manufacturers to remain relevant in this highly competitive environment and keep with the change.

**Have you made any new product announcements in the recent times? Please tell us about the same.**

Yes, we are very excited about the recent launch of ‘Coleman’ - an enterprise-grade, industry-specific artificial intelligence platform. This is the most significant product announcement since Infor CloudSuite in 2014. Much like Infor CloudSuite marked the first industry-specific ERP suites in the cloud, the introduction of powerful AI into business applications through Infor Coleman marks another milestone achievement in the evolution of enterprise software. Coleman was named in honour of Katherine Coleman Johnson, a physicist and mathematician whose critical calculations helped man reach the moon. She is a recipient of the Presidential Medal of Freedom and has a passion for STEM (science, technology, engineering, math) – a passion that Infor shares.

**What key trends do you think will shape the future of the industry in the coming times? How will you be leveraging on the same?**

I truly believe that AI is the new UI. McKinsey reported that 20 percent of the average work week is spent searching and gathering information – imagine how much more productive

“Earlier, cloud fell within the purview of EDP department but now business leadership is talking about cloud. That is the real change that the industry is witnessing - CEOs want to optimise their business and make it more efficient using the cloud model.”

people can be if they are able to delegate such tasks to artificial intelligence and focus instead on more valuable work. That’s pretty incredible, and it barely scratches the surface of what Coleman can do to help us maximise human potential.

**Tell us about your Partner network in India.**

The Infor Partner Network is an extension of Infor’s reach to the market. We recruited seven new partners in FY17 as a part of the Infor Partner Network and we are doubling down this number in FY18. To date, partners in India contribute around 30 percent to the channel business and 50 percent of services are delivered by system integrators who have specialised knowledge and skills on Infor Solutions.



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## Mahindra joins hands with Uber

**M**ahindra & Mahindra Ltd & Uber have collaborated to explore the deployment of electric vehicles (EVs) on the Uber platform in several cities across India. To begin with, the companies will deploy hundreds of electric vehicles in Delhi and Hyderabad. Mahindra's electric vehicles on the Uber platform will include the e2oPlus hatch and the eVerito sedan. As part of this collaboration, both the companies will also explore deployment of Mahindra electric vehicles to other cities. The joint deployment of electric vehicles will further reinforce the strong relationship between Mahindra and Uber.

Over the years, there has been a strong deployment of Mahindra vehicles on Uber's platform and Mahindra is also a key financier for Uber's driver partner through Mahindra Finance.



Speaking on the collaboration, Dr. Pawan Goenka, Managing Director, Mahindra & Mahindra Ltd. said, "Electric vehicle adoption is clearly gaining momentum in India. As the pioneers of electric vehicles in the country we would like to be at the forefront, leading this change toward smart and sustainable mobility. Our collaboration with Uber is an important next step to help accelerate the large scale adoption of electric vehicles on shared mobility platforms, and meet the nation's vision for EVs".

## Schaeffler to invest Rs.2,000 million

**L**eading global industrial and automotive supplier - Schaeffler, reiterated its focus on India as a key manufacturing hub by announcing the expansion of its operations at INA Bearings in Talegaon, Pune. The expansion will include a new manufacturing facility and a new R&D facility within the existing premises. The Ground-breaking ceremony for the new manufacturing expansion was held in Pune in the presence of Schaeffler AG's global automotive leadership team.

The new production facility will manufacture engine and transmission components, serving the domestic and exports markets. The R&D facility will focus on enhancing product development and engineering capabilities driving innovation for customers.

Schaeffler India's INA Bearings Pvt Limited is among the leading suppliers of engine, transmission and chassis components including needle roller bearings and has generated a growth of 15 percent in CY16. The Pune plant, currently running at full capacity, employs 700 people and with the new facility it is expected to generate additional employment in the future.

## NITI Aayog releases proposal for a quick pilot on EV charging infrastructure

**N**ITI Aayog Vice Chairman, Dr. Rajiv Kumar, has released a proposal to develop electric vehicle charging infrastructure in Delhi. The proposal was drafted by AC2SG in collaboration with NITI Aayog.

The proposal for the quick pilot could be used to provide a structure for EV infrastructure roll out in the Gurgaon-IGI-South Delhi-Noida corridor. This planning is expected to make the actual roll out easier and faster and also save cost on the deployment.

The planning process is based on a five-step process; project kickoff, formation of "long list" of locations, streamlining and timing, documentation and wrap-up. This proposal for developing the pilot includes 55 locations with 135 charging stations of which 46 are DC quick charging stations and 89 are slower AC charging stations. This deployment would require co-operation with state governments, selected government authorities and companies as well as some private enterprises (e.g. DIAL at IGI, DLF Mall). The plan includes a deployment timeline with first installations in November 2017.

## DENSO and NEC establish a JV develop in-vehicle information equipment

**D**ENSO Corporation and NEC Platforms unveiled a new joint venture, DENSO NEXT CO., LTD. The company will develop in-vehicle information and communications equipment critical for fostering a truly connected environment inside vehicles, such as instrument clusters, head-up displays, and on-board communication equipment. The company will start operations on December 1, 2017. The recent cockpit innovation and advancement of connected technologies have made communication between products in the cabin more complicated, rapidly increasing the need to develop in-vehicle products more efficiently. DENSO

NEXT will harness DENSO's advanced automotive engineering and manufacturing capabilities, and NEC Group's advanced technologies and track record in the information and communications technology (ICT) business to quickly design and bring to market advanced in-vehicle equipment.

DENSO NEXT will be located on the premises of NEC's Tamagawa Plant in Kawasaki, Kanagawa, Japan. The innovations developed by DENSO and NEC Platforms engineers will enable DENSO to more efficiently produce existing information and communications equipment, and to create new products in line with vehicle cockpit advancements.

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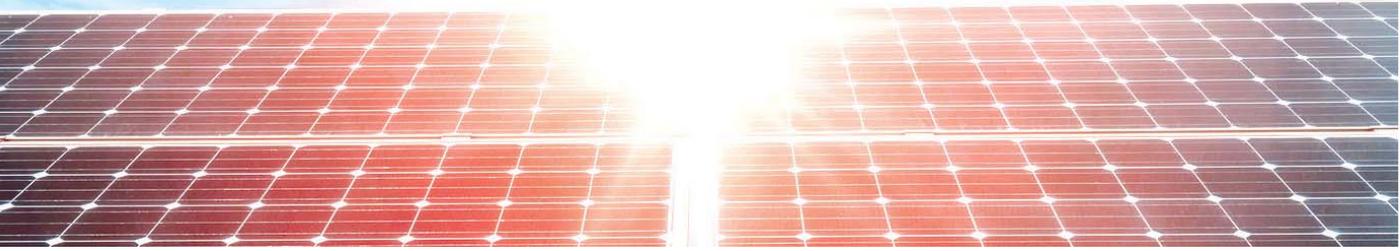
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# Towards clean & bright future

Renewable energy is gaining importance in the manufacturing sector. On this backdrop, we present an overview of companies, which installed solar power systems at their plants.

By Swati Deshpande

**T**here have been various approaches towards embracing green energy. However while keeping environmental impact to minimum; it is also important to adapt the viable solution from business perspective. Speaking on this, Pankaj Satija, General Manager (OMQ), Tata Steel said, “Our vision at Tata Steel is to strike a balance between economic as well as ecological and societal values. In line with our efforts to reduce carbon footprint, the plant was set up with the aim to address climate change issues and optimally use natural resources for the company’s captive use in and around mining locations. This is the first Solar Power Plant in any iron ore factory in the country and helps reducing CO2 emission by about 3,000 tonnes per annum.”

Echoing the same, Hussain Shariyarr, Sr. Vice President - Operations, Godrej Appliances mentioned, “We at Godrej Appliances have imbibed the corporate goal of building a ‘Greener India’ and are making environmental sustainability a key part of our manufacturing processes and value chains. Our manufacturing plants, both at Mohali and Shirwal, are Platinum Green Co rated advocating our relentless focus on productivity and environmental sustainability. We have taken up an ambitious target of producing 50 percent of our energy requirement from renewable sources by 2020. Currently, 100 percent of the thermal energy used in our plants is from a renewable source called Producer gas. Our next step is to look at electrical energy from a renewable source. Solar energy is one of the most valuable and cost-efficient sources of renewable energy and hence the logical choice.”

Currently, Godrej Appliances have 1 MW installed capacity through our roof top solar panels at its Mohali plant and are in the process of installing another 1 MW at our

plant in Shirwal.

Continuing ahead, Shariyarr added, “Solar energy creates clean, renewable power from the sun and has several environmental benefits. For instance, 1 MW generated from solar panels results in equivalent reduction in consumption from the grid supply. This translates to a daily reduction of 3 tons of CO2 that would have emitted to produce the power. Thus, harnessing solar energy helps reduce the carbon footprint and the emission of harmful greenhouse gases. Furthermore, since it is a renewable source, it is virtually inexhaustible and reduces the dependency on finite sources like fossil fuels.”

Adding his point of view, Satija asserted, “The setting up of a solar power unit in Noamundi gives the place a reliable source of power and obviates the need to use polluting diesel generators. This in turn will help Tata Steel move in a direction, which will lead to an increased competitive advantage, increased operational efficiency and enhanced profits in the long run.”



“Our vision at Tata Steel is to strike a balance between economic as well as ecological and societal value. In line with our efforts to reduce carbon footprint, the plant was set up with the aim to address climate change issues and optimally

use natural resources for the company’s captive use in and around mining locations.”

**Pankaj Satija**, General Manager (OMQ), Tata Steel

## TVS Motor Company's results of using solar power systems

- Measures taken in the year 2016-17
  - Alternate source of power (Solar / Wind)
  - Installed 2.5 MW roof top solar plant at Hosur (1 MW) & Mysuru (1.5 MW)
- Steps taken for utilizing alternate sources of energy (2016-17):
  - Towards continual commitment of utilizing renewable energy, the Company has commissioned 2.5 MW roof-top solar plants in 2016-17, with an estimated annual generation of 40 lakh units per annum
- Proposed measures during the year 2017-18:
  - Hybrid solar heat pump for engine pre-heating at CPP (Mysuru)
  - Alternate source of power (Solar / Wind)
  - Additional Installation of roof-top Solar Power Plant of 2MW capacity at Hosur & Himachal Pradesh.
- Capital investment in energy conservation equipment:
  - Towards continual commitment of utilizing renewable energy, the Company has commissioned 2.5 MW roof-top solar plants in 2016-17, with an estimated annual generation of 40 lakh units per annum
- Through sustained efforts towards renewable energy, the Company has implemented Roof-top Solar power 3.5 MW, Heat pumps 400 tons, Solar water heating 225 KW for engine preheating, solar air heating 46 KW and compressor waste heat recovery for its various process applications.

Source: TVS Motor Company

### It's beneficial

Moreover, Satija narrated how the solar power system has turned beneficial for the plant. "In line with our efforts towards a more sustainable and inclusive environment and with Tata Steel being a sole buyer of all electricity at a contracted tariff, this partnership demonstrates our commitment to climate action. Adding to this, the solar power plant will help meet our current RPO targets, reduce our long-term financial outflow on purchase of Renewable Energy Certificates and can be scaled up in the future as RPO requirement increases. This project propels Tata Steel into a new era of global co-operation on climate change and we hope that it will serve as a model for others to emulate."

Commenting on the stress on power grid, Shariyarr said, "Apart from environmental benefits, we witness a positive impact in other aspects as well. The energy produced through solar panels reduces an equivalent strain from the power grid and thus reduces load shedding in the area. It also reduces the risk in operations due to

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**“We have taken up an ambitious target of producing 50 percent of our energy requirement from renewable sources by 2020. Currently, 100 percent of the thermal energy used in our plants is from a renewable source called**

**Producer gas. Our next step is to look at electrical energy from a renewable source. Solar energy is one of the most valuable and cost-efficient sources of renewable energy and hence the logical choice.”**

**Hussain Shariyarr, Sr. Vice President - Operations, Godrej Appliances**

shortages and unavailability of power. Solar panels when installed on rooftops act as insulators and absorb the heat from the sun thereby reducing the ambient temperature in the manufacturing facilities.”

What’s more is that it turns to be cost efficient. “Electricity is becoming more expensive with each passing day and is influencing more manufacturers to adopt solar energy to meet their needs. Solar power is freely available against the grid cost of about Rs. 7 – 8 per unit. This translates to approximately Rs. 1 crore cost savings for us per location due to the installation of solar panels. Evolving technologies have increased the life of the photovoltaic panels and large-scale production of the panels have drastically brought down their costs resulting in shortened payback periods viz-a-viz the cost of installations,” Shariyarr averred.

“We are constantly looking at opportunities to exploit renewable energy sources. In our quest to become a sustain-

ability driven company, we are committed to exploring clean energy solutions and renewable energy is the best way of mitigating the impact of climate change. When it comes to cost efficiency, our solar power cost for the first year is much cheaper than DG,” Satija mentioned.

**Is space a constraint?**

Speaking on the space constraint, Satija said, “Our 3 MW solar power plant is situated in a high hoisted mined-out zone, where afforestation has been done, so dust accumulation is less. Noamundi receives good solar irradiance, has huge, level barren swathes of reclaimed land and a rain collecting framework to make water accessible for occasional cleansing — an apt location for a solar project. Cultivation is being done at the site that adds to the aesthetic appeal and reduces cleaning water requirement by binding the loose top soil. The chosen site has a capability of 4.5 MW solar power generation.”

“Before installation, we had to ensure the roofing at our manufacturing facilities were strong enough to bear the load of the solar panels and leak proof to be able to withstand all weather conditions. We also had to incorporate a special light weight structure that would secure the orientation of the panels without puncturing them. The next challenge was the installation of more than 3000 roof top panels at a height of over 50 feet. Special measures were taken to ensure the safety of the skills team that worked on the installation,” Shariyarr added.

**Can maintenance be an issue?**

“Solar panels generally require very little maintenance since there are no moving parts. A few times a year, the panels are inspected for any dirt or debris that may collect on them. During the design and installation phase, a network of water pipeline with tapping was incorporated at various points on the roof to allow easy cleaning and maintenance of the solar panels,” he continued.

“As mentioned earlier, our 3MW solar power plant is well-located and dust accumulation is minimal. However, to further minimize the dust accumulation, we maintain the solar panels by water jets at regular intervals. We have some processes in place which ensure that we provide a clean energy solution such as a rainwater harvesting system which has been set up for module cleaning activities to serve as make-up water and minimize module cleaning water requirement. These processes help in keeping our quality and processes in check,” Satija concluded. 



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Courtesy: MotulTech India

# Making a positive difference

Selection of the right metal working fluid is equally (if not more) important as selection of right tool, says **Yatendra Kumar**, Business Head, MotulTech India

By **Niranjan Mudholkar**

## **Q** How is MotulTech enabling manufacturers to achieve machine performance and productivity?

We at MotulTech, always put lots of efforts in R&D to give customise products keeping in mind the overall plant efficiency in which machine performance and increased productivity play an important role but there are many more pay-backs, which can be shown to customers. One such example is with our semisynthetic water-soluble metal working fluid “SAFKOOL 1044”, which was tried against a well-known global company, with the challenge of sump life, smell and skin issues on Makino machine. We tried for four months and established our product. We have shown that not only did the life of the sump increase from two months to four months but there was also no smell and skin challenge with nine percent improvement in life of cutting tool. All this gave a reduction in oil consumption by 35 percent hence big saving in disposal cost (by 35 percent).

Another example is of our Universelle 800SC, which is chlorine free and vegetable oil based neat deformation oil, where customer has given a challenge of not only improvement in surface finish but also of rust protection for three months. We successfully addressed both of the challenges and increased the productivity substantially, by eliminating the requirement of rust preventive.

## **Q** How are you helping customers address environmental

## **and safety concerns associated with the use and disposal of oil & lubricants?**

As shared above, our aim is to minimise the oil consumption by optimising the customer processes. With this approach we work to reduce the disposal liability on our customers. Also, we offer products which are globally acceptable and environment friendly even if there is no such law in some cases.

We found that many peoples are still using “Trichloroethylene (TCE)” as cleaning media since it is cost effective, has no fire hazard and is easily available. But they forget that this has been declared as “carcinogenic” if inhaled or swallowed. In the cleaning process, it is allowed to evaporate, hence being inhaled by all the peoples working or visiting the plant.

Most of the times in such cases customer is worried about reduced efficiency, investment and /or fire hazards. We are offering a different approach to such challenges and we map the entire process and give optimum products which can run their plant with same or improved efficiency.

## **Q** Handling tool wear is key to metal cutting performance and overall production efficiency. What are the important factors to get this right?

Yes, tool wear is key to metal cutting performance but there are many more factors which effect the overall production efficiency. In my view, selection of the right metal working fluid is equally (if not more) important as selection of right



tool. Though we give lots of emphasis on tools, their material, geometry, cutting parameters (tool designed for) etc., very limited thought is given while selecting the metal working fluid and its usage. A metal working fluid if used correctly can change the life of the tool up to 50 percent and it can affect the cycle time and surface quality to a big level.

**Q Do you work with machine tool and cutting tool manufacturers as well as end-users to provide customised and better solutions?**

Yes, we are not only working with machine tool OEMs, but we are also working with the other equipment /sub-assembly manufacturers in different segments as we are present in many segments like automotive, steel, food pharma, cement, plastics, power generation etc. This had helped us to understand their challenges and offer the optimum solutions. We are open to work with dynamic organisations who are innovating themselves and looking for some innovative solutions. One such example is our EBK 22, spindle grease. We are serving to one of the Indian global machine tool OEM for last three years. And we are proud to say that today we are 100 percent supplier for this product. Though it was a very difficult journey as spindle, which is the heart of the machine, is a very sensitive part and not many people are ready to take risk with it. Thanks to the customer and our team, we have done the trials for two years before starting the supplies.



**“A metal working fluid if used correctly can change the life of the tool up to 50 percent and it can affect the cycle time and surface quality to a big level.”**

Metal working fluids and greases are two major pillars for our business. We create lot of products in these two ranges. We also customise lot of products, if required. Most of our regular customers come back to us for different solutions and that's helped us to put back the same into our R&D and offer suitable products which can boost the cost competitiveness of our customers. 



  
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# Cables for the textile industry

Lapp India offers range of products for the textile industry.

By Marc Jarrault

The Indian textile industry is one of the oldest and leading textile industries in the world. Given the macro-economic trends and international events shaping the Indian and global economy, the Indian textile industry has made a major contribution to the national economy in terms of employment generations, exports and Gross Domestic Products (GDP).

With vast textile production and efficient multi-fiber raw material manufacturing capacities, India is among the very few countries with pervasive production facilities across all levels of the manufacturing value chain.



"Textiles, being one of the oldest industries in India has undergone a drastic change over the years and the use of technology in the automation of textile machinery has brought about an even bigger revolution. There is now a necessity to enhance efficiency, adaptability, agility and optimization across the textile industry."

India has scaled up this complex process by integrating automation in all steps of the textile value chain. This has facilitated cost competitiveness that is necessary for quality improvement.

India has also scaled up this complex process by integrating automation in all steps of the textile value chain. This has facilitated cost competitiveness that is necessary for quality improvement. However, the degree of automation varies depending on the location and the textiles to be manufactured. Wires and cables play a major role here in order to ensure that all the machinery in the textile production process is appropriately connected for smooth functioning.

### Wiring & cabling challenges in the textile industry:

Lapp has a wide range of products and solutions that ensure most of the industry challenges are identified and met with. Lapp's products are designed to offer complete connectivity solutions, high flexibility, stability, lossless transmission and harsh environment conditions.

- **Environmental challenges:** Lapp offers products and solutions that enhance equipment efficiency, as they can resist the effect of dust, oil and chemicals. The products are durable and have the ability to withstand harsh environment.
- **Flame and fire:** Lapp offers flame retardant and halogen free cables that comply with flame and fire requirements.
- **Electro-Magnetic Interference:** Lapp offers electromagnetic interference protection to add value to process thereby it improves the performance of the system. The cables are designed to reduce unwanted signals and noise. High-quality, double screening ensures low loss transmission reliability in areas with electromagnetic interference.
- **Electrical transmissions:** Lapp's cables enable low loss electrical transmissions by enhancing conductivity, high



India has also scaled up this complex process by integrating automation in all steps of the textile value chain. This has facilitated cost competitiveness that is necessary for quality improvement. However, the degree of automation varies depending on the location and the textiles to be manufactured.

insulation resistance, low capacitance for data/signals and low line attenuation.

- **Temperature:** Lapp's cables are built to operate in a wide range of temperatures, either high or low. In general, application temperature ranges from -50C to +900C and for special application up to -600C to +2600C.
- **Mechanical challenges:** With respect to mechanical challenges, Lapp's cables are flexible and bend to small bending radius. They are with good tensile strength.
- **Robustness:** Lapp offers cable with abrasion and MUD-resistant TPE or PUR sheath.

Textiles, being one of the oldest industries in India has undergone a drastic change over the years and the use of technology in the automation of textile machinery has brought about an even bigger revolution. There is now a necessity to enhance efficiency, adaptability, agility and optimization across the textile industry.

In 1996, when we started our operations in India, textile industry was one of our focused segments. We have some of the reputed textile manufacturers as our oldest customers. Lapp is synonymous with innovation and we believe in developing innovative cabling products and solutions that help and assist our customers.

For the textile industry, we offer tried and tested products and customized solutions, used in various stages of textile processes like spinning, pre-treatment, dyeing, weaving and knitting, printing and fabric finishing. To have a hassle-free process in all the stages, cables must be flexible, oil resistant and durable in the dust. In textile industry, high quality single cores are best suitable to control cabinet application, whereas signal and sensor cables are ideal solution to connect sensors for process control and can bear ambient temperature.

Some of Lapp's products that are readily used in the industry are ÖLFLEX® 100 I, ÖLFLEX® UNIPLUS, ÖLFLEX 110 CY, ÖLFLEX SERVO FD 810 CY, UNITRONIC BUS PB, UNITRONIC Li2YCY, HEAT 145, ETHERLINE Cat 5E and UNITRONIC Sensor. We also have our expertise in providing the customized plug and play cable assembly solutions under the brand name ÖLFLEX® CONNECT - from simple cable harness to a complex chain assembly. Combination of all the above products are an ideal solution to meet the industry challenges. 

*The author is the Managing Director of Lapp Group India Pvt. Ltd.*

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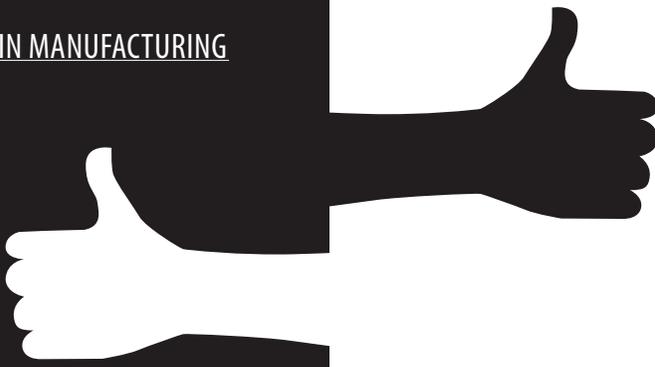


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## A WIN – WIN situation

Technology player Autodesk and machine tool builder STM have joined hands together to enable a one shop stop model for STM that will sell value to the customers and offer an integrated hardware and a software solution.

By Niranjan Mudholkar

**A**s a technology player, Autodesk has been enabling manufacturers to evolve and adopt advanced CAM solutions to take their businesses to the next level. With its new subscription model, Autodesk has further democratised its software solutions for the benefit of its customers. By doing so, in a way, it is also contributing to the 'Digital India' campaign that aims to make technology accessible to all.

Coimbatore based S&T Machinery (P) Ltd. (STM) recently inaugurated its expanded machine tool manufacturing facility at Coimbatore, Tamil Nadu. The inauguration also marks a positive step ahead in the 'Make in India' direction. Interestingly, both Autodesk and STM have joined hands together to enable a one shop stop model for STM that will sell value to the customers and offer an integrated hardware and a software solution. Customers/End-Users will benefit more from this model as they will get original licensed Autodesk software along with the best-in-class machine tool builder from STM. And this arrangement between Autodesk and STM can be certainly termed as 'Digital India' meets 'Make in India'!

The Machinist travelled to Coimbatore and caught up with Pankaj Gauba, Head – Digital Manufacturing – India & Middle East, Autodesk India Pvt. Ltd. and D. Shanmugasundaram, Managing Director, S&T Machinery (P) Ltd. to understand the details of this arrangement between Autodesk and STM.

### Dream come true

To start off with, D. Shanmugasundaram or Shan as he is popularly known as, gave a brief background about STM's foray into machine tool building. "It was a long dream for us

"A key reason why we got aligned with Autodesk is because of our philosophy of making reliable technology affordable to the customers. That is part of our company's DNA."

D. Shanmugasundaram, Managing Director, S&T Machinery (P) Ltd.

to foray into manufacturing. For about eight to nine years, we have been talking to the President of Manford (Taiwan) about this. At that time, the Manford team was busy in setting up a plant in China and they asked us to wait. But days were passing, and we thought that we must give back something to the industry and fortunately the 'Make in India' programme came. Many people outside India started saying that India is progressing, and the Manford President James Hsieh called me and said that let us start something. So, he told us that Manford would help us setting up the facility and transfer the technology. Subsequently, our people went there, some of their people came here and it started rolling. We began with three models, but James motivated us saying that it is possible to do all the models."

### Win-Win situation

Speaking about the arrangement, Pankaj Gauba, Head – Digital Manufacturing – India & Middle East, Autodesk India Pvt. Ltd. said that "Autodesk is committed to increase the availability, accessibility and affordability of cutting-edge manufacturing solutions that can help customers transform their businesses and value proposition."

"It's making a lot of sense for us right now to talk to machine tool builders because the offering has become very affordable. Our new model that we have set in motion makes



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**“It’s making a lot of sense for us right now to talk to machine tool builders because the offering has become very affordable. Our new model that we have set in motion makes it very easy for machine tool builders to really move from a box selling to a solution selling.”**

**Pankaj Gauba**, Head – Digital Manufacturing – India & Middle East, Autodesk India Pvt. Ltd.

it very easy for machine tool builders to really move from a box selling to a solution selling. Today, when a machine tool builder is in the market and the way he is differentiating in the sales is based on some features, some performance parameters and so on and so forth. This adds a new dimension. So, what we plan to do as we move forward is to more and more work together and try refining the stuff. We will try and come out with models and moulds which will catch the attention of the customers.” Gauba believes that the subscription-only model provides greater flexibility and affordability for businesses in adopting advanced CAM solutions.

According to Shan, a key reason why his Company got aligned with Autodesk is because of S&T’s philosophy of making reliable technology affordable to the customers. “That is part of our company’s DNA. Earlier, when we imported these machines, they were not affordable but now that we are manufacturing them here makes the machines affordable to our customers. So, what Autodesk pitched in to us was in alignment with our philosophy. They have come with a new subscription model which is affordable. That is what appealed to me. We internally discussed the idea and said why not integrate the software with the hardware. And we decided that every machine of our swill come with this integration as a standard,” he said.

Appropriate training will also be provided to the users of the machine to address the skill gap and help the customers

make the most of the machine and software.

Gauba added that the whole approach to the customer changes – it’s a win for Autodesk, it’s a win for S&T but the biggest win is for the customers because it’s a single window. “STM is positioning both the hardware and software together. More importantly, customers are now not going to rely on manual programming.”

While STM’s key focus is the tool room industry, Shan wants to reach out to all relevant sectors. “Whether it is for the tool room or for the production house, our machines will be available to all.”

### Challenges & potential

Gauba believes that the new arrangement will also help curb software piracy. “A big challenge for us is that there is a little bit of resistance to buying software technology and people end of pirating. When they end up pirating, they do not realise that they are doing more harm to themselves because they are not getting the full thing out of the pirated version. That is now out of the picture with this arrangement that we have with S&T. It’s like having a preloaded OS or an Intel Inside that come with the best of breed. Now, the onus is as much on Autodesk to see that the customer starts using it.”

Gauba further added that Autodesk model is an annuity model. “So, that gives the machine tool builder an opportunity to grow the business as well as have continuous engagement with the customers. In fact, that’s the crux of our business model to be in constant touch with our customer and to see what he is doing and how he is doing it. Since we are on subscription, our ability to react to market changes is very fast and any changes that happen on the software gets updated for the customer.”

He further added that like the S&T philosophy, the Autodesk philosophy for the last 35 years has been to democratised software. “This is one next step. We have been constantly innovating to make it accessible to our customers without compromising on the value.”

He also acknowledges that there will be some resistance to the new model because it’s a change. “But I think it requires for us to stay with the customer and explain the concept. Once they get the drift, they adapt. At the end of the day, business model is just the via media; the crux is the technology. If a product doesn’t do the job, then nobody is going to take it irrespective of the business model. The focus continues to remain on technology and we top it up with the easy methodology, which is the business model. And we have got pretty good traction in India going over the last three quarters on the CAM side.”

The basic essence in the change of business model is the availability of current software 24/7. “So, it is completely aligning with the IoT dream. Autodesk directionally understands that IoT will require solutions and business models which will give both the machine tool builder and myself to react quickly,” adds Gauba on a positive note. 

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December 2017

MAC



# Impact of evolving economic scenario on manufacturing

At Global Manufacturing Summit (GMS) 2017, a panel of CEOs discussed on the impact of evolving economic scenario on the manufacturing industry. Anil Kumar, Executive Director (Chemicals), DCM Shriram Ltd, & President, Alkali Manufacturers Association of India; Viraj Kalyani, Founder & Chairman – Kalyani Studio, Executive Director – Kalyani Forge; Puneet Gupta, Managing Director, Kach Motors participated in the panel discussion.

While speaking at the event, Anil Kumar mentioned, “Liberalisation has made the Indian manufacturing industry competitive. Earlier, in a closed economy, Indian companies were comfortable with what they were doing as the playground was small. As the country opened the doors and big players came in the country, the Indian companies as well decided to compete with them. Also, we probably have largest numbers of engineers coming out of engineering colleges. And the Indian talent is at par with global workforce.”

“When I joined manufacturing industry in 2012, the industry was going through a slowdown and also the support from the government was not as great. Now, ‘Make in India’



initiative has offered lots of opportunities to the industry and we must grab them. To do this, we have to be open for learning new things,” Kalyani mentioned while speaking about the support from the government. On the other hand, Gupta mentioned that in this changing environment, it is important to upgrade your factory and maintain quality of the products to be competitive.

Moreover, the panellists also spoke about the need to raise industry standards at different levels like skills, resources, technology, engineering, innovation and strategy to make Indian manufacturing grow to its potential and become globally competitive. 

## Evolving role of Manufacturing Heads

In the effort to put forward key challenges and advantages while implementing Industry 4.0 solutions, GMS 2017 saw panel discussion on Evolving role of Manufacturing Heads. Maneck Behramkamdin, Head of Manufacturing, Godrej Interio; Udayan Joshi, Head of Manufacturing Engineering, John Deere; Sanjay Khanvilkar, Head Quality and Business Excellence, Crompton Greaves Consumer Electricals Ltd and Dr. Chandan Chowdhury, Associate Dean - Career Services, Indian School of Business participated in this discussion. This panel discussion was moderated by Swati Deshpande, Associate Editor, The Machinist.

During the discussion, Manek Behramkamdin mentioned, “We have come a long way in the journey of Indus-



try 4.0. Starting from just extracting information, we have to come an age where we are able to use this information for achieving best of customer satisfaction. In our company we are looking at end to end solution where customer is a focus. We have reduced link time of information meaning information from the customers to the manufacturing plant.”

“Industry 4.0 is a part of cultural change. Also, there is a basic difference in the DNA of Indian and foreign origin companies. The foreign origin companies invest a lot in robust machines, processes and people which takes lot of time. Whereas, the Indian companies optimise in the context of investments. And we rely on our manpower,” said Sanjay Khanvilkar.

“While implementing Industry 4.0 solutions, blue collared workforce might assume that they are under surveillance. However, it is important to take them into confidence before bringing any such change,” Udayan Joshi.

On the other hand, Dr. Chandan Chowdhury mentioned that it is imperative to educate and train the workforce as per the changing needs at the plant. “Simultaneously, it is also important to make the next generation industry-ready for the benefit of the manufacturing industry.”

During the discussion, it came forward that there is a dire need of upgrading workforces’ skill sets before we upgrade the technology. 

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# Technology for kitchens

For the next ten years it is certainly going to be one of the fastest growing markets when it comes to the chimney industry, says **Pralhad Bhutada**, CEO, Elica PB India Pvt Ltd

By **Niranjan Mudholkar**

**Q You introduced Electric Hoods in India in 1995 and have nurtured the industry since then. Are you satisfied with the evolution of the industry in the country?**

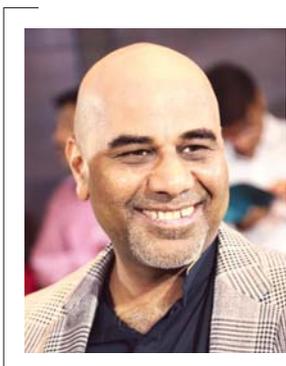
I introduced the electric hoods with the Italian technology in India in the mid-1990s. At that time, India was rapidly turning towards globalisation and new concepts and western way of lifestyle was being accepted at large. Since then, the kitchen hood industry has evolved tremendously and has witnessed changes in product typology and designs. Current products have a right blend of design and technology keeping in mind the comfort in using. From Silent Chimneys to hassle free cleaning the technology has grown in every aspect. I am personally quite satisfied with the growth in the industry and expect this category to become a commodity in the coming few years.

Elica SpA has been recognised and has got awards for the best workplace in Europe.

**Q As an entrepreneur, what were the key challenges faced by you and how did you overcome the same?**

Well as such there are no challenges that we are facing as the market is wide open and very accommodating. We focus on customer satisfaction as our key goal. We offer superior technology and design at an affordable price scale.

**Q How's been the business for Elica PB India in the ongoing fiscal?**



"Our plant in Pune is spread across 70,000 sq feet. It has a capacity to manufacture roughly 1000 pieces of chimneys, hobs, and cook tops per day. Around 500 pieces of chimneys and hobs are manufactured per day."



Our business is quite good. The brand is prominent and if I compare it with my last year I can say the business has improved.

**Q What is your turnover at present and what kind of growth are you looking at in the next three years?**

The chimney industry in India is approximately Rs.700 crore to Rs.800 crore market. India has a lot of potential when it comes to kitchen hoods. Not even one percent of the population have chimneys so one can very well imagine the immense scope the country has to offer to this industry. The potential is very high as it has only been around 15 years that chimney category gained prominence in the Indian market. For the next ten years it is certainly going to be one of the fastest growing markets when it comes to the chimney industry. The future and the growth rate of the industry are extremely bright in India.

**Q Currently, what is your market share and what is your strategy to increase the same?**

We are a national brand with a pan India presence. At present we sell through 2000 retail outlets and approximately 60 distributors. We are planning to increase this number by 20-30 percent next year.

**Q Elica PB India has set up a manufacturing plant in Pune, Maharashtra. How much have you invested in this plant? Any specific reason why Pune was chosen as**



### a location for manufacturing?

Our plant in Pune is spread across 70,000 sq feet. It has a capacity to manufacture roughly 1000 pieces of chimneys, hobs, and cook tops per day. Around 500 pieces of chimneys and hobs are manufactured per day. And the investment is close to 60 to 70 crores. We are originally working from Pune because we have expertise here and most of the other brands are also working here.

### Q What is the manufacturing capacity at present and how much are you utilising?

It has a capacity to manufacture roughly 1,000 pieces of chimneys, hobs, and cook tops per day. Around 500 pieces of chimneys and hobs are manufactured per day.

### Q Please tell us about your plans to expand the manufacturing as well as enhancing the existing product portfolio.

We believe in offering the usable and required features to strike a balance between the quality and price. We believe in offering quality, functionality and consistently adding innovative features and upgrading technology. This is the thumb rule that we adhere to. Our product of any range assures you of quality without compromise.

### Q The Company aims to revolutionise the kitchen hood

“The chimney industry in India is approximately Rs.700 crore to Rs.800 crore market. India has a lot of potential when it comes to kitchen hoods.”

**industry in India with new products and technology. This implies having a strong focus on innovation coupled with a long-term R&D attitude and an infrastructure to support it. Tell us what is Elica doing on this front.**

We have launched Split Chimneys, Elica Deep Silence (EDS3) and this year we will be launching one more version of EDS3 which will be a more affordable variant. Elica will also be exhibiting a new range in Italy during April 2018. We are planning on getting that too in India very soon. Basically, every year the brand has new technological innovations to offer and which Elica in turn transfers to India. Our R&D is based out of Italy. We pump around 12 percent of our sales revenue in network expansion and advertisement.

### Q Today, you are a successful entrepreneur. What is your mantra for success?

I believe in keeping things simple and fundamentally clear about what you want and with a friend's response to customers and trade partners. All this can be a mantra for success. 

## UPDATES

# E-trucks now traveling on the streets of Munich



As of now, three electric trucks are part of the logistics operations of the BMW Group's home plant. What began when the first 40-ton e-truck was put into service by the Munich plant in 2015 has now been taken to the next level. Through the use of these e-trucks, the company reduces CO2 emissions by approx. 82 tons annually. All three trucks are used on public roads in the Greater Munich area.

With its first e-truck, logistics service provider ARS Altmann AG transports new cars on a 15-km route through Munich: on its way from the town of Garching north of the city to the BMW Welt, the truck is loaded with vehicles to

be handed over to customers; on the way back, it transports finished vehicles from the BMW plant, which will later be dispatched from the Garching site to the European sales network. A special feature of the new e-truck is its covered semitrailer.

The SCHERM Group has been a partner of the BMW Group for over two years, cooperating on matters of sustainable city logistics. The two companies are very satisfied with the experiences gained through the use of their first e-truck, which has operated very reliably since

being put into service in July 2015.

At a top speed of 40 km an hour, the e-truck covers its route between the SCHERM logistics center and BMW Group Plant Munich eight times daily, saving about 48 tons of CO2 annually compared to a conventional truck. With its second e-truck, the logistics company now delivers vehicle components from its supply center in Karlsfeld, 12 km outside of the city, to the Munich plant. At a top speed of 64 km per hour, the new e-truck has a range of approximately 160 km. 

Source: BMW Group



# Gati's Dynamic Route Optimization: The Future of Last Mile

This is how a logistics company optimised its operations to meet increasing demands.

By G.S. Ravi Kumar, Chief Information Officer, Gati Ltd

The e-commerce revolution has turned the 'traditional' supply chain on its head. From speed of delivery to increased expectations on "user experience". This change has in large part been driven by the empowered consumer of today. However, it is in the last-mile that many of these challenges manifest.

The expectations of buyers are increasing and therefore it is necessary for the industry to come up with a robust and strong delivery system. The sector has its own challenges of high costs and inconsistencies associated with the last mile delivery process. If the delivery does not happen at the first go, it results in second or third delivery attempts leading to loss of time, money and poor customer experience.

The major chunk of the total delivery cost comes from the last-mile. Current expectations from customers are visibility of shipment movement, on demand delivery, particular time slot delivery, etc., which has put a greater strain on the costing. In addition, the consumers want to see and track the shipment movement. The attrition rate in the logistics industry is on rise and the new delivery personnel lose a lot of time in reaching the final destination due to newer areas, improper address etc.

Gati Limited has adopted a robust dynamic route optimization software for its last mile delivery planning in ma-

The major chunk of the total delivery cost comes from the last-mile. Current expectations from customers are visibility of shipment movement, on demand delivery, particular time slot delivery, etc., which has put a greater strain on the costing. In addition, the consumers want to see and track



Gati Limited has adopted a robust dynamic route optimization software for its last mile delivery planning in major cities

major cities like Hyderabad, Bengaluru, Mumbai, Pune and Delhi which enables them to remove the roadblocks and achieve the delivery metrics. Eventually this software would be rolled out to all locations of Gati. This software automatically plans and optimizes the on-demand and scheduled deliveries by clustering shipments based on geography, with minimal overlaps, respecting time windows, SLAs and other business parameters. It checks the traffic at a particular time and develops the route accordingly. The software minimizes the human intervention and uses inputs to derive the best route systematically. It also provides a Hawk Eye View of the entire fleet which can be tracked live at any instant.

In the earlier process, planning of delivery would start once the shipment reached the delivery location. Each delivery area is served by a delivery agent

and it was fixed. If the delivery agent was on leave, Gati faced issues as the substitutes were not familiar with the new area. Apart from this, distribution of shipments were uneven among the delivery agents which meant that one person would carry 10 shipments and the other would carry 50 based on the load of the particular area being served.

Currently in the new process, the shipment data is sent to a dynamic route optimization engine and in a matter of minutes a route plan is created for delivery based on a number of shipments, delivery window time frames and vehicle-types. Subsequently, the plans are assigned to the delivery agents for execution. When the delivery agent is on the field, they can see the shortest route on their hand held devices between delivery locations. On delivery, they update the delivery details of the shipment on their devices. This dynamic planning process mitigates the unevenness in distribution of shipments among the delivery agents. Moreover, it eliminates the human dependency to a large extent on last mile delivery planning.

Major impacts of a Dynamic Route Optimization on Last Mile Delivery:



1. **Cost:** Optimal usage of vehicles and delivery personnel based on geographical cluster with no static area or route
2. **Transparency:** The end customers can track their shipment movement through tracking links sent as an SMS, leading to an improved experience, and reduced support calls.
3. **No Waiting Time:** Intelligent order clubbing and route optimization ensures deliveries are done quicker and are high on-time performance. It also considers the specific time given by the customers and maps accordingly.
4. **Quicker and Timely Pickup:** Since the exact location of the rider is available through a robust communication dashboard, any unplanned pickups can be done in no-time.
5. **Turn-by-Turn Navigation:** Route Optimization Software offers Turn by Turn navigation support, ensuring fast and timely deliveries, and reduces fuel consumption.
6. **Hit Rate (HR):** The waiting time has been removed and scheduled according to the customer's time, it has helped to deliver higher percentage of shipments which are taken out for delivery.

Currently in the new process, the shipment data is sent to a dynamic route optimization engine and in a matter of minutes a route plan is created for delivery based on a number of shipments, delivery window time frames and vehicle-types.

7. **Productivity:** Since the capacity utilization has increased and dynamic routes has been developed, the software makes sure that the delivery personnel carry maximum shipments based on the time-frame and vehicle-type.

Dynamic Route Optimization has enabled Gati to take an edge in the ever competitive market.

Customers can benefit from Gati's extensive range of service offerings such as Express Distribution, Warehousing Solutions, M-VATS (Bulk Load, Point to Point), Cold Chain Solution, E-commerce Logistics, Fulfilment Services, Freight Forwarding, and Trading Solutions. Gati serves the top leading organizations across FMCG, Auto, Textile, Engineering, Pharma, IT, Retail, Electrical Electronics among others. 

## UPDATES

# Godrej Aerospace delivers 100th set of BrahMos airframe assemblies

Godrej Aerospace recently handed over the 100th set of airframe assemblies to BrahMos Aerospace Pvt. Ltd. (BAPL) for use in its missile systems, continuing the company's proud tradition of contributing toward building India's defence capabilities.

Dr. Sudhir Mishra, Distinguished Scientist & Director General (BrahMos), CEO & Managing Director BrahMos Aerospace visited Godrej Aerospace to celebrate this landmark achievement and was handed the completion documents of the 100th BrahMos Airframe by Jamshyd N. Godrej, Chairman and Managing Director, Godrej & Boyce in a ceremony marking the occasion.

On this occasion, Mishra also congratulated Godrej Aerospace for winning the order for 100 units of airframes for Air Launched version of BrahMos missile and start of its production.

Godrej & Boyce Chairman and Managing Director Jamshyd N. Godrej said, "Godrej and BrahMos have been partners for 17 momentous years. Over that time, we have taken great pride in doing our bit for nation-building through our contribution to bolstering India's defence capabilities. Therefore, it gives me great pleasure to hand over the completion document for the 100th set of airframe assemblies to Dr. Mishra. This is a proud moment for Godrej, Brahmos and India, and an assertion of our commitment to serve our country through technologically driven solutions and indigenous manufacturing."

Godrej acknowledged contribution, support and guidance



of DRDO and MSQAA in developing and assimilating manufacturing technologies and quality practices to establish a world class manufacturing infrastructure for one of the world's most advanced missile. He also appreciated the contribution of the academia and Godrej's vendors in this endeavour

BrahMos Aerospace DS, Director General, CEO & MD Dr. Sudhir Mishra said, "Godrej over the years has made immense contribution to BrahMos and Indian defence sector. The delivery of the 100th set of combat worthy missile airframes marks another milestone in our long relationship. Going forward, I am confident our partnership will continue to set new benchmarks and serve as inspirational role model for indigenous development and production of sophisticated weapon systems."

The BrahMos missile is a stealth universal supersonic cruise missile that can be launched from ships, submarines, aircraft and land based platforms. It can be used for precision strike to destroy targets on land and sea.



# Bridging the gap between academia and industry

A report on the fireside chat that discussed solutions to make students industry ready.

**D**uring The Machinist Global Manufacturing Summit (GMS) 2017, a fireside chat was organised to discuss on the gap between the academia and industry. In this session, Dr. Chandan Chowdhury, Associate Dean - Career Services, Indian School of Business (ISB) and Prof. Neelesh Kumar Jain, Dean, Academic Affairs, Indian Institute of Technology (IIT) Indore put across point of views in this regard.

Speaking at the discussion, Dr. Chowdhury said, "It is very important for us to address this gap. Currently, it is huge and it is especially evident in the times when the manufacturing industry is undergoing transformation. Theory and practical - both are extremely important aspects of the course. I believe theory without practice is sterile and practice without theory is futile. Students have to be exposed to the current industry practices."

Highlighting the challenges at the institutes' level, Prof. Jain mentioned, "Often educational institutes do not have



enough infrastructures. There is a lack of modern/latest machines in the colleges. In that case, if the student does not have a chance to gain practical knowledge corresponding to theory that he/she has already learnt in the class."

To address this issue, IIT Indore has come up with the 7th semester. Elaborating on the same, he said, "7th semester in the course focuses only on the practical aspect of the course. So the theory and practical semesters are totally different. For this semester students are sent out in the industry like R&D institutes or any other organisation. Here they work on a project, which is research driven and involves some innovation. At the end of it, they can think about whether the work is worth publishing for patents. This format has given us very good result and students are keen to do it." 

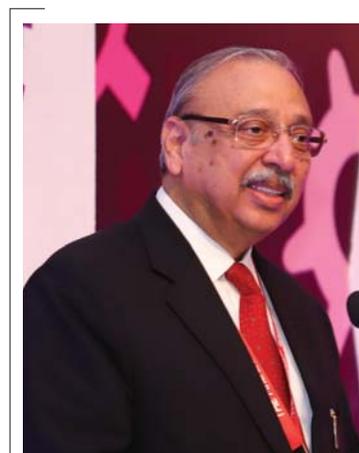
## Pure Water Man of India

Dr. Mahesh Gupta, Founder & Chairman, Kent RO Systems Ltd. was honoured with The Machinist Hall of Fame. Here are the glimpses.

**A**t GMS 2017, The Machinist conferred upon the coveted Hall Of Fame award to Dr. Mahesh Gupta, Founder & Chairman, Kent RO Systems Ltd.

Dr. Gupta is a first generation entrepreneur who entered into the healthcare segment and launched the first domestic RO water purifier. In recognition of his contribution to the water purification industry, he is also known as the Pure Water Man of India. Through this recognition, The Machinist salutes his passion for technological quest and an innovative bent of mind as well as his commitment to provide clean potable water. While speaking at the event, he said, "I thank Machinist for honouring me with this prestigious award."

He further mentioned that innovation and quality are key elements of success. Emphasising on the quality, Dr. Gupta mentioned, "When we start manufacturing, competition comes into the picture. And when competition hits, the industry aims at reducing the prices. According to me it's a wrong approach. We must face the competition with quality and not with price.



"When we start manufacturing, competition comes into the picture. And when competition hits, the industry aims at reducing the prices. According to me it's a wrong approach."

Together we can raise the bar with quality. I believe if we follow this golden rule, India will achieve new heights." 



## Simulation Software for multi-axis machining

New processes and new techniques must be employed and 5-axis machine simulation software.

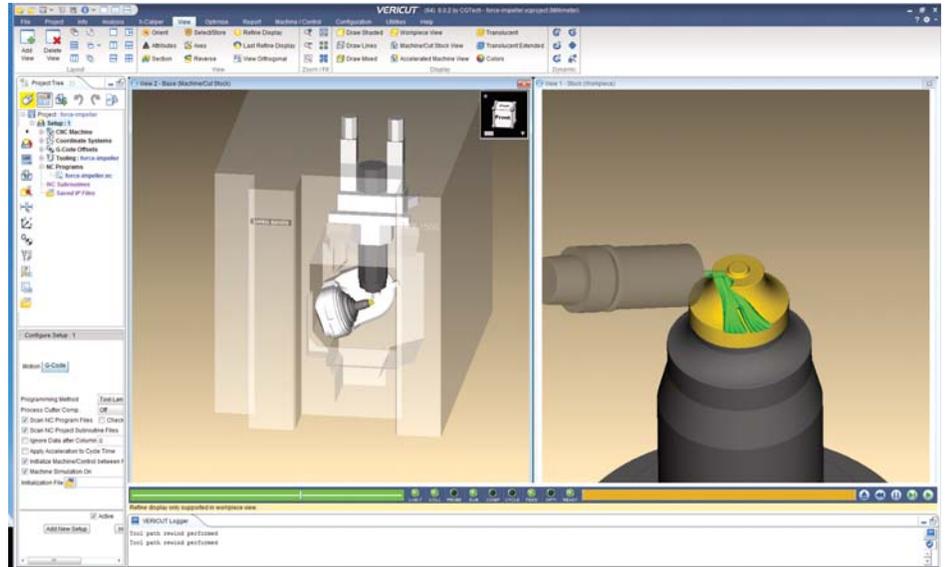
NC verification and simulation software has been used by aerospace manufacturers for more than 20 years, yet some NC programmers do not take advantage of the benefits it can offer. Given the expense of each part machined, NC simulation is generally regarded as an important step in the machining process. Simulation checks each machining operation as it is programmed, or as a final check after the programming is finished and post-processed for the specific machine. It's typically a quality checking process that ensures the part is cut as expected from the generated NC programs, without the risk of a machine collision.

These are valuable uses that justify software cost, often many times over. However, some resourceful companies have discovered that simulation software can be used to benefit their shop in ways that others overlook, sometimes even in ways that were unintended by the software developer.

### Evolving strategies and techniques

One of the easiest ways to get more from simulation software is to simply use it. Test new, unproven, machining strategies virtually as an analysis laboratory. Other than the time required to virtually create and test new methods, there is no physical cost. An NC programmer can try and fine-tune radical new ideas several times over. A few hours spent trying out different methods could potentially save many hours of ma-

CAM vendors are developing new 5-axis strategies which are more complex; they are also developing new 5-axis roughing strategies that are improving the process of machining. New processes and new techniques must be employed and 5-axis machine simulation software that accurately represents each 5-axis machining cut in great detail will provide the necessary confidence to succeed.



**VERICUT CNC machine simulation, verification and optimization software simulates all types of CNC machining. VERICUT Force is a physics-based optimization method that determines the maximum reliable feed rate for a given cutting condition based on the following three factors: maximum chip thickness, maximum allowable feed rate, and force on the cutter. The software operates independently, but can also be integrated with leading CAM systems.**

chine time, reducing tool and machine wear, wasted materials, energy costs, and human fatigue.

CAM vendors are developing new 5-axis strategies which are more complex; they are also developing new 5-axis roughing strategies that are improving the process of machining. New processes and new techniques must be employed and 5-axis machine simulation software that accurately represents each 5-axis machining cut in great detail will provide the necessary confidence to succeed. This also allows for new invention, experimentation and success with new techniques.

### Removing the fear of multi-axis machining

CGTech, the developer of VERICUT software, has encouraged its customers to push the software to its limits. This can be well described using an example involving a creative NC programmer for a large aerospace engine manufacturer. They were looking for a faster way to make the leading edge of a titanium fan blade, and the NC programmer theorized that a new machining method could make the difference they needed.

Traditionally the process of making the part took many hours using a grinding technique. The NC programmer believed the part could be created using a 5-axis mill, but he knew he would need to convince his management before tying up the expensive machine for many hours cutting a test part.



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By using VERICUT to simulate the process, the programmer was able to create a video/review file to prove the process would work.

According to the Association for Manufacturing Technology, 5-axis mills and mill/turn machines have increasingly become popular, for a good reason. They enable the manufacturer to drastically reduce machining time and the number of set-ups required to complete a job. Simulation software takes the fear out of programming a multi-axis machine. When an NC program can be simulated, from the same code that will be sent to the machine, there is no excuse for not taking full advantage of a 5-axis machine's capabilities.

**Machining before machine arrival**

Even today, with ups and downs in machine tool sales, there is still considerable time between the date when the machine is ordered, and the date that it is installed and ready to cut the parts. With simulation software, the manufacturer can be ready to create parts on the first day the machine is installed.

CGTech has partnerships with many of the leading machine tool companies and they will often supply the CAD geometry for its joint customer's machines – before the machine is even shipped. The manufacturer can then be proving out

programs right away. Some of the customers can discover the efficiency and suitability of the machine configuration ordered even before the machine is delivered. By catching the machine specification mistake early, the customer can change the order before the machine is delivered.

**Opting for the right machine using virtual simulation**

The aerospace manufacturer working on the leading edge took the idea a step further. After proving the 5-axis milling process could work, they were ready to order production machines. Rather than simply picking the machine from a catalog, they designed the machine in their simulation software, where they had already proven the process would work. These files were then sent to the machine tool builder who built the machine exactly to their specifications as described in a virtual machining simulation.

Another leading aerospace company created programs for more than 200 parts and proved them using virtual simulation software even before the arrival of machines on their shop floor. All the machines ordered were built using virtual simulation software and all NC programs were proved on a virtual machine. The machine loading plan was also prepared, thanks to accurate cycle times provided by simulation software. Once the machines arrived, they cut the parts without any further delay.

**Summary**

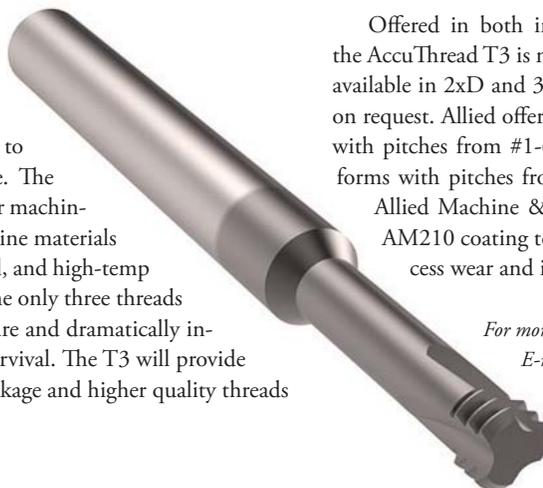
By maximising the use of simulation software, shopfloors don't need to wait for NC programs. There are always opportunities to improve an existing process, and simulation software can help by giving the NC programmer the freedom to try practically any machining technique in a virtual world. Only creativity and a good virtual platform are required to accomplish the job!

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## Increased tool life when machining hardened materials

### Allied Machine & Engineering Offers AccuThread T3

Allied Machine & Engineering, a leading manufacturer of hole-making and finishing tooling systems, adds the AccuThread T3 to their existing thread mill line. The new AccuThread T3 is built for machining hardened or hard-to-machine materials such as stainless steel, tool steel, and high-temp alloys. It is designed to machine only three threads at a time, reducing tool pressure and dramatically increasing the chances of tool survival. The T3 will provide a longer tool life, less tool breakage and higher quality threads for machinists.



Offered in both inch-shank and metric-shank options, the AccuThread T3 is made for deeper-than-standard threads, available in 2xD and 3xD. Additional diameters are available on request. Allied offers this thread mill for UN thread forms with pitches from #1-64 to 9/16"-12 as well as ISO thread forms with pitches from M2x.4 to M12x1.75. In addition, Allied Machine & Engineering provides their premium AM210 coating to these thread mills to protect from excess wear and improve tool life.

*For more information:*

*E-mail: [info@alliedmachine.com](mailto:info@alliedmachine.com)*

*<http://www.alliedmachine.com/Products/Threading/Solid-Carbide.aspx>*

## BMW invests €200 million in Battery Cell Competence Centre

The BMW Group continues to focus on the implementation of its electro-mobility strategy, with the company concentrating all its technological expertise relating to battery cells at a new competence centre. Klaus Fröhlich, member of the BMW AG Board of Management, responsible for Research and Development, and Oliver Zipse, member of the BMW AG Board



of Management, responsible for Production, were joined by Bavarian Minister of Economic Affairs Ilse Aigner for the symbolic ground-breaking of the BMW Group Battery Cell Competence Centre in Munich. This interdisciplinary competence centre aims to advance battery cell technology and introduce

it into production processes. The company will invest a total of 200 million euros in the location over the next four years, creating 200 jobs. The centre will open in early 2019.

Speaking at the ground-breaking ceremony, Klaus Fröhlich said: "We will be concentrating all our in-house expertise along the battery-cell value chain at our new high-tech competence centre. International experts working in the new development labs and facilities will conduct important research to refine cell chemistry and cell design. We will focus on further improvements in battery performance, lifespan, safety, charging and also costs. We will set the benchmark for the industry."

## Hino Motors Ltd, Ashok Leyland enter into mutual cooperation agreement

Ashok Leyland Ltd and Hino Motors Ltd, Japan (henceforth referred to as Hino) have entered into a Mutual Cooperation Agreement (MCA) where Ashok Leyland will utilize Hino's engine technology for Ashok Leyland's EURO-VI development and will support in development of Hino's engine parts purchasing in India for global operation.

Hino and Ashok Leyland have had a cooperative agreement for engine production in India since 1986. By this mutual cooperation agreement, both companies will leverage each other's strengths in diesel engines to enhance their competitiveness.

Ashok Leyland will enhance its competitiveness by jointly developing engines for BS-VI compliance in India through the engine technology of Hino Motors.

## Continental starts production of turbocharger in China

Continental is now looking to expand its geographic footprint in the turbocharger market with the opening of its first non-European turbocharger plant at the Continental site in Jiading, a suburb of Shanghai, China.

In October this new facility will start producing the cutting-edge RAAX™ turbocharger, developed by Continental for the Volkswagen Group's EA888 Gen.3B engine platform and in production in Europe since 2016 in the Audi A3. In the Chinese market, this 2.0-liter turbocharged gasoline engine will debut in the VW Teramont SUV, followed by the VW Tiguan and other high-volume models.

### PRODUCTS

## New Chip Splitter Roughing End Mill

TaeguTec has launched a newly designed chip splitter type SER solid roughing end mill for difficult-to-cut materials to the existing STARMILL line. The SER's easy chip-evacuation along with the reduced cutting load and lower heat generation capability makes it an excellent solution for machining difficult-to-cut materials such as stainless steel. The tool can effectively operate even under low pressure air as well as coolant conditions.

The end mill's geometry characterized by unequal spacing and optimized cutting edges for machining difficult-to-cut materials results in reduced vibration and noise

The end mill's geometry characterized by unequal spacing and optimized cutting edges for machining difficult-to-cut materials results in reduced vibration and noise despite it being a chip splitter tool. As such, the SER roughing end mill achieves excellent surface finish with an extended range from roughing to medium machining. The SER roughing end mill can be used on several applications from side machining, grooving to profile machining.





## Intelligent 24 V linear modules with auto-learn technology

When SCHUNK unveiled the first prototypes of the SCHUNK ELP line of linear modules late last year, it caused a buzz in the automation world. SCHUNK, the competence leader for clamping technology and gripping systems, had developed the first low-maintenance compact linear modules with a 24 V linear motor drive. The new modules can adjust their movement profile fully automatically to individual component weights and can be easily operated by anyone. The series is therefore ideal for creating more flexible assembly processes in Industry 4.0 environments.

No mechatronic know-how or extra space in a control cabinet is required to use the intelligent linear module. The drive, control unit, and specially developed auto-learn technology are completely integrated into the module. The module is easy to set up: The axis is connected via a standard plug

Since the compact units do not require hydraulic shock absorbers, commissioning and maintenance work is virtually eliminated. What's more, there is no need to worry about potential damage to your system or long downtimes due to defective shock absorbers.

(M8/M12) and the end position is mechanically set using an Allen key and the speed of extension and retraction is adjusted using two rotary encoding switches directly on the module. Automatic programming is completed after two to five strokes. This is indicated by an LED. If the component weight changes during the process, the axis automatically adjusts its movement profile within just a few strokes. In contrast to pneumatic modules, no throttles have to be adjusted, and compared to electrically controlled modules, no new sequences have to be added. The axis fits seamlessly into the pillar of alternative mechatronic solutions from SCHUNK, which can be used as a 1:1 replacement for pneumatic components. For the first time, complete assembly systems with linear axes, rotary modules and grippers can be implemented entirely using 24 V technology.

### Long-lasting and virtually maintenance-free

Since the compact units do not require hydraulic shock absorbers, commissioning and maintenance work is virtually eliminated. What's more, there is no need to worry about potential damage to your system or long downtimes due to defective shock absorbers. The electric axes also score points due to their long lifetime, lower operating costs, minimized noise emissions and outstanding process stability. The SCHUNK ELP series is compatible with all controllers since everything is controlled via digital I/O. Built-in C-slots enable stroke position monitoring via magnetic switches. The linear axes will be available starting July 2016 in three sizes (25, 50, 100) each with three stroke versions. They have a repeat accuracy of 0.01 mm and a maximum nominal stroke of 200 mm. Due to the standardized drilling pattern, they can be combined directly with numerous modules from the world's largest system range for modular high-performance assembly from SCHUNK. Standardized power and sensor distributors as well as cable sets will be added to the product line in the near future.

For more information, contact

Satish Sadasivan

SCHUNK INTEC INDIA PRIVATE LIMITED

[info@in.schunk.com](mailto:info@in.schunk.com)

[www.in.schunk.com](http://www.in.schunk.com)



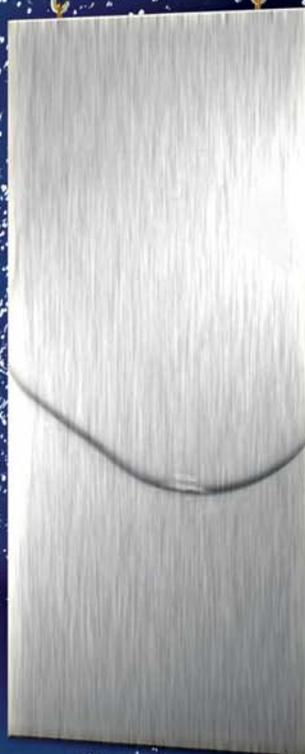
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## Online configurator for lead screw modules fulfils millions of design variations

A few clicks will take you to the custom-made lead screw module with the new configurator from igus

The motion plastics specialist igus has developed a completely new online configurator for drylin lead screw modules. This allows the customer to easily design and process millions of different variations of lubrication-free drylin lead screw modules according to one's requirements. As user, you will receive, among other things, a 3D view of the unit and a dimensioned technical PDF drawing as well as a 3D CAD model with which you can immediately plan the implementation of your project before receiving the product. With a click, you can order the unit at igus. The weight, the delivery time and the price of the assembled parts are displayed automatically.



"Step one, the user determines his/her environmental parameters, the desired lead screw and thread type as well as the material of the components."

**Stefan Niermann,**

head of the drylin linear and drive technology division at igus.

The design and configuration of a lead screw module (SHT) often takes a lot of time and effort for project managers. In order to optimise this process, igus has developed the new lead screw module configurator for its customers. With this, all ready-to-install lead screw modules from installation size 08 to 30, including the new SHT series made entirely of stainless steel, can now be designed quickly and above all easily, including the preparation of the technical drawing. Just a few clicks are enough for placing the online order for the individual product. "Step one, the user determines his/her environmental parameters, the desired lead screw and thread type as well as the material of the components," explains Stefan Niermann, head of the drylin linear and drive technology division at igus. "In the next steps, it is possible to configure the carriage type as well as multiple slide systems as well as the drive shaft as desired. The customer can modulate these shafts according to their requirements. Spanner flats and grooves in different tolerance classes and desired lengths are quickly designed." After the design, the user is presented with an overview page showing the unit price, the weight and the delivery time of his/her table, and a summarised list of the installed

components. Here an automatically generated 3D model and a 2D dimension drawing can be displayed and downloaded free of charge.

### Process optimisation through online configuration

With the technical drawing and the CAD model, the customer can continue to work immediately on his/her project and digitally share the plans of the lead screw module with other project participants quickly and easily. After completing the configuration, the individual lead screw module can also be transferred to the shopping-basket and ordered without minimum order quantity or a request about the products can be sent to igus. It is also possible for the user to save, load or completely reset the configurations. For example, revisions to the lead screw module can be undertaken quickly and easily due to project alterations. Following an order, all specifications on the product will be sent to igus. Thanks to the digital data transmission of this information and drawings, the order is directly sent to the factory and can be processed, assembled and often delivered within 48 hours even for complex configurations. The personalised product thus becomes a simple standard. The use of the configurator not only optimises the ordering process for the customer, but also for the internal production processes, which results in a shorter delivery time.

For more details, contact

Vinayak Shetty

Product Manager - drylin

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