

THE MACHINIST

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www.themachinist.in

TIME FOR CHANGE

While it did not deliver great success to the industry, 2015 has certainly set the stage for a fantastic 2016

SUPER SHOPFLOOR

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INSIGHT

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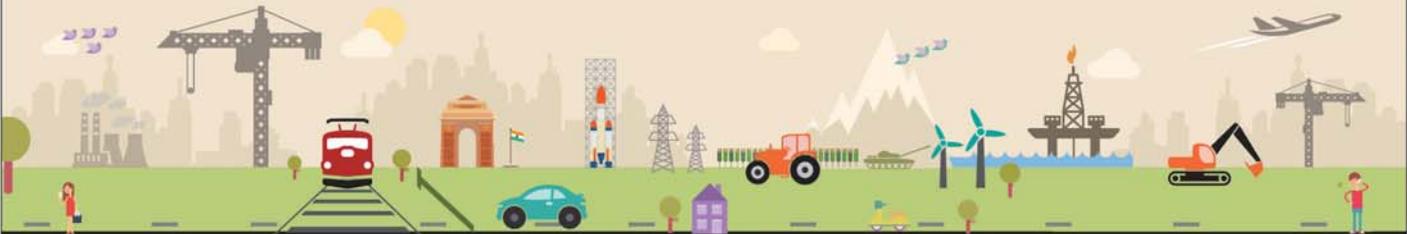
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The power of Billion (and more)!

A

friend of mine and I were discussing the economic state of affairs in India. His approach was a bit critical about the way things are happening - particularly with regards to the unemployment issue in the country. "So where are these promised 100 million jobs going to come from?" he asked.

This is what I answered to him: "As we speak (and as I write), lakhs of Indians are working hard (and smart) to rise up from their respective social and financial status. If you really look at the reality then 'the rich get richer and the poor get poorer' is a half truth (and something that happened only in the old Hindi movies). Things are definitely changing around us - if we care to observe and notice. As every single Indian endeavours to climb up the economic ladder, he or she is looking to upgrade every aspect of his or her life. (And believe me, it is already happening. Answer for yourself honestly!) Yes, we still want the proverbial 'Roti, Kapda aur Makaan' (food, clothes and house) but we definitely want it better (and more) than what we were getting yesterday and what we are getting today. And there's nothing wrong with it. We need to shy away from the socialistic guilt (if at all, we have it) and be truthful with ourselves. So someone will have to create this better food, better homes, better clothes, better cars, better gadgets & appliances, better entertainment and so on. And most of these better (and more) things required for over a billion people need to be manufactured in our own country in accordance with the economics and predicament of this nation. And that is exactly where these 100 million jobs are going to come from - in the next five to ten years." What do you think?

Editor & Chief Community Officer



"YES, WE STILL WANT THE PROVERBIAL 'ROTI, KAPDA AND MAKAAAN' (FOOD, CLOTHES AND HOUSE) BUT WE DEFINITELY WANT IT BETTER (AND MORE) THAN WHAT WE WERE GETTING YESTERDAY AND WHAT WE ARE GETTING TODAY."

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THE MACHINIST

Volume 10 Issue 12 December 2015



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UMC 750

at

HAASTEC
PUNE SHOW

9-12, December 2015

10 a.m. to 6 p.m.

OTHER MACHINES ON DISPLAY:

ST-35, VF-7/50, DT-1, VF-2SS, ST-10Y
Super Mini Mill, VF-2

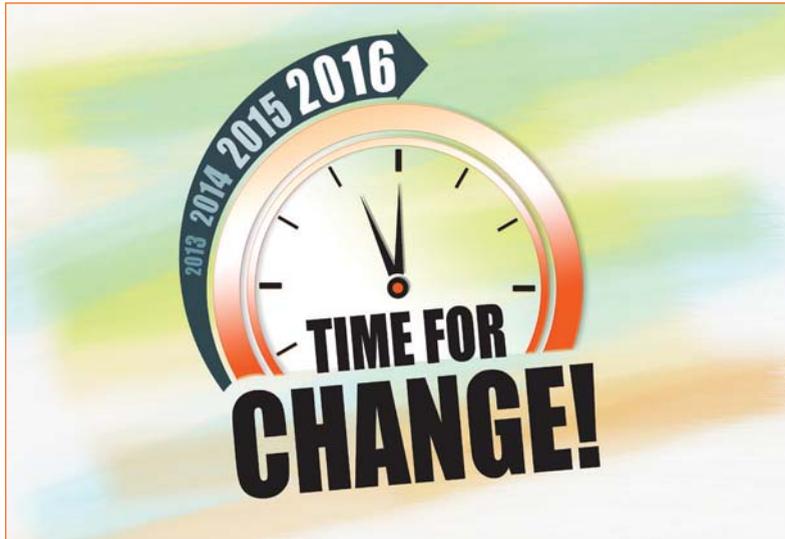
SHOW DETAILS:

Date: 9-12, December 2015

Time: 10 a.m. to 6 p.m.

Venue: Hall – B, Plot No. C-181, Auto Cluster
Exhibition Center , Pimpri - Chinchwad
Pune, Maharashtra: 411019

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MNS Drills

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NEWS

India likely to move in Top 5 in global manufacturing: Deloitte Report

India, currently 11th on the list, is expected to jump up to as high as fifth place in the upcoming 2016 Global Manufacturing Competitiveness Index report from Deloitte Touche Tohmatsu Limited's (Deloitte Global) Global Consumer & Industrial Products Industry group and the US Council on Competitiveness (Council). The 2016 Global Manufacturing Competitiveness Index forecasts that the top eleven countries will remain consistent between now and 2020, with some exchange of rankings. In addition to China and the US retaining the top two spots, Germany and Japan will remain at third and fourth respectively.



South Korea, Canada and Singapore are expected to drop one spot each due to India's rise, while Taiwan and the UK are expected to drop two spots. Mexico, meanwhile, is expected to move up from eighth to seventh. "While emerging markets continue to push the leaders, the findings demonstrate the strength of the manufacturing powerhouses of the 20th century with the United States, Germany, and Japan holding three of the top four positions currently and in the future," said Craig Giffi, a leader in Deloitte US Consumer & Industrial Products Industry group and co-author of the report.

Boeing and Tata announce aerospace JV in India



Boeing and Tata Advanced Systems have recently announced a joint venture that will manufacture aerostructures for aircraft and collaborate on integrated systems development opportunities in India. The JV will initially create a manufacturing center of excellence to produce aerostructures for the AH-64 Apache helicopter and to compete for additional manufacturing work packages across Boeing platforms, both commercial and defense. "This JV will capitalise on India's industrial capability, innovation and talent to contribute to Boeing's long-term competitiveness and position us for future growth in the global marketplace," said Chris Chadwick, President & CEO, Boeing Defense, Space & Security.

Need to gradually shift focus from Planning to Policy: NITI Aayog

The Vice Chairman of NITI Aayog, Arvind Panagariya has underlined the need to gradually shift the focus from Planning to Policy so as to influence behaviours of actors- both public and private in view of the changed economic scenario with

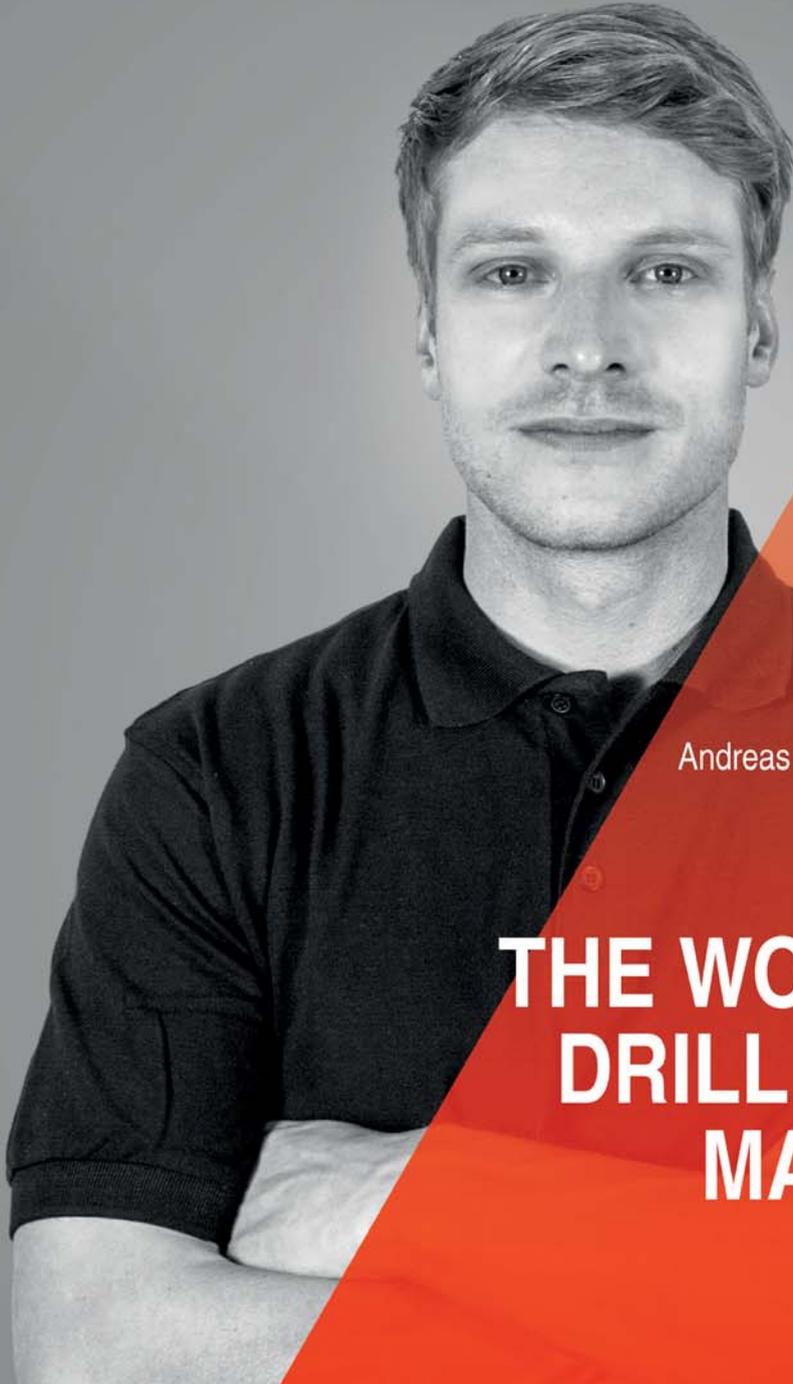
major share of investments coming from the private sector. He emphasized the fact that many of the Indian States have now achieved sizes of economy that are larger than many countries. NITI Aayog organised a conference with the representatives of the State Governments where three broad thematic areas were taken up. These include: (i) Role of NITI Aayog to foster cooperative federalism, (ii) Rationalisation of CSS and its implications for the States, & (iii) Challenges in the Budgeting Exercise for the FY 2015-16 and planning for FY 2016-17.



Construction equipment market expected to be US\$ 5 billion

A Vision 2020 report outlining the state of the Indian Construction Equipment (ICE) industry was released recently by Nitin Gadkari, Union Minister of Road Transport, Highways and Shipping. The report prepared by the Indian Construction Equipment Manufacturers' Association (ICEMA), an affiliated body of Confederation of Indian Industry (CII), sets out the current demand and forecast for the industry

till 2020 with projected market size for major equipment. After four years of decline, the ICE industry is finally seeing some signs of growth in 2015-16. Its current size is US\$ 2.8 billion and is expected to grow to US\$ 5 billion by 2019-20. The After Sales Spares market is about US\$ 800 million and is a major source of income and employment opportunity for SSI manufacturers and service providers.



Andreas Kleinhans, Product Manager, Drilling

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OMRON completes acquisition of Adept Technology

OMRON Corporation has recently completed its acquisition of Adept Technology, Inc. (‘Adept’), a global, leading provider of intelligent robots, autonomous mobile robot solutions and services. As per Sameer Gandhi, MD, Omron Automation India, “India being one of the focus area in Omron’s global industrial automation business strategy, the announcement will have a notable impact on our contribution to the overall industrial automation business in the long term. It is a



very positive step to strengthen our positioning as a ‘complete industrial automation solutions provider’ for the manufacturing sector. Adept focus industries and technology portfolios are complementary to what Omron Industrial Automation is doing in India. So this synergy will strengthen our progress in our current target industries - automotive, food and beverage, packaging and FMCG and I expect it will also open new avenues in other exciting sectors.”

Manufacturing grows 8.2% in April-Sep 2015



Growth rate of the Gross Value Added at Basic Price at constant (2011-12) prices in manufacturing sector during April-September, 2015-16 has shown a growth of 8.2%. The Government has initiated a vast number of measures including the Make in India initiative, opening up the FDI regime and enhancing Ease of Doing Business to drive manufacturing, innovation and design in India. In November 2015, global consultancy firm Ernst & Young (EY) India conducted the India Attractiveness Survey 2015, where it had taken responses of 505 investors on three most attractive markets for investment. On the basis of response received from these investors and data provided by FDI Markets (a service of The Financial Times Limited), India ranked number one FDI destination in the world during the 1st half of 2015.

Agreements signed for modern locomotive JV factory projects

The formal contract signing ceremony for the two Rs.40,000/- crore High Horse Power HI-TECH best-in-class modern locomotive Joint Venture factory projects (Electric Locomotive Factory at Madhepura and Diesel Locomotive Factory at Marhowra - Bihar) was held recently in New Delhi. While the contract for DLF Marhowra has been awarded to GE Global Sourcing India Pvt. Limited, the contract for Madhepura ELF has been awarded to Alstom Manufacturing India Limited. DLF Marhowra will manufacture and



supply modern diesel electric locomotives of 4500 HP and 6000 HP (which in combination can operate as 9000 HP and 12000 HP multiple units). ELF Madhepura will manufacture and supply modern electric locomotives of high horse power namely 12000 HP.

WIKUS India officially inaugurates its Pune Plant



WIKUS India has officially inaugurated its manufacturing unit at Chakan, Pune. This state-of-the-art unit will supply band saw blades with high quality performance to the domestic market. “With an initial investment of EUR 2 million, this unit is equipped to ‘Make in India’ and well-positioned to meet the market demand for sus-

tainable sawing technologies in the country,” Mukund P Bharadwaj, MD / CEO, WIKUS India told The Machinist. The facility will cater to customer requirements with bi-metal, carbide as well as carbon band saw blades. With a direct presence in the Indian market and an advanced manufacturing plant, Bharadwaj is confident that WIKUS will now be able to increase its distribution reach. “This will also help us serve our Indian customers better in terms of after sales and services,” he added. Besides being equipped with the latest technology, the plant also has provision for expansion as and when required.

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TECH

THE INDUSTRIAL LUBRICANTS DIVISION OF THE

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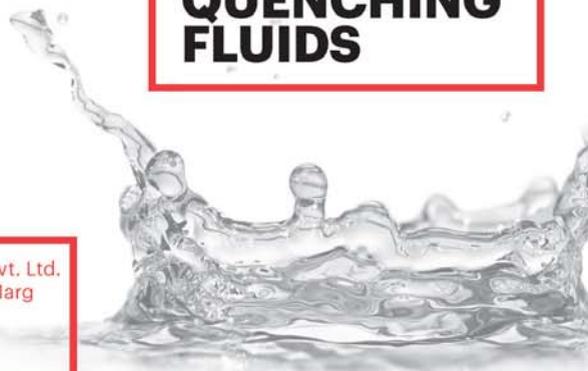


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Mark your diary

A list of key events happening between January 2016 to December 2016, both nationally and internationally.

IMTEX FORMING 2016 & Tooltech 2016

January 21-26, 2016, Bengaluru (BIEC)
www.imtex.in

Hannover Messe 2016

April 25 to 29, 2016, Hannover (Germany)
www.hannovermesse.de/home

Auto Expo 2016 - Components

February 4-7, 2016, New Delhi
<http://www.autoexpo.in/components-show/index.aspx>

CeMAT 2016

May 31-June 3, 2016, Hannover (Germany)
<http://www.cemat.de/home>

Auto Expo 2016 - The Motor Show

February 5-9, 2016, Greater Noida
<http://autoexpo-themotorshow.in/>

IMTS 2016

September 12 - 17, 2016, Chicago (US)
www.imts.com

AeroDef Manufacturing

February 8-10, 2016, California (US)
www.aerodefevent.com/

MINExpo International

September 26-28, 2016, Las Vegas (USA)
<http://www.minexpo.com/>

Grindex International 2016

March 3-5, 2016, Mumbai
www.grindexpo.in

India International Textile Machinery Exhibition 2016

December 3-8, 2016, Mumbai
<http://itme2016.india-itme.com/>

MODEX 2016

April 4-7, 2016, Atlanta (USA)
<http://www.modexshow.com/>

BAUMA CONEXPO India 2016

December 12-15, 2016, New Delhi
<http://www.bcindia.com/>

DIEMOULD India – 2016

April 6-9, 2016
Bangalore
www.diemouldindia.org



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KAHER KAZEM TO LEAD GENERAL MOTORS INDIA FROM JANUARY 1, 2016

General Motors has announced that Kaher Kazem, Chief Operating Officer (COO) of GM India, has been appointed President and Managing Director of General Motors India (GM India), effective January 1, 2016.

"With Kaher's hands-on experience and direct knowledge of the business, we are pleased to appoint him to lead GM India at this important time," said GM Executive Vice President and GM International President Stefan Jacoby. "GM is committed to India for the long term. Kaher's proven track record will enable us to deliver to Indian consumers the great vehicles they want and the world-class customer experience they deserve."

Kazem joined GM Holden in Australia in 1995 as a senior engineer. He later held several leadership positions at GM Holden Manufacturing Operations. In 2009, he was appointed vice president of Manufacturing and Quality for GM Thailand/ASEAN. Prior to taking on his current position earlier this year, where he has managed the industrial side of the business, Kazem was president and managing director of GM Uzbekistan from 2012.

Kazem will succeed Arvind Saxena, who has decided to retire from GM, after leading GM India since early 2014. "I want to thank Arvind, who has helped lay the foundation for the future success of GM India," said Jacoby. "We look forward to a smooth transition to ensure the continued execution of our business transformation."



HYUNDAI MOTOR INDIA MAKES CHANGES IN TOP MANAGEMENT

Hyundai Motor India Ltd. (HMIL) has announced the following top level management changes. Y.K. Koo will assume the responsibilities of 'Managing Director' from B.S. Seo, who is set to return to the HQ, Seoul after 5+ years in India. Koo has served earlier in India and is back again for his third stint. In other changes, B.S. Jeong will assume the charge of Executive Director Sales & Marketing, relieving Y. J. Ahn, who will henceforth lead the Corporate Affairs team of HMIL, replacing Y.K. Lee, who is set to return to Korea. The changes are effective from November 8, 2015.

D. K. VENKATESH IS DIRECTOR (ENGG. AND R&D) OF HAL

D. K. Venkatesh has taken over as Director (Engg. and R&D) of Hindustan Aeronautics Limited, Bengaluru. Earlier, he was holding the charge of the same post as Officer on Special Duty (OSD). The post of Engineering and R&D is newly created as a part of restructuring of HAL's Board, that came into effect from April 1, 2015.

On assuming the charge, Venkatesh said "My focus will be on promoting and developing new technologies, processes and products that are contemporary to meet the expectations of the Company". Venkatesh has more than 35 years of experience in aerospace industry in manufacturing, assembly, repair, overhaul, prototype development, quality management, projects, design, customer support of aircraft, helicopters and gas turbine engines. He is a member of the Aeronautical Society of India and an active member of the Society for Failure Analysis.

Venkatesh did his Bachelor of Engineering (Mech) from National Institute of Technology, Surat. He is an Associate of the Institute of Costs & Works Accountants of India and holds a Post-graduate Diploma in Marketing Management and Computer Applications.



EXTERNAL CONSULTANT FOR SAIL PERFORMANCE REVIEW

Minister of Steel & Mines Narendra Singh Tomar has directed that an external consultant may also be appointed by Ministry of Steel for a 360 degree review of SAIL's structure. The consultant may have the mandate to identify critical projects and bottlenecks therein, to recommend a holistic operational and marketing strategy, to propose a time-bound and outcome-oriented turnaround strategy and to monitor and steer the execution of this strategy in close coordination with Ministry of Steel.



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EVENT

Mega Tech Show!

IMTMA presents South & South East Asia's leading Metal Forming Machine Tool Exhibition 'IMTEX FORMING 2016'



Indian Machine Tool Manufacturers' Association (IMTMA) is happy to invite the industry to its flagship IMTEX FORMING 2016 exhibition at the Bangalore International Exhibition Centre (BIEC) from January 21 to 26, 2016 in Bangalore. Tooltech 2016, a concurrent event of dies & moulds, forming tools, machine tool accessories, metrology and CAD/CAM will be held simultaneously.

IMTEX FORMING 2016 and Tooltech 2016 will be a significant exhibi-

Key highlights

Display of **high power** fibre laser cutting machines.

More than **450 exhibitors** from **22 countries**.

Group participation from four nations: **Germany, China, Japan and Taiwan**.

Exhibition net space covering about **30,000 sq m** in three halls.

Visitor footfall of about **50,000**.

plasma cutting, profile bending machines, robotic welding and service, and welding technologies. The event will benefit the entire manufacturing sector." Concurring with the President's statement, V. Anbu, Director General, IMTMA said, "World class technology and knowledge sharing will be on display at IMTEX FORMING 2016. By participating in the show, exhibitors will gain an insight on the latest technological requirements and get an opportunity to cement business relationships. This will be made possible by the



“High power fibre laser cutting machines is definitely one of the new technologies that would be on display at this IMTEX. Companies will also display servo presses, hydroforming, plasma cutting, profile bending machines, robotic welding and service, and welding technologies. The event will benefit the entire manufacturing sector.”

L. Krishnan, President, IMTMA



“By participating in the show, exhibitors will gain an insight on the latest technological requirements and get an opportunity to cement business relationships. The event will help policymakers to prepare a roadmap for the industry and enable them to take informed decisions.”

V. Anbu, Director General, IMTMA

tion for South East Asia with the presence of leading national and international manufacturing firms from the metal forming sector. IMTEX FORMING is expected to be a greatly expanded fair which would feature all aspects of forming technologies, predominantly sheet metal forming. This exclusive business-to-business event will attract Indian and foreign exhibitors who would offer a range of technologically innovative manufacturing and engineering products and applications.

Sharing his views, L. Krishnan, President, IMTMA said, “High power fibre laser cutting machines is definitely one of the new technologies that would be on display at this IMTEX. Companies will also display servo presses, hydroforming,

high level delegations that are expected to visit from key private and public sector undertakings. The event will help policymakers to prepare a roadmap for the industry and enable them to take informed decisions.”

As in earlier years added attractions will form part of IMTEX FORMING 2016. These include: International Seminar on Forming Technology (a seminar on the latest research and trends in forming technology) on 20 January 2016, i2 Pavilion (Industry – Institution Pavilion, a forum for academic and research and development institutions to showcase their activities in manufacturing and engineering fields), and Connect (imparting knowledge on the machine tool industry for young engineers). 

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PM Narendra Modi with the German Chancellor, Dr. Angela Merkel, in October 2015, in New Delhi. Both countries have taken positive steps towards strengthening bi-lateral trade.

Since 1991, the year of liberalisation, Germany is the seventh most important investing country for India with total investments amounting to around US \$8,316 million accounting for almost 3.2% share of total investment inflow into India. The country has consistently been among the top ten investing countries for India. During the last financial year (2014-15), it ranked 7th with investments to the tune of US \$1,125 million. While overall foreign direct investments into India grew 27.3% during the last fiscal, inflows from Germany grew 8.4%.

Top sectors attracting FDI inflows from Germany during FY April 2014 to March 2015 are Automobile industry (20.6%), Services Sector (15.9%), Construction (infrastructure) activities (15.6%), Industrial machinery (6.2%) and Drugs & pharmaceuticals (6.2%). These top 5 accounted for about 64.5% of total inflows from Germany during the last fiscal. 1,634 financial collaborations have been approved for Germany since 1991 (7.8%) of a total of 21,018 for all countries. 1,117 technical collaborations (13.7%) of Germany have been approved out of a total 8,151 for all countries since 1991

Working Together!

Foreign Direct Investment (FDI) into India saw a significant growth after the launch of 'Make in India' initiative in September last year, with 48 percent increase in FDI equity inflows during October 2014 to April 2015 over the corresponding period last year.

By Rajesh Nath, MD, VDMA India



“During the financial year 2014-15, Maharashtra – 47.3%, Tamil Nadu- 26.9%, New Delhi – 12.7%, Karnataka – 4.25% and Andhra Pradesh – 0.8% were the top investment locations for German companies in India.”

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During FY 2014-15, Maharashtra – 47.3%, Tamil Nadu- 26.9%, New Delhi – 12.7%, Karnataka – 4.25% and Andhra Pradesh – 0.8% were the top investment locations for German companies in India. Germany’s total investments into India during Apr.’14 to Mar.’15 amounted to US \$1,125 million, accounting for over 3.6% of total Indian investment inflows in that year.

Indo German Trade

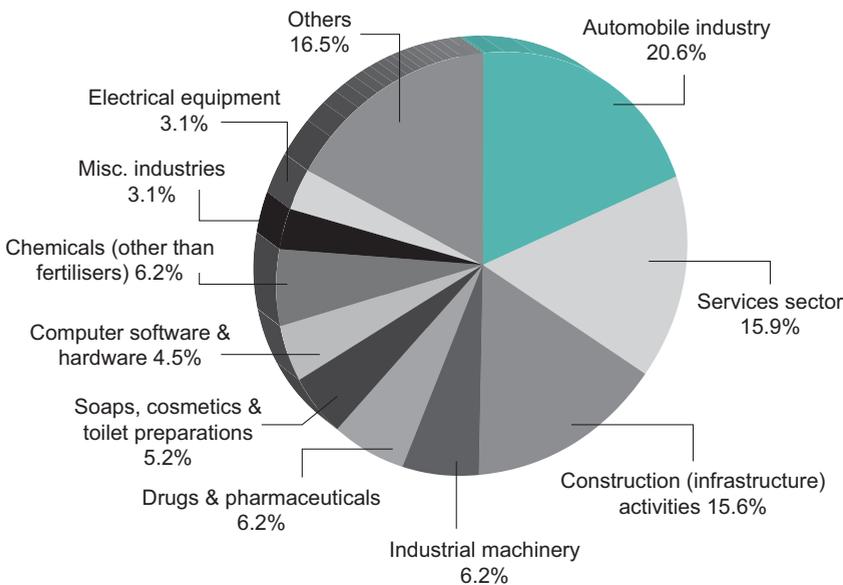
The trade volume between India and Germany during the first half of 2015 grew a healthy 13.5% over the same period last year to reach a volume of nearly €8.8 billion. The significant increase in bi-lateral trade was mainly on account of the Indian imports from Germany which appreciated 18% (€4.9 billion) during first half of this year, after registering a negative growth of 13.7% during Jan-June 2014. On the other hand, Indian exports which had more or less remained at the same level during Jan to June 2014, posted a growth of 8.3% during the same period this year. Indian exports to Germany during January to June 2015 amounted to nearly €3.9 billion.

India imported machinery worth nearly €1,598 million during H1 of 2015 (H1 2014: €1,282 mil.), which accounted for 32.6% of total imports from Germany during this period.

Indo-German Trade – half year 2015				
in € million	Jan.- Jun. 2014	Jan. - Jun. 2015	Difference	% change
Indian exports	1,794,213	1,827,079	32,866	1.8
Indian imports	2,394,445	2,121,327	-273,118	-11.4
Trade volume	4,191,223	3,948,406	-242,817	-5.8

German investment inflows since 2000				
Year (April-March)	From Germany (in US \$ mil.)	% change over previous year	From all countries (in US \$ mil.)	% share of Germany
2000-01	123.34	-	2,463	4.2
2001-02	113.48	-8.0	4,065	2.8
2002-03	143.91	26.8	2,705	5.3
2003-04	81.17	-43.6	2,188	3.7
2004-05	145.35	79.1	3,219	4.5
2005-06	302.82	108.3	5,540	5.4
2006-07	119.95	-60.4	12,492	1.0
2007-08	513.61	328.1	24,575	2.1
2008-09	629.22	22.5	31,396	2.0
2009-10	626.14	-0.5	25,834	2.4
2010-11	199.74	-68.1	21,383	0.9
2011-12	1,621.95	711.0	35,121	4.6
2012-13	859.62	-47.0	22,423	3.8
2013-14	1,038.42	20.7	24,299	4.3
2014-15	1,124.86	8.4	30,931	3.6
Total	7,643.58	17.3	248,634	3.1

Sector-wise German FDI equity inflows from Apr.’14-Mar.’15 (in US \$ million)



¹⁾ incl. Financial, Banking, Insurance, Non-financial/business, outsourcing, R&D, Courier, Tech. Testing and Analysis & others

Chemical products formed the 2nd most important item with imports amounting to €592 million (H1 2014: €528 mil.), and a share of 12.1%. Electro-technology products featured 3rd on the list, with imports worth €582 million and a share of 11.9% (H1 2014: €534 mil.). In 2014 out of approximately Euro 16.7 billion (Rs.117012 crores) of machinery imported by India, Germany had a share of around 15.4%, marginally behind China (24.3%) and ahead of Japan (10.3%) and USA (8.7%).

German Investment inflows

The graph of German investment inflows from the years 2000 to 2015 is inundated with several crests and troughs. After declining initially in 2001-02, the following year saw German investments rise, posting a growth of 26.8%. In the subsequent year i.e. 2003-04, there was a

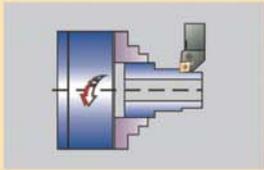
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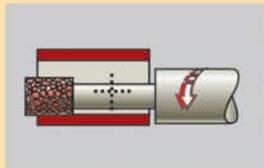


FIG-200 SPL CNC
BIG BORE GRINDER

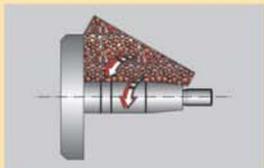


FIGT-300 CNC
FOUR STATION TURRET



FIGE-150 CNC
ID / OD GRINDER

CNC Cylindrical Grinding



AWH-1500 CNC
LONG SHAFT GRINDER

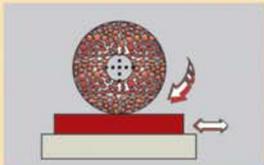


AWH-2000 CNC
HEAVY DUTY GRINDER



SWH-400 CNC
AUTO LOADING

Surface Grinding



SG-106 CNC
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The automotive industry was the largest contributor to German investment inflows during the last financial year 2014-15. Image Courtesy: Volkswagen India

substantial dip again (-43.6%) with another rise in the following year of 79%. In 2005-06, investment inflows from the country saw a healthy growth once again, growing by over 108%. That year Germany's share in total investments into India was maximum with 5.4%. Another dip in German investments followed in 2006-07 (-60.4%) only to rise substantially once again in the following year by 328%. In 2008-09, there was a reasonable growth of 22.5% in German investments and the level was more or less maintained during 2009-10. The numbers took another plunge in 2010-11 when investments dropped by over 68%. This was succeeded by the phenomenal rise of 711% during the year 2011-12, which amounted to nearly US \$1,622 million accounting for a share of 4.6% of total investments from all countries into India. German investments once again declined 47% amounting to US \$860 million in 2012-13 and in 2013-14, investment

inflows from the country into the subcontinent was to the tune of US \$1,038 million, posting a growth of 20.7% and accounting for a share of 4.3%. According to the statistics of the Department of Industrial Policy & Promotion, Govt. of India, last year i.e. 2014-15, inflows from Germany amounted to US \$1,125 million, registering a growth 8.4% while taking up a share of 3.6% of total investment inflows into India last year.

Sector-wise inflows of German FDI (Apr'14- Mar'15) – Top Sectors

With a share of 20.6% of total German investments (US \$1,124.9 million), the automotive industry was once again the largest contributor to German investment inflows during

the last financial year (2014-15). Next was the Services sector (Financial, Banking, Insurance, Non-Financial/Business Outsourcing, R&D, Courier, Tech. Testing and Analysis, Others) with US \$179.4 million and a share of 15.9%, followed by Construction infrastructure activities (Roads, Highways & other Construction) with US \$175.6 (15.6% share).

Construction activities which did not feature among the top sectors in the previous year have suddenly assumed the third position to become one of the top areas for German investments. Next was Industrial machinery which attracted German investments worth US \$69.9 million while accounting for a share of 6.2%. This sector moved

up from the 10th position in the previous fiscal to the 4th position by appreciating over 468%.

During the last year (Apr'14 to Mar'15), the top five categories took up over 64.5% of total German equity inflows, whereas during the previous year (Apr'13 to Mar'14), 82.3% of total investments were accounted for by the top five categories. This indicates that the investments were spread out over more number of sectors unlike the previous year where the automotive industry accounted for the biggest share of the investments pie.

India imported Machinery worth nearly €1,598 million during the first half of 2015 (1st half 2014: €1,282 mil.), which accounted for 32.6% of total imports from Germany during this period.

Region-wise distribution

Last year, Maharashtra attracted the lion's share (47.3%) of German investments into India to the tune of US \$531.5 million making it the top destination for investment inflows. Investments to Maharashtra, including Dadra & Nagar Haveli, Daman & Diu jumped 322% and thereby it overtook

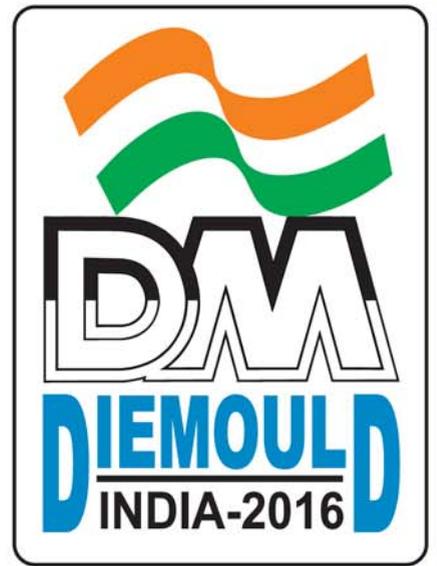
Tamil Nadu which was at no.1 in the previous year. Tamil Nadu was the second most important location with investments amounting to US \$302.68 and a share of 26.9%.

This was followed by New Delhi covering the capital, parts of UP and Haryana, which attracted inflows worth US \$143 million accounting for a 12.7% share. Karnataka (US \$49 million, 4.25% share) and Andhra Pradesh (US \$9.04 million, 0.8% share) were the 4th and 5th most important destinations. Andhra Pradesh moved up from 9th to 5th place. At the sixth position was West Bengal (incl. Kolkata, Sikkim, Andaman & Nicobar Islands). Gujarat retained its seventh position with investment inflows worth US \$3.52 million (0.3% share). 

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“We are confident that with more export oriented components coming in Indian industries, 5-axis machining requirements will increase. We expect to get good share of this requirement.”

“We are trying to explore all opportunities from market place. We focus on over all relationship and customer satisfaction and look for new opportunities,” says **Terrence Miranda, MD, Haas Factory Outlet - Mumbai, India**

By **Niranjan Mudholkar**

Q **Congratulations on the opening of the new Haas Factory Outlet (HFO) at the Nashik Engineering Cluster. What is the significance of this development?**

There will be good opportunity for local manufacturing industries in following way:

1. Demonstration of machines and various options available

Machines on display at HaasTec Pune 2015 (December 2015)

The UMC-750 five-axis vertical machining centre offers a capacity of 762 x 508 x 508 mm in the X, Y and Z-axis respectively. It features a two-axis inbuilt trunnion rotary table and a 40-taper, 22.4 kW, 12000 rpm direct drive spindle. Other features of this advanced machine include a 40+1 side mount tool changer, 25.4 m/min rapids, co-ordinate rotation and scaling, rigid tapping, a wireless intuitive probing system and a 284 litre flood coolant system.

The Haas ST-35 big bore CNC lathe can accommodate bars up to 102 mm in diameter and offers a capacity of 533 (dia) x 660 mm (length) with 806 mm of swing. The 29.8 kW, 2400 rpm spindle is served by a two-speed gearbox, while additional features include a 381 mm chuck, 12-station bolt-on turret and rigid tapping capability.

Other Haas CNC machine tool models scheduled to appear at both HaasTec events include the ST-10Y turning center with Y-axis, the ever popular DT-1 Drill Tap machine with new 30 taper 15,000 rpm spindle, a VF-2 VMC, a VF-2SS, Mini Mill and the VF-7/50 VMC.

- on machine will be helpful in decision making.
- 2. They can get some jobs tried before they finalize machine.
- 3. Existing customers / new prospectus can send their representatives for getting Haas Control training.
- 4. Easy availability of spares at HFO will help customers to get spares faster.

Q **How was the response to the Demo Days at this HFO?**

It was very good response from existing and new customers. On October 17th we had arranged visits from technical institutes for faculty as well as for students so that they also get exposure. We had approximately 500 visitors in three days show.

Q **Haas exhibited some new machines like the Haas UMC-750SS and the Haas DM-1 at the EMO Milano 2015 exhibition. Are these available for Indian clients?**

These machines are now available for Indian customers. We are submitting our offers wherever application of such machines are required. In fact we have already supplied the UMC 750 machine to few customers in India. These machines are high technology machines and are available to increase productivity and doing complex jobs.

Q **5-axis machining is slowly but steadily gaining popularity in India. However, pricing is still a big barrier. How is Haas addressing this issue for its customers?**

We study customers’ requirement very closely and suggest options accordingly. We are confident that with more export oriented components coming in Indian industries, 5-axis machining requirements will increase. We expect to get good share of this requirement. We are trying to explore all opportunities from market place. We focus on over all relationship and customer satisfaction and look for new opportunities.

Q **Do you think the machine tools industry’s approach is now changing due to the dynamic market?**

Yes, it is changing. Customers are looking for total solutions and cost/per piece approach. They are demanding services to much higher level.



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As we say good bye to 2015, the industry gets ready for a better tomorrow with new plans and great hopes.

By Niranjan Mudholkar

2015. It has been like most of the years in this century so far – turbulent, tantalizing and transformational. Of course, there has also been the hint of growth and policy reforms. And yet, it has also been a different year. The Machinist spoke to representatives from a cross-section of the industry to find out what really sets 2015 apart and what the shape of things in 2016 will be like - both from their company perspective as well as from the industry's point of view.

The year that was

Dr. Andreas Wolf, Executive VP, Manufacturing & Quality, Bosch Ltd., India, shares that in 2015, Bosch in India saw quite a few developments. “There were some positive sentiments in the market as passenger cars and commercial vehicles registered growth on account of new model launches, pick up in replacement demand, currency stabilisation, reduced fuel prices and interest rates. However, there was de-growth in the

tractor segment due to weak rural demand.” In spite of the weak overall situation Bosch India's automotive market grew about 4 percent compared to 2014 and its domestic sales of mobility solutions was at around 9 percent.” We registered a 5.7 percent increase in net sales in Q2 over the comparable period of the previous year,” adds Wolf.

Aravind Melligeri, Chairman & CEO, Aequs, describes 2015 as an excellent for the aerospace vertical where his company grew more than 50 percent YoY. “In our automotive vertical we are seeing steady growth with new part development and adding new customers in our new plant in the Aequs SEZ, Belgaum.” The Oil and Gas industry is going through a severe downturn but Aequs has continued to secure certain level of business due to its unique local-global delivery model. “During this period we have also continued to expand capability in this vertical and prepare ourselves for the inevitable recovery in the industry,” he adds.

Prashant Vatkar, MD, HIL Limited, points out that over-



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“What would help immensely is the passage of the GST and Land Acquisition bills, and addressing the NPAs from a wide range of sectors – Infrastructure, Steel – and we hope that these would happen sooner than later.”

Kaustubh Shukla, Chief Operating Officer, Industrial Products Group, Godrej & Boyce

all, the market has been tough. “Our first half results are good, as per our assessment better than competition. Q1 was exceptional but Q2 was not as good though,” he shares. HIL’s Aerocon Business has done very well in the H1 growing rapidly against all odds and head winds. Its relatively new division of Aerocon Pipes and fitting launched in Nov 2013 is doing very well and now is one of the significant players. HIL’s Charminar Business, which is under pressure due to very adverse market conditions and declining demand, has done better than competition in H1 but below the internal expectations. “We are closely monitoring the market situations looking for any bright spot to tap into; we are hopeful that the market demand will improve towards the later part of H2,” Vatar adds.

Hitesh Doshi, CMD, Waaree Energies Ltd. shares that during the FY 2015-16, Waaree has executed some big ticket grid tied EPC contracts such as ‘Waareep’, which is a 50 MW Project in Madhya Pradesh. In fact, Waaree’s total cumulative supplies of solar PV modules has crossed 200MW in this year.

Kaustubh Shukla, Chief Operating Officer, Industrial Products Group, Godrej & Boyce, says that due to the diverse nature of the business at his organisation, the situation in the last year was a mix of challenges and opportunities. “We had excellent outcomes in some sectors and faced challenges in some other businesses and product categories. Liquidity has been little bit challenging with many of our institutional customers. Purchase from individual / retail customers has improved. We are also hoping that new investments from institutional customers will improve with time,” he adds.

Sanjeev Taparia, Senior VP, Sales and Marketing, National Engineering Industries Ltd (NEIL), shares that NEIL’s growth has been at an overall percentage of 17 percent, driven by exports.



“Overall market situation should improve with demand starting to grow. The concern though is the effect of a not very good monsoon.”

Prashant Vatar, Managing Director, HIL Limited

Atsushi Okiyama, GM, Business Planning, Bridgestone India, says that his company has been making a steady growth in 2015 so far. “We have also launched an innovative product, ECOPIA series, which are fuel-efficient and enable us to embody Bridgestone’s Environmental Mission Statement of



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“With interest rates going down and RBI policies in favour of liquidity in the market, more funds would be available.”

Sanjeev Taparia,
Senior VP, Sales and Marketing, National Engineering Industries Ltd.

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Keeping the hopes alive

In 2016, Bosch is anticipating two very significant changes. “One with respect to the introduction of the emission legislation and the second, introduction of Goods Service Tax (GST). Introduction of BS4 would be positive for Bosch. We anticipate a moderate growth in 2016. In 2016, as well, our approach will mostly be cautious and reactive,” says Wolf.

Vatkar of HIL Ltd. believes that overall market situation should improve with demand starting to grow. But he also adds that the effect of a not very good monsoon is a concern.

Melligeri shares that Aequus has aggressive growth plans in all verticals, especially Aerospace which is expected to achieve a similar growth rate of more than 50 percent YoY. “We expect our Automotive vertical to deliver forged machine parts from our ecosystem. This is of much significance as we move up in the value chain from being just a machining player to an integrated supplier for our customers. Also, we are hopeful that the Oil & Gas sector will show signs of recovery in the later part of 2016 (Q4). Our new plant dedicated to Deephole Drilling components will be ready by that time. Also, there is a possibility that the Global Supply Chain model addressing the right mix of Delivery and Cost would be re-defined.”

Doshi of Waaree Energies thinks the solar industry will grow further in the next year and the atmosphere will be all the more favourable. An estimated 10.8 GW capacity is expected to be added between April 2016 and March 2017, as per the recently issued document by the Ministry of New & Renewable Energy states. A huge portion of this capacity is expected to be added through central government policies while states would continue to play catchup, Doshi believes.

Shukla is hopeful that 2016 will have lot of opportunities



“We think the solar industry will grow further in the next year and the atmosphere will be all the more favourable.”

Hitesh Doshi, CMD, Waaree Energies Ltd.

for Godrej & Boyce. “The government has kick started the reforms process in the right earnest and effects of this will be seen in the months to come. Improvement in ratings for ease of doing business, improved situation in power sector, improved push in railways and road / infrastructure, encouragement for

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“Infrastructure development also presents a great opportunity for growth with the government’s initiative to build 100 smart cities. This commitment toward speeding up the pace of urbanization by investing in smart cities, ports, metros and airports will provide immense growth to our industry.”

Sebi Joseph, MD,
Otis Elevator Company India.



FDI are positive signs. What would help immensely is passage of the GST and Land Acquisition bills, and addressing the NPAs from a wide range of sectors – Infrastructure, Steel and we hope that these would happen sooner than later,” he adds.

Okiyama of Bridgestone India sees things getting better in

“With the launch of ‘Make in India’ campaign, the new government is focusing on physical infrastructure creation and making India a hub for global manufacturing. This is one of the incentives for the revitalization of economic environment of India.”

Atsushi Okiyama, GM, Business Planning, Bridgestone India

Some milestones from 2015

Bosch inaugurated its three manufacturing facilities - one in Gangaikondan, Tamil Nadu for Gasoline systems; the second for Diesel systems in Bidadi, Karnataka and the third for Power tools in Chennai.

HIL Ltd. began commercial production of CPVC and UPVC pipes at its Thimmapur Plant in April 2015, commenced commercial production of coloured steel sheets at its manufacturing facility in Wada in July 2015 and commenced production at the new AAC blocks manufacturing unit at Thimmapur in September 2015.

Aequs launched India’s largest aerospace manufacturing facility covering 100,000 sq. ft. in the Aequs SEZ with an investment of Rs350 crore (over 5 years). This unique facility dedicated for Airbus machined components and sub-assemblies will have an installed capacity of up to 150 CNC machines. Aequs expects to fill about 20 percent of this facility by end of this year.

Aequs also expanded its global delivery ecosystem in the Aerospace vertical with the acquisition of T&K Machine Inc., an aerospace component maker based in Paris, Texas. It also acquired a company located in Besancon, France.

In the Oil and Gas sector, Aequs signed a JV agreement with Precihole Machine Tools to combine technological expertise and infrastructure to manufacture precision machined components for international markets.

2016 and he has a good reason for that. “Acceleration in the automobile sales and demand in replacement market will help in improving the tyre industry. We hope that the sustainable growth in GDP and some reforms will benefit the automobile and ancillary industries.”

Taparia of NEIL say sthat rural demand is expected to pick up from January 2016. “The market was facing a liquidity crunch. With interest rates going down and RBI policies in favour of liquidity in the market, more funds would be available.”

Sebi Joseph, MD, Otis Elevator Company India, too is positive for 2016 and sees potential across residential and commercial buildings as well as infrastructure. Presently, residential real estate accounts for a larger portion of elevators required in the country. Elevators continue to witness growing penetration in mid-rise and high-rise buildings in the residential sector. “The commercial sector is also a significant factor given the urbanization trend that we see across India,” he says.

Strategies for a better tomorrow

Wolf of Bosch thinks that with the Make in India campaign in India, there is an increasing awareness of quality and there is a change in the customer perception of quality. “Future business of any organization would start with perfect quality

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today. Bosch will continue to strengthen its focus on Quality. Also, in Bosch, we have a dedicated cross functional team that is working on projects for Connected Industry in India where we look at adapting innovative affordable “Indianised” solutions for manufacturing. We have a formed a team called Simultaneous Engineering Cluster that will help in developing competency for smooth transition between development and production of new products. Another initiative has been the launch of the Fit for future program where we identify the ‘Vital few’ and look at oversteering the Business internally.”

Doshi of Waaree Energies says that there is a need to keep a tab on the cost so that the manufacturing industry solutions could be availed across various sections of the society. “Also, quicker delivery mechanism is very crucial in the solar manufacturing sector,” he says.

Shukla of Godrej & Boyce emphasises that innovation and operational efficiency should be the key focus areas. “Skill Development and adapting to the new wave of sophistication would have to follow,” he adds.

Okiyama of Bridgestone India believes that with the launch of ‘Make in India’ campaign, the new government is focusing on physical infrastructure creation and making India a hub for global manufacturing. “This is one of the incentives for the revitalisation of economic environment of India.”

Taparia of NEIL thinks that there should more focus on



“In 2016, we are anticipating two very significant changes. One is with respect to the introduction of the emission legislation and the second is the introduction of the Goods Service Tax (GST).”

Dr. Andreas Wolf, Executive VP,
Manufacturing & Quality, Bosch Ltd., India.

exports---to do that enhanced focus on R&D. “Scaling up talent should be the first driving factor to do well. Once people are well equipped to use the right technology and are motivated enough, optimum productivity is a natural resultant,” he believes.

Vatkar of HIL Ltd. sees opportunity in maximising on the opportunity that should come in with Governmental spending increasing in infrastructure projects. And at the same, he says that organisations must continue to focus on increasing overall efficiency and reduce wastage.

More highlights from 2015

Godrej & Boyce achievements in 2015 include the Good Design Award by the Japan Institute of Design Promotion for Godrej Edge Digi refrigerator, India Design Mark Certification of Design Excellence for Appliances, Interio, Storage Solutions and Locking Solutions & Systems, TPM Excellence Award for Tooling, Locking Solutions & Systems, Precision Engineering and Interio, GreenCo rating for four manufacturing units.

At the beginning of 2015 Otis India announced the opening of its expanded factory in Bengaluru. With this, Otis India’s production facility has more than tripled in size and doubled in manufacturing capacity. Co-located with the factory is Otis’ R&D center in India that has also significantly expanded its engineering capacity in recent years.

Otis India also launched the Gen2™ Infinity elevator, which operates at a speed of 1.75 meters per second.

Bridgestone India announced the launch of fuel-efficient tyre series, Ecopia EP150 for passenger car and Ecopia EP850 for SUV this year. Ecopia is a combination of the words ‘Ecology’ and ‘Utopia’.

National Engineering Industries Ltd. became the only bearings company in the world to win the Deming Grand Prize.

Waaree Energies commissioned its Roha Dyechem project, spread over 125 acres, in a record time of 116 days.

Planning ahead

Wolf assures that Bosch will continue to invest on development of innovative products that is targeted at the Indian market while it also explores the possibility of manufacturing in India for global markets. “Our attention would be directed towards Productivity and ramping up of the new products. For diesel systems, we will be starting the production of high pressure pumps that will satisfy the emission legislations for BS4 and above. In Packaging technology, along with strengthening our business in India, we are extending our business to Africa. In the Brake systems, we will be focusing also on the ABS for 2 wheeler market. We are also looking at various green initiatives within our Plant. In Nashik, we have installed a solar power plant which generates around 3300 MWh of power and has reduced around 2000 tons of CO2 emission. In the second module, we are looking at another power plant generating around 3800 MWh of power. Similarly, we are also working on a similar project in Bidadi in 2016. Overall, we are well prepared for the upcoming legislations and geared for the Indian market in 2016.”

Doshi says that Waaree Energies has a long-term strategy to develop the ecosystem for the growth of solar power. “On a short-term basis, we wish to create the land-bank and infrastructure. Quickly evolving state level policies can pave the



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way towards developing the state solar infrastructure. We wish to maximise the localised content which is required in manufacturing the solar modules.” Talking about the future, Doshi wishes to invest in the high efficiency solar panels with the manufacturing capacity of 1000 MW in the next year.

Sebi Joseph says that Otis recognises the opportunity India presents and so an increased presence here is a top priority. Poised for growth that the country offers, the Otis Bengaluru factory was expanded with this endeavor in mind. “Reiterating its commitment to Indian customers, Otis strives to locally design and manufacture quality products for India’s unique needs,” he shares.

“At Godrej we take a long term view of the economy and we share the very enthusiastic assessment of the size and growth rates for our economy,” says Shukla. He points out that globally, there will be challenges to deal with, but the domestic demand can be a great source of opportunity. “So all our plans for expansion, capacity building, New Products Introductions are on track and being pursued enthusiastically. For the short term, we will continue to focus on Innovation and Operational Excellence.”

Vatkar says that HIL Ltd. plans to maximise the opportu-

Strategy for aerospace manufacturing in 2016

“It would be wise to synergise manufacturing capabilities for a high level of utilisation of indigenous resources installed in Aerospace since it is a technology-driven and capital intensive industry. We did this back in 2008 by establishing the first third party surface treatment plant for Aerospace in partnership with Magellan Aerospace.

Another critical area where the manufacturing industry needs to focus is training. This being a technology oriented field, building the right training modules and steadily building a trained workforce will go a long way in sustaining and growing our businesses. This could be done by partnering with local institutes, establishing training centers either within their own facility or at third party sites. The skilled workforce in Western countries have acquired this knowledge more than five decades ago compared to India which has only started capability building process over the past 7 years. So you can see there is a substantial gap we need to address. The challenge is to create an efficient model between high capital, low labour cost, less skilled workforce against western countries’ depreciated capital, high labour cost and highly skilled workforce.

With the opening of the Indian Defence industry to private sector investment, it is imperative for us to build these capabilities. At the end of the day we need to make ‘Make in India’ work if we as a country want to be globally recognised in this industry.”

By Aravind Melligeri, Aequs



“We are hopeful that the Oil & Gas sector will show signs of recovery in the later part of 2016 (Q4). Also, there is a possibility that the Global Supply Chain model addressing the right mix of Delivery and Cost would be re-defined.”

Aravind Melligeri, Chairman & CEO, Aequs

nity in the roofing business and will continue to focus on the Aerocon Brand Range and increasing its proportional contribution to the overall revenue.

Taparia informs that NEIL plans to invest another Rs250 crore in the Savli plant in Gujarat for FY2015-2016 for expanding capacity in order to beat expected demand which will go up in 2016. NEIL also plans to introduce more value-added products such as the third generation products.

Okiyama says that Bridgestone India is monitoring the market condition narrowly and it would expand in line with the market demand. “We will proceed as per the business scenario to address the demand and market share, and will launch new and innovative products to serve a wide variety of customers better.”

Melligeri says that Aequs will continue to expand its capabilities by bringing in new technologies to its global ecosystem. “As part of our 2020 strategy, we are working to bring Castings and Aero-engine component machining capabilities to the Aequs SEZ. We expect our Automotive vertical to deliver forged machine parts from our ecosystem. This is of significance as we move up in the value chain from just being a machining player to integrated supplier for our customer,” he adds. 

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“**I**ntegrated Industry – Discover Solutions” is the lead theme of Hannover Messe 2016. “Integrated Industry is no longer a vision of the future. It is reality. Industry 4.0 is moving into more and more factories. Power grids will evolve into smart grids,” says Dr. Jochen Köckler, member of the managing board at Deutsche Messe. “To remain competitive, companies must recognise and fully exploit the potential of digitalisation. Hannover Messe 2016 will show them how.”

The digitalisation of factories and energy systems is the foremost topic at the world’s leading trade fair for industrial technology. Köckler: “We expect for the first time at the fair more than 100 concrete examples of applications. That is unique worldwide. Partner Country USA will also demonstrate the newest Industry 4.0 technologies.” In Hannover, visitors from the manufacturing industries learn step by step how to convert their production plants into Industry 4.0 factories.

Today’s world of energy generation, distribution and consumption is more complex than ever. Future energy systems require increasingly detailed solutions that interact with each other via an intelligent system. Electricity comes more and more from decentralised generators that need to be networked. Energy storage and distribution also has to be digitally controlled. Power grids and data networks are converging. “Under the catchphrase ‘Integrated Energy’, Hannover Messe presents solutions for connecting the entire energy chain – from generation, transmission, distribution and storage all the way to alternative mobility solutions,” says Köckler.

In recent years Hannover Messe pioneered the Industry

4.0 era. Rarely has a technological development made such a profound impact so quickly. What previously was a vision is now a reality, ready for use in factories. Hannover Messe 2016 will give this trend further momentum – not only with new technologies, but also with the new business models that they enable. For example: with predictive maintenance, machine and plant engineers embed sensors in machinery so that it can independently indicate that it will soon require servicing. Using this data, the machinery manufacturer can build his after-sales business by offering timely maintenance services to factory operators. Köckler: “At the new special display ‘Predictive Maintenance 4.0’ we make it clear: Discover Solutions is not only about technological solutions, but also about creating new fields of business.”

“To remain competitive, companies must recognise and fully exploit the potential of digitalisation. Hannover Messe 2016 will show them how.”
Dr. Jochen Köckler,
member of the managing board at Deutsche Messe.

With Partner Country USA, Hannover Messe welcomes the world’s biggest economy. Leading U.S. companies will demonstrate their solutions for Integrated Industry. Plus, the U.S.-based Industrial Internet Consortium (IIC) will present itself at a special display area. IIC is a globally active organization that promotes the development of the Industrial Internet of Things. Hence, all of the key players in industrial digitalisation gather in Hannover: German companies with mechanical and electrical engineering expertise, leading U.S. software providers, and companies from China and Japan that advocate Integrated Industry from their side. This creates new partnerships, ideas and solutions along the way to Industry 4.0.

Köckler: “Hannover Messe 2016 bundles global Industry 4.0 know-how. With the lead theme ‘Integrated Industry – Discover Solutions!’, visitors find networked solutions for more competitiveness.” 

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Based in Italy, Modeltek is a successful international motorsport business supplying teams and privateers all over the world with 1:5 scale model 'professional' racing cars, sold under the name Genius RC

The Model Maker, His Wife, and His Muse

If you spend most of your waking hours in a business running CNC machine tools, life is sweeter if the machines are easy to use and you like them – a lot.

Based near Udine in the northeast of Italy, Haas customer Modeltek is a successful international motorsport business supplying teams and privateers all over the world. The fact that the cars and parts it produces are one-fifth scale doesn't make the company's achievements any less impressive. Even when his wife is present, Modeltek founder, Zeno Noacco, happily admits to being "married" to his four Haas CNC machine tools. To her credit, company director Paola doesn't appear to be the least bit put out, even though Zeno frequently uses words like love and passion to describe his feelings for the machines.

"I was at a trade show when I first saw her," he says, reminiscing not about how he met Mrs. Noacco, but about how he came across the company's first Haas, a Super Mini Mill. "I

immediately liked the simplicity of the machine; the control was very easy to use, and as someone with no experience of CNC machining, I was worried that I might buy a machine and then not know how to use it."

Turns out, he worried unnecessarily. "I told myself I'd give it a go, and if I'd made a mistake, I'd sell the machine and go back to using subcontractors to make our parts. I'm glad I kept it. I think it's a great product. After a few weeks, I was completely confident, and I knew all the machine's functions and capabilities."

Modeltek's 1:5 scale model 'professional' racing cars, sold under the name Genius RC, cost around €2000. Each is a painstaking replica of a full-scale counterpart, with custom designed and made differentials, gearboxes, hydraulic disc-brake systems, drive shafts, and suspension. All of the parts are



created to tight and specific criteria – size, weight, materials, etc. – laid down by the sport’s governing body, the European Federation of Radio Operated Automobiles (EFRA).

In the years before he started his company, Zeno was a hobbyist who lived for the weekends, when he and his friends would race the scale models they made at home in their spare time. Of course, as history now shows, the models Zeno made were exceptional. So much so that his fellow racers – his competitors – would often ask him to make parts for their cars.

“Little by little, I began modifying and making a few of the more simple parts on my cars. Eventually, I made almost all parts, not only for my cars, but also for anyone else who wanted them.”

Thanks to the Internet, and the close-knit community of fellow scale-racers, Zeno’s customers were able to easily track him down. The orders began to roll in. “It’s a niche market,” he says, “so production volumes are not huge, even though we sell worldwide. However, we now make around four hundred full cars a year: the ‘Touring’ model – designed to resemble a BMW, Mercedes, or Alfa Romeo – as well as the ‘F1’ model.”

Given such a positive early experience with the Haas Super Mini Mill, Zeno didn’t need to look far for his next CNC machines. “We bought a Haas VF-2SS, a VF-3SS, and a standard VF-2,” he says. “So, now we have four Haas machines, a dedicated, fully trained operator, Mr. Clemente Pcovav, and no need to use subcontractors or buy-in parts except for the motor – from Japan – and the fiberglass body shell.”

On a bench in an assembly area adjacent to the machine shop, there are several chassis in various states of build, at different stages on the production line. The parts – even a beautifully miniaturised centrifugal clutch – look just like those used on full-sized race cars, and they behave very similarly. “Like when engineers are designing a full-scale vehicle, we begin a project by doing the maths,” says Zeno. “For example, with a new, self-locking differential, we work out the forces generated by the motor, and the desired power and torque output of the car, and we use these figures to create parts with the correct weight, dimensions, etc.”

The final prototype parts are designed on a CAD system, then cut on the Haas machines. It’s a thorough process, and the end results, if the

numbers are good, are steel, titanium, and aluminium creations, many of which look like jewellery and are as precise as wristwatch components.

“We have lots of small parts, which we usually machine on the Super Mini Mill,” says Zeno. “But, we also have parts such as the chassis floor, the plate on which everything else is mounted. It’s almost 700 mm long, which is why we need the VF-3. In fact, the best size Haas machines for us now are the VF-2SS and the VF-3SS, as they give us plenty of table space, and the flexibility to make large or small parts. Production batches are typically around two hundred off, which we can machine in less than eight hours.”

Once all the prototype parts are assembled into a complete vehicle, the testing phase begins. “We build five working models for the race team,” says Zeno. “Over the course of a year, we will refine the new car and fine tune it until we have something we’re happy with, and that is as close as possible to the minimum weight of ten kilos.”

In many ways, the world of large-scale model racing is very similar to the real racing world. “As well as providing cars and parts for customers, we have a race team,” says Zeno: “Genius Racing! We’ve also built next door a two million Euro racetrack equipped with telemetry. We travel all over Europe and the rest of the world; there’s a large following amongst the automotive companies. I have many friends at Ferrari, for example, and everyone takes it very seriously. Although, we have a lot of fun, too.” After all, for most people, it is a pastime.

Except, that is, for Modeltek and its four employees. “We may be a small company, but we see some great opportunities, now that we’ve developed some good design and machining skills, including work with the Italian Air Force. But at the moment, we have little time for anything except the model cars. It sometimes feels like we work 24 hours a day!”

If you spend most of your waking hours in a business running CNC machine tools, life is sweeter if the machines are easy to use and you like them – a lot. “I’m a little in love with the Haas brand and the Haas machines,” confides Zeno Noacco. “They’re affordable, easy to use, and reliable. In fact, I don’t think we’d be running this business now if we hadn’t discovered Haas.” 

Source: Haas

“It’s a thorough process, and the end results, if the numbers are good, are steel, titanium, and aluminium creations, many of which look like jewellery and are as precise as wristwatch components.”



Each model is a painstaking replica of a full-scale counterpart, with custom designed and made differentials, gearboxes, hydraulic disc-brake systems, drive shafts, and suspension.



Encouraging Productivity

The ninth edition of the National Productivity Summit was organised successfully by IMTMA in Gurgaon recently.



“About 300 participants from 102 companies listened to the keynote presentations on innovative approaches to address productivity challenges, new ideas and concepts. The presentations were made by teams from Maruti Suzuki, Honda Cars, Hitech Gears and Sartorius India Group.”

Indian Machine Tool Manufacturers’ Association (IMTMA) has been in the forefront of championing a productivity movement in Indian metal working industries by organising the National Productivity Summit. This event showcases the best productivity improvement projects in metal working industries which have excelled in achieving superior performance through sustained productivity improvements.

IMTMA had organised a series of successful National Productivity Summits from 2006 to 2014. The ninth summit in the series was organised at Hotel Crowne Plaza, Gurgaon, on 20 and 21 November 2015. The key highlights of the National Productivity Summit 2015 were the four inspiring keynote presentations, 4 interesting plant visits and 12 live case study presentations.

Plant visits

Plant visits to four companies were arranged on 19 November, one day prior to the summit. Hero Motocorp and Sona BLW Forging in Gurgaon, Hitech Gears and Honda Motorcycles & Scooters India in Bhiwadi were the four companies visited. Eighty delegates attended the plant visits where various productivity improvement measures being practised on the shop floor were demonstrated.

Inaugural and Keynote Addresses

L. Krishnan, President, IMTMA gave the welcome address. Dr. V. K. Saraswat, Hon’ble Member, National Institution of Transforming India (NITI) Aayog, was the Chief Guest for the event.

Speaking at the event, Dr. Saraswat briefed on the current Indian economic scenario, the challenges and opportunities lying ahead. He then impressed upon the importance of pro-

ductivity and manufacturing to the growth of the nation, in conjunction with the drive of the government on the ‘Make in India’ campaign, to equip the Indian manufacturing fraternity and scale them to greater heights in the global arena.

About 300 participants from 102 companies listened to the keynote presentations on innovative approaches to address productivity challenges, new ideas and concepts. The presentations were made by teams from Maruti Suzuki, Honda Cars, Hitech Gears and Sartorius India Group.

Case study presentations

Leading firms such as Ashok Leyland, Bajaj Auto, Bosch, Keihinfi, Lucas TVS, Mahindra & Mahindra, Maruti Suzuki, Tata Motors, TVS Motor and Wabco India presented their case studies on productivity practices, all of which contested for IMTMA – Ace Micromatic Productivity Championship Awards 2015 that gave away cash awards of Rs.10 Lakhs.

Award winners

Towards the close of the event, Wabco India, TVS Motors, Bajaj Auto, Keihinfi, Lucas TVS and SKF India were adjudged the winners of the IMTMA-ACE Micromatic Productivity Championship 2015 Awards. Further, a Vox Populi Award was given to TVS Motors. This award was voted by the delegates at the summit as the most popular case study presentation.

National Productivity Summit 2016

The next edition of the National Productivity Summit will be held in November 2016, scheduled in Bangalore, for which entries on the latest productivity practices will be called for and evaluated to compete for the Productivity Championship Awards 2016. 

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Changing shopfloor
dynamics



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A winning combination



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An integrated approach



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Empowered by technology, powered by people

The Machinist caught up with the operations team at Setco Automotive’s Kalol (Gujarat) plant to understand what they think constitutes a Super Shopfloor

By **Niranjan Mudholkar**

Q What according to you is a ‘Super Shopfloor’?

A Super Shopfloor is a set-up that makes effective utilisation of available resources (i.e. Man, Machine, and Material). This comprises of facilities like visual display on the shopfloor, clear aisles (Gangways), performance tracking of the plant, automation, adequate illumination, use of material handling equipment and implementation of lean concepts like 5S, Kanban, Single piece flow, JIT for driving the continuous improvement activity and so on.

Q How does a ‘Super Shopfloor’ manage cost?

It ensures effective resource deployment and management which in turn assists in managing cost. It highlights the systems and processes which are cost effective and the one which are costly so that necessary improvements can be made in the same. Data tracking is very efficient which is the start point of any change or revolution.

Q What role do ‘people’ play in powering a ‘Super Shopfloor’?

People are the end users of anything that happens on the shop as it affects them directly whether they adapt it or not. Effective sustenance of any change lies in the hands of the people so their involvement plays an important role in the success of implementation of Super Shopfloor. They should be intolerant towards the non-standard activities against the concepts

of lean which helps in successful sustenance of any change.

Q How can technology facilitate?

It makes the system (or the process) independent from human intervention and this prevents the possibilities of human errors. Technology advancements speed up the process and help to provide accurate results. Digitalisation in terms of visual displays and tracking boards help provide real time data tracking and management. E-supermarket is a revolution in inventory control system which tracks all the numeric data of the shopfloor with accuracy. Also, CNCs, VMCs and VTLs have transformed the way the parts were machined through lathes.

“A Super Shopfloor highlights the systems and processes which are cost effective and the one which are costly so that necessary improvements can be made in the same. Data tracking is very efficient which is the start point of any change or revolution.”

Q How does a ‘Super Shopfloor’ balance between quality and productivity?

A Super Shopfloor ensures effective utilisation of resources and ensures high output with optimum input. A clean and visual shopfloor increases productivity by enabling all focus on the value added work with accuracy and assists in achieving ‘first time right’ in every process. It highlights the real time data which attracts focus of people on the factors affecting productivity and quality. A super shopfloor contains machines with good condition, lower inventory levels, has no scrap of wastage lying on floor and facilitates effective material and information flow. It increases awareness and alertness of people which gives outstanding results.

Q Is a ‘Super Shopfloor’ Green?

A Super shopfloor is free from dust, dirt and fumes that badly affect the working environment. It creates a system or process where the use of plastic and paper gets minimised by using E-devices. For e.g. internal approval system which is conducted manually by the use papers could be easily transformed by making the use of E-devices which are accessible to all and can be operated remotely.

Now-a-days exhaust disposal systems (like ducting, scrubbers) are used for removing the harmful fumes generated inside the plant. By making use of non-conventional energy resources such as solar energy in terms of light and heat that can be used during daytime by designing the shopfloor in such a manner that enables natural light inflow during the day time. Solar cells, which store energy, can lighten up the shopfloor in the night time without making the use of electricity.

Q How innovative is a ‘Super Shopfloor’?

It gives impetus to the activity called continuous improvement in all the systems and processes that drives the company. Not only it creates such an atmosphere where competency of the workforce keeps on enhancing over a period of time, but also leads to creation of new innovative ideas for transforming the current state of the shopfloor into a most effective and efficient manufacturing set-up. 

Kalol Plant



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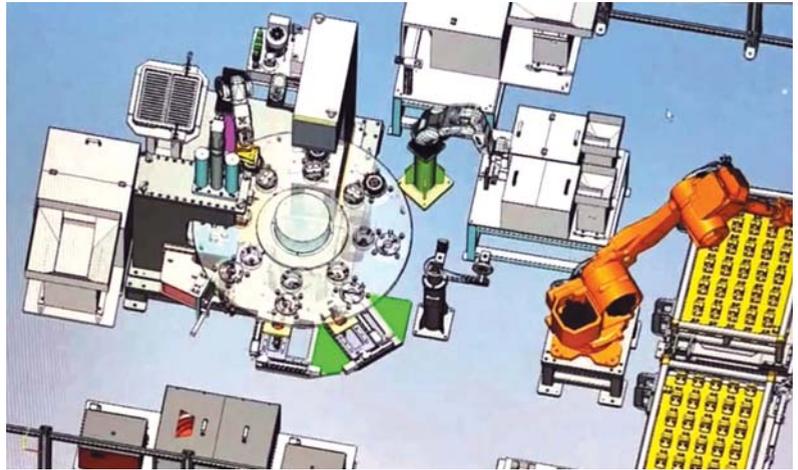


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Changing shopfloor dynamics



The only way for manufacturers in India to manage growing product complexity as well as to maintain quality assurance and competitive costs is to take advantage of the boom in global and technological advancements.

By John Louie

In the 1990s, the world economy started experiencing a global increase in trading, altering the nature of traditional value chains. There was a massive migration of manufacturing industries from advanced countries to developing economies, transforming some Asian countries into industrial giants. The chain of events that followed resulted in the concentration and redistribution of industrial activities in China and India – the two most populous and fastest-growing economies in Asia.

KPMG points out the manufacturing sector in India has the potential to reach US\$1 trillion by 2025, and contribute approximately 25 percent to 30 percent to India's GDP. This contribution in the future is expected to put India at par with the manufacturing levels of countries such as China, Germany, Japan and the United States.

The growth of Asia's market share from a global manufacturing standpoint is shifting the balance of economic power in its favour. The continued increase in this market share has a significant implication on the rest of the world; it has already generated ripples, and radically altered the parameters governing development pace and composition. But what does this mean for the average Indian manufacturer at the heart of this

industrial revolution? How are the shop floors in India responding to this tremendous appetite for growth and the challenges that it brings today?

The age of Automation

In the past, manufacturing in India signified a large production volume, low-level technology and cheap labour – a fact that is no longer true. The increase in domestic demand, evolving consumption patterns, the advent of emerging technologies and fast changing infrastructure development levels in the country has transformed the playing field. Today's consumers are more interested in personalised products of higher quality with better safety features at a competitive price. The marketplace has no room for flaws in quality, especially at a time when massive recalls are rattling even the biggest brands.

The only way for manufacturers in India to manage growing product complexity, maintain quality assurance and competitive costs is to take advantage of the boom in global and technological advancements. Recent statistics suggest that this fact is not lost on manufacturers in India. Robot installations in India grew 23 percent in 2013 from the previous year, with annual sales hitting a record 1,900,



“The combined impact of all these technological advancements and industry trends puts a sharp focus on super shopfloors to transform the future of workplace efficiency, improve profit margins for companies and enhance the quality of life of the end users.”

the latest figures available from the International Federation of Robotics. That's just a fraction of China. About 56,000 units were sold last year alone in the world's biggest robot market, where factories including iPhone producer Foxconn Technology Group are helping China keep its manufacturing edge against lower-wage rivals. To expand its manufacturing base, Foxconn is developing robots, and looking at setting up factories in India.

Today, shopfloor tasks commonly performed by industrial robots include welding, painting, polishing, deburring, assembling components, transporting items and machining. The new generation of robots is increasingly able to understand their surroundings better through sight and sound systems and can distinguish between different components, even work alongside human beings.

To sustain successful robotic applications, shop floors need well-trained and highly skilled engineers to operate robotic simulation processes, offline programming and robot maintenance. The successful implementation of robots can help in visualising and predicting operational results with a heightened degree of certainty. Not to mention increased job satisfaction for employees due to smart, efficient and accurate results.

In addition to robotic installations on the shop floor, factories are implementing several other automation models by employing programmable logic controllers (PLC). PLCs help in controlling robots, machinery, equipment, switches and alarms – they manage data communications among these elements to minimise human intervention, hence reducing human errors.

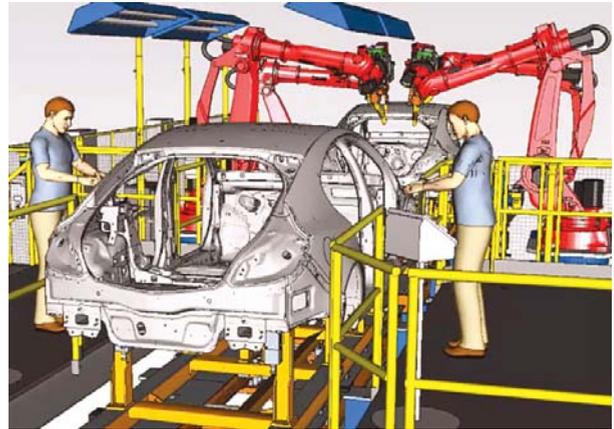
The virtual commissioning model, in which factories replicate the behaviour of a physical manufacturing environment with a software system, has numerous benefits for manufacturers including savings in labour, energy costs and improved product quality, accuracy and precision.

At the Cusp of a Societal Shift

Robots and automation are invigorating once-sleepy Indian factories, boosting productivity by carrying out low-skill tasks more efficiently. Industrie 4.0 - the vision for the future of manufacturing that is becoming an increasingly stronger theme in global manufacturing - links the real-life factory with virtual reality.

Robots are currently assigned multiple and dynamic tasks by human operators, however the robots of tomorrow will be able to solve problems together. Robots will have the ability to interact with each other, share information about pending operations, and assign tasks together. Nevertheless, robots have to be linked to a flexible conveyor and automation system to improve product quality, lower costs, and increase efficiency.

The key for a successful industrial production under an Industrie 4.0 environment is strong product customisation under flexible production conditions. This will ensure reduced error margins thanks to the availability of real-time data



Why digital manufacturing is important:

- Global competition will require modernisation of production facilities.
- It is energy-efficient and uses new materials, e.g. carbon-composites which require retooling.
- Human-machine collaboration will open up new applications and attract new customers.
- Growing consumer markets will require expansion of production capacities.
- Decline in product life-cycle and increase in the variety of products will require flexible automation.
- Technical improvements of industrial robots will increase the use of robots in the general industry and in small and medium sized companies, e.g. user-friendly robots, uncomplicated, and low priced robots for simple applications.
- Improved quality will require sophisticated high tech robot systems.
- Robots will improve the quality of work by taking over dangerous, tedious and unpleasant jobs that are not possible or safe for humans to perform.

throughout the production cycle.

Growing technological advancements and rapidly decreasing costs are leading to a vast increase in the number of jobs which robots can perform in an efficient manner. This will lead to a major increase in productivity, and also to the replacement of human workers in many sectors of the economy. The growing use of robots will reduce the competitive advantage which cheap labour historically provided by many developing countries.

The combined impact of all these technological advancements and industry trends puts a sharp focus on super shop-floors to transform the future of workplace efficiency, improve profit margins for companies and enhance the quality of life of the end users. How Indian manufacturers employ this evolving technology to realise its full potential, will determine the future of shop-floors and consumers alike. 

The author is Marketing Manager, Asia Pacific, Siemens PLM Software



A winning combination

The Igatpuri Plant, which is a part of Mahindra's Automotive Division, was the overall winner at The Machinist Super Shopfloor Awards 2015. This snapshot explains why it truly became a 'Super Shopfloor' last year.

The Igatpuri Plant is a part of Mahindra's Automotive Division which produces and supplies engines to its vehicle manufacturing plants. The Plant has state-of-the-art manufacturing facility equipped with machine shop and engine assembly lines with engine testing facilities and having capacity of producing 1100+ engines in a day. This Plant is certified for ISO standards for Quality, Safety, OHSAS and EMS. Recently the plant was also certified for TPM Excellence Award by JIPM.

The plant's key technologies include Advance Cold Test, Torque To Turn, Long Block Leakage Testing machines and the facility for air controlled atmosphere for engine assembly and testing. Its machine shop is well equipped with the latest technology machines like Landis, NTC, Heller, Makino Etc. The machining lines and assembly lines are 'Ergonomically Green'. The Shopfloor is using a single piece flow for the machine shop and the conveyerised lines for engine assembly with Kitting system for Engine Assembly. Extensive use of IT on shopfloor has resulted in increasing efficiency of the manufacturing lines. The Shopfloor maintains high level of visual management and 5S across every function. It is continuously

working on reducing the inspection time by implementing 'Interesting Caricatures' on the machines. The shopfloor encourages its people to implement their ideas on workstations through suggestion schemes and this has resulted in generating 20 ideas / person / year. As a part of the plant's endeavour to achieve excellence, the shopfloor practices 'Crusade' as an initiative which points on 'First Time Right, Every Time Right and Customer Delight'.

Following are the achievements of the shopfloor from the assessment year (2014-15*):

Safety

Safety being the first and the foremost focus area, the Plant has inculcated Safety culture across the shopfloor. To bring vigilance in the people, it has many initiatives such as Safety Observations Tours, Strong Work permit System, safety competency development, Safety Case study discussions, Safety Dexterity, Safety talk by departments, Safety dashboard etc. The plant head ensures that each day begins with Safety review. With such focused efforts, the shopfloor has achieved 50 percent reduction in injuries with regards to the previous with ZERO reportable accidents in last two years*.

Quality

In order to have delightful customer experience, the shopfloor is always focused on manufacturing products First Time Right and Every Time Right. This has been achieved through various initiatives under the umbrella of Crusade like Zero Manufacturing Defect, Supplier PPM reduction, Variability reduction, Durability improvement as well as Process & Product robustness improvements.

Apart from product and process improvements, the Igatpuri plant also works on competency enhancement of employees in the areas of skill and knowledge. It has a structured process to enhance the competency of its employees with initiatives such as five days training on Dexterity school, Learning day, QC Stories, Six Sigma, PM (Phenomenon Mechanism) Analysis, MYB (Mahindra Yellow Belt), MGB (Mahindra Green Belt), MBB (Mahindra Black Belt) etc. To ensure the build quality of the product 400+ Pokayoke has been implemented on the shopfloor which helps to deliver ZERO defect products to customers.

With all the above initiatives the Igatpuri plant could achieve reduction in Vehicle plant defects by 20 percent with regards to the previous year* and also has achieved 'Single Digit' figure for Field Quality indicators

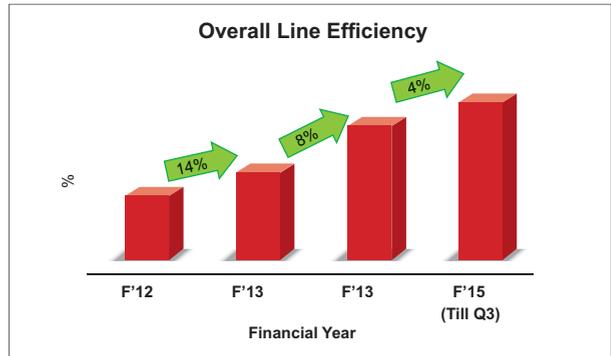
Productivity

In order to have flexible manufacturing system to cater to a fluctuating market demand as well as providing quick response to the customers, multi model facilities for production is a must. The Igatpuri plant has flexible lines to produce 70+ variants of engines to cater customer requirements. As a part of its productivity enhancement initiatives, the plant is focusing on throughput time reduction through 'Value Stream Mapping', work content reduction through low cost Automation as well as cycle time reduction using different tools and by enhancing utilisation of assets. It is working on elimination of losses from the system through inculcating the culture of TPM. Utilisation of manpower is maximum and the speed of work is 4.65 miles per hour. As a result the shopfloor has reached OLE of the plant up to 97 percent and its delivery lead time has been reduced to 8 hours!

Sustainability

Sustainability is a way of life for all workers at the Igatpuri Plant. The plant embarked on its journey towards Sustainability since last five years* and has implemented various projects for conserving natural resources. The Igatpuri plant is working on the three pillar approach – People, Planet and Profit for sustainability.

People: The Igatpuri plant focuses on the areas of Community development through training, health and sanitation improvement projects, arranging mega blood donation camps as well as by organising tree plantation drives. The Plant has even



adopted a village and made it Cataract free. It also strives for making people self-reliant and for the same it has partnered with one of the ITI centers to upgrade it to Centre of Excellence and help groom the youth from the surrounding areas by training in latest engine technology.

Planet: The Igatpuri plant has implemented many rain water harvesting projects which have resulted in saving of water by 25 percent since last three years*. As a part of its ECON activities, electrical consumption has come down by 35 percent in last three years and has resulted in reducing CO2 emission.

The plant is also working to reduce wood and carton used for parts packaging and with its focused efforts it has been able to achieve reduction of 35 percent with respect to the previous year*. In its drive to utilise renewable energy sources,

the plant has installed wind mills and solar power plants to cater the business needs.

Profit: With sustained improvements in electricity, water consumption and reduction in usage of non-renewable

resources, the plant has achieved reduction of 10 percent YOY in revenue cost.

"The Igatpuri plant has flexible lines to produce 70+ variants of engines to cater customer requirements."

Innovation

Innovation is practiced by each and every one at the Igatpuri plant. To build innovative culture, it has forums like the Mahindra Innovation Award, TRIZ programs and also initiatives like TPM (Total Productive Maintenance) and TMW (The Mahindra Way). Also, synergy meets across the Mahindra plants also provide a platform for people to innovate. It has resulted in more than 15,000 improvements in PQCDSM categories, 100+ low cost automation projects and the Igatpuri plant has also registered 4+ patents in last year*.

Conclusion

The M & M Igatpuri plant is continuously striving for the Group's 'Rise' initiative which is based on fundamentals of Alternative Thinking, Driving Positive Change & Accepting No Limits. Through this, this super shopfloor is confident of achieving its set vision of Operational Excellence by 2019. 

Source: M&M Igatpuri



Pic for representation only. Sourced by Epicor ©iStockphotos/vm

An integrated approach

Today's manufacturers are integrating MES and ERP to leverage the best of both.

By Tom Muth

While the goal of technology in the manufacturing environment is uniting the shopfloor and the top floor for improved operational visibility, decision making and performance, the manufacturing environment has to date been a house divided.

Traditionally, operational visibility in the realm of the shopfloor has been provided by Manufacturing Execution Systems (MES) supporting real-time process control scenarios and quality initiatives, whereas Enterprise Resource Planning (ERP) has been in use upstream in the manufacturing operations, primarily supporting optimised scheduling and planning. Each system on its own can provide myriad benefits. But today's manufacturers aren't willing to settle; instead, desiring to drive improved performance and competitive advantage they are integrating these two systems and these two worlds to leverage the best of both.

Evaluating ERP

ERP is no longer simply about cutting costs, but rather about enabling businesses to grow and take advantage of new opportunities and avoid unexpected risks. Companies now need the next evolution of ERP systems that can support collaboration, adapt to unique and dynamic environments, enable improved customer satisfaction and new business, and which can drive growth as well as control costs.

ERP system architectures that empower employees by uniting social, mobile, and analytic capabilities can help sup-

port innovation. Employees can then raise the individual and collective performance within the company by leveraging real-time shared access to the same repository using a set of tools that meets the specific needs and requirements of each user.

MES

Statistical process control (SPC) and statistical quality control (SQC) are key components of an MES system and allow it to function as a visual tool to help maintenance managers and shopfloor managers predict when, and what kinds of, proactive efforts will help keep things running, 'today' and 'right now' for better overall equipment effectiveness. It can offer a forward-looking, better preventive maintenance and just-

in-time responsiveness can mean less downtime, less scrap & more quality.

Top executives sometimes don't realise they can drive significant business value from MES. While MES is often viewed as a tool to assist the shopfloor in day-to-day tasks, MES systems offer ample potential to help transform the shopfloor into a business center of excellence, and propel companies forward for market leadership.

"Through integration of ERP and MES, manufacturers can achieve a holistic view of their business processes and core production, and better utilise shopfloor data crucial to improving operational efficiency and maximising profitable manufacturing outcomes."

MES can deliver consistent, accurate, and visible metrics. Operations management can use those metrics to identify underperforming and high-performance machines and then optimise asset utilisation accordingly to eliminate bottlenecks. They can propagate best practices enterprise-wide from lessons learned. As well, performance efficiencies gained from MES can open up the possibility of increasing output and profitability, all from existing production assets. Capital expenditures

can be deferred or rerouted to fuel investments in other areas to expand and grow the business.

Better Together

While the business case is clear for both ERP and MES, what is now being revealed is the business case around leveraging the synergies of both systems. One of the common challenges manufacturing organisations face is the need to effectively connect planning and scheduling data from its ERP system with the shopfloor realities of MES into one centralised system. Imagine the possibilities of having real-time access to machine data that can be imported into an ERP system to better plan schedules and resources to meet customer demand?

Doing so can help avoid the following situations that throttle manufacturing performance:

Lack of visibility: Having poor insight into shopfloor operations can slow decision-making, resulting in delays and unhappy customers. Understanding the situation on the shopfloor in real-time helps manufactures to better plan to meet customer demand.

Communication bottlenecks with disparate systems: Manufacturers typically purchase ERP and MES systems from different vendors which often leads to manually entering data from one system to another in order for both to communicate with each other. This is inefficient and costly.

Increased inventory costs: If there is a quality or maintenance issue on the floor, real-time alerts and notifications can raise a red flag, enabling immediate action to resolve the issue. On the other hand, without this real-time shopfloor data access, manufacturers run the risk of higher amounts of scrap and inventory which negatively impacts the bottom line.

Through integration of ERP and MES, manufacturers can achieve a holistic view of their business processes and core production, and better utilise shopfloor data crucial to improving operational efficiency and maximising profitable manufacturing outcomes. This “one version of truth” delivers more accurate data from the shopfloor (MES) to the top floor (ERP), enabling manufacturers to adjust schedules and processes based upon machine availability. This in turn, leads to improved scheduling accuracy of the ERP platform.

Real-time reconciliation of information between ERP and MES ensures data integrity for supporting accurate scheduling, planning, monitoring, resourcing and costing. This integration spans structural data, job scheduling and production reporting, effectively pulling data into a seamless bi-direction-

al information environment. Users will benefit significantly from improvements in promise-to-order, labour and equipment utilisation, and business intelligence as a result of tighter integration and real-time feedback between ERP and MES. In addition, a real-time closed-loop between the business systems and the plant floor provides an accurate up-to-the-minute view of machine and production availability for improving operational effectiveness and responsiveness.

Crossing the Chasm

Before purchasing and evaluating MES and ERP systems, manufactures need to decide in the beginning of the process what will need to be accomplished on the shopfloor with each system since they will be implemented on separate timelines. However, one of the challenges manufacturers face in fully realising the value of their investments in ERP and MES is that they are often procured and managed by two different sides of the business. Typically, a plant manager acquires the MES system and manages it while the IT and finance department purchase the ERP platform. It is important that a company’s CFO and CIO come together to understand the opportunity around the ERP/MES integration. The integration of ERP and MES starts with a cultural change within a manufacturer.

The strategy of managing manufacturing operations via point solutions is becoming increasingly ineffective as manufacturers face increased global competition. And as manufacturers embrace Big Data, Mobile and Internet of Things (IoT) technologies, new data and process integration capabilities must be added to organisations’ operations. Manufacturers need to strive to improve flow/use of data throughout the organisation – from shopfloor to bottom

floor – now, lest they become overwhelmed and outflanked.

MES ROI can be seen through product delivery, quality management and customer satisfaction. Integrated with ERP, this leads to better planning which improves a company’s overall operations and enables the executive team to lead more effectively and better understand profit/loss to make the right decisions to grow the organisation. Competition may arise anywhere, often from unfamiliar players; disruptive technologies may also change the game radically in a short time. The integration of ERP and MES offers manufacturers real advantage – and shouldn’t be overlooked as organisations seek out strategies for growth and prepare for “what’s next.” 



“One of the common challenges manufacturing organisations face is the need to effectively connect planning and scheduling data from its ERP system with the shopfloor realities of MES into one centralised system.”

The author is Senior Manager, product marketing, Epicor MES



Taking a comprehensive approach

A Super Shopfloor is a complete package and we have to stay focused on the entire value chain, says **Harald Friedrich**, Plant Manager Bangalore & Head of Operations India, Continental Automotive Components (India) Pvt. Ltd.

By **Niranjan Mudholkar**

Q How would you describe a 'Super Shopfloor'?

A 'Super Shopfloor' can be described as a one-stop location to produce the right parts, in the right numbers, in the right time and the right quality at the lowest possible costs. While it does seem very theoretical at first glance, the challenge is how to bring efforts in a balance to the costs when it comes to actually doing. All impacting contributors have to be known, constantly monitored and maintained as fast reaction on deviations is crucial for success. The shopfloor organisation itself is mainly responsible to manage the daily business. We have to be aware that it is not enough to focus just on the shopfloor organisation and processes since all business processes and organisations are involved, directly or indirectly, in enabling the shopfloor to perform well. Therefore, self-accountability is a crucial element and everybody must be aware that his or her personal work or decision will have an impact in the performance of the shopfloor. The shopfloor has to earn money for the entire organisation and at the end of the day, customers will pay only for the 'right' products.

"We have to move away from an old school approach and empower people to a far greater extent because once people are empowered, they will be motivated enough to help themselves."

Considering that, the final goal is to continuously increase customer value and to reduce any kind of waste.

Q Is a 'Super Shopfloor' powered by people?

This question has to be answered with a clear 'yes'. Employees are, in my opinion, the most valuable stakeholders of a company and thus the main contributors to the success of an organisation. Employees are continuously maintaining and improving our business processes, and having the right processes and the right flow in place, guarantees success.

Q How to motivate people?

We have to understand that every person is an individual with a personality of their own. There are differences like family background, education, culture, religion, society and not to forget day to day variations. Bearing these elements in mind, it is obvious that there is no single recipe to motivate people. Every individual has strengths and weaknesses. Based mainly on these strengths, we have to

allocate the right people for the right work, while concurrently helping them overcome their weaknesses. But there are some aspects that we, as management, have to consider.

First and foremost, we have to prepare the organisation and give guidance to provide people the security to act within a known and safe range. In order to do that, we have to determine what is important and expected from a company's management perspective. What I am alluding to are the values and principles that make a company's expectation clear in terms of routine work behaviour. This can be accomplished with a focus on people involvement, continuous improvement, process simplification, commitment, trust, respect, fairness, and doing it right for the first time, among other things. Once a sustainable implementation is visible, a comfortable company culture will evolve. Secondly, we have to identify the focus areas that we like to work on to support our values and principles. Focus areas could be, for instance, the stakeholder structure. Once the focus is defined, we have to work on our points of action for improving performance.

Finally, we have to empower our people with the right training and the appropriate toolsets. This will increase competency in the organisation. We have to move away from an old school approach and empower people to a far greater extent because once people are empowered, they will be motivated enough to help themselves. Once we have that in place, people will be able to work systematically and successfully on continuous improvement. Success will create personal growth, personal growth will create passion, and passion will create motivation.

How important is technology?

In my line of business, technology is always a strong focus. New technologies are, as a general rule, based on improvements in terms of precision, speed, energy consumption, productivity or simply new opportunities for production. To be cost competitive, we need stable processes with reproducible results so that the risk is predictable as much as possible. This can be achieved by reliable technologies.

The better the process or machine capabilities are, the more reproducible the results. This leads to a higher yield and lesser scrap. New technologies combined with capable processes, lean flows and standards have a favourable impact on production costs.

Does a 'Super Shopfloor' look beyond safety, quality and productivity? Why and how?

In a super shopfloor, all three categories are essential. Safety is important because we have to protect the health of our valu-

able employees. This can be done ergonomically, by means of safe and properly designed workplaces. Quality is crucial because we have to protect our customers from any negative impact and fulfil their expectations. We can ensure high quality standards with robust designs and processes. Productivity is critical to ensure sound financial health and to protect ourselves from losses. This can be done by a lean manufacturing approach, standardisation, and well trained and motivated employees.

As mentioned earlier, for everything we do, we need to have the right people in place. Productivity can only be improved by consistently working on optimisation and we must constantly ask ourselves whether what we are doing is state-of-the-art and truly adding value. The challenge must be to focus on value addition and waste reduction.



“Productivity can only be improved by consistently working on optimisation.”

Is a 'Super Shopfloor' Green?

Yes, it is; ISO14001 should be mandatory for every workshop, but it alone is not sufficient. Much more is required and 'Go Green' is an appropriate approach. We have a responsibility to preserve our environment for our children and generations to come – In other words, we have only borrowed the environment from them. Being 'green' starts with the product design; the key phrase is design for manufacturability. Once the design is smart, the industrialisation can be done based on the lean principles. This leads to leaner production processes, lower power consumption, lesser usage of hazardous materials, less air pollution, less waste and greater value addition.

How innovative is a 'Super Shopfloor'?

I would like to reiterate that the contribution of employees is the main driver for innovation. The faster an organisation drives the continuous improvement process, the more innovation is possible. 'Speed' is the keyword in this case. Every little improvement is a very welcome contributor as the market is highly dynamic and competitive. Continuous innovation is more or less a requirement and not just a request.

Is there anything else that you would like to add?

No single aspect can alone be key for the success of a company. It is the complete package and we have to stay focused on the entire value chain. This connection is always based on the behaviour and actions of employees. Passion and motivation are the drivers for moving things forward. Having the right principles and values in place, combined with a value creation mindset and the right human relations are the prime drivers for a 'Super Shopfloor', in a convenient company culture. 



(From L-R) Vipin Sondhi, Chairman, Excon 2015; Nitin Gadkari, Minister of Road Transport & Highways and Shipping, Government of India; Sumit Mazumder, President, CII and Chandrajit Banerjee, Director General, CII inaugurating the Excon 2015 Exhibition at Bangalore on 25 November 2015. Pic courtesy: CII

Hot ICE Industry!

Living up to its reputation of being the largest exhibition of its kind in South Asia, the Excon 2015 reflected the new momentum gained by the Indian Construction Equipment (ICE) industry. We present some interesting glimpses.

Living up to its reputation of being the largest exhibition of its kind in South Asia, EXCON 2015, International construction equipment and construction technology exhibition which took place in Bangalore recently has attracted participation from 22 countries. Large number of exhibitors from Germany, China, Italy, Turkey, South Korea, United Kingdom and other countries used the platform not only to exhibit their state-of-the art construction equipment but also to exchange information and ideas with regard to technology and expansion of their businesses. Exhibitors were exuberant that, as always Excon 2015 has attracted a large number of high quality visitors, most of whom were either decision makers or genuine buyers.

Sang-Dok Yim, Marketing Support, Department/Strategy Division of Korea Construction Equipment Manufacturers Association (KOCEMA), was of the opinion that it was the opportune time for companies to invest in India as it was an emerging market. Establishing his confidence in EXCON 2015, Yim said, "You can expect more Korean companies to invest in India in the coming years". This confidence was echoed by SPECO, a South Korean company dealing in asphalt mixing plant, batch master etc., which has been participating

in Excon since its first edition in 2000. The 'Make in India' initiative too has received a lot of appreciation from international participants with Chinese company Luoyang Longda Bearing Co., contemplating opening up an office in Kolkata by next year. Zhou Weidong, Vice President and Senior Engineer, China Council for the Promotion of International Trade (CCPIT) representing China Chamber of International Commerce (CCOIC) and Machinery Chamber of Commerce said that Chinese companies were seriously looking at collaborating with Indian companies in the construction equipment industry. They also expressed interest in maintenance of roads. Li Yunsheng, Senior Engineer of China Construction Machinery Association (CCMA) and Du Song, of CCPIT said that with its fast growing economy and a promising construction equipment industry, India shows that it is a very important market for countries like China and offers several opportunities especially in the infrastructure and construction equipment industries. China is the biggest foreign exhibitor with participation of 172 Chinese companies.

Germany too sees huge prospects in participating in India's exciting infrastructure growth story. Sebastian Popp, Deputy Managing Director, Construction Equipment and Building Material Machinery (VDMA) said that visibility of India and

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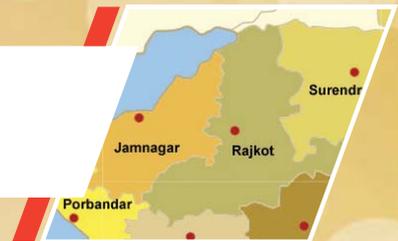
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the Indian economy has increased phenomenally over the past few years and the country's future potential is being played out to prospective investors with aplomb. The investment climate in the country is continuously improving and in the construc-

tion equipment space alone companies are already active in India. He said that the potential for more German companies to come into India was high. A total of 31 companies from Germany participated in Excon 2015.

Tata Motors showcases four new construction vehicles

Tata Motors showcased four new construction and mining commercial vehicles, from its Construck range at Excon 2015. The new vehicles showcased are the Tata PRIMA 3138.K 32 CuM Coal Tipper, Tata PRIMA LX 2523 .K RePTO, Tata PRIMA LX 3128.K 19 CuM Scoop HRT and Tata SAK 1613. Amidst the new launches, Tata Motors also showcased four other construction & mining tipplers from its ConsTruck range, namely Tata LPK 2518 10 CuM, Tata LPTK 2518 6X2, Tata PRIMA 3138.K AT and Tata PRIMA LX 3123.K 22 CuM Box.

Rajesh Kaul, Business Head, Intermediate, Medium & Heavy Trucks, Tata Motors said Ltd. said, "Designed to offer maximum vehicle uptime and lowest total cost of ownership, we will shortly introduce all four of our new vehicles in the market, backed by Tata Motors extensive sales and service network across the country."



Rajesh Kaul of Tata Motors Ltd. with one of the new vehicles

Interest and enthusiasm at the Trelleborg stall

Trelleborg Sealing Solutions India received a lot of queries towards developing a complete solution for the existing design and upcoming models at Excon 2015, says Ranjan Sen, the Company's MD.

How has been the response to your stall?

The response at Excon was very good. We noticed a lot of interest and enthusiasm among the visitors. Many potential customers came up with serious enquiries. Most of the queries were towards developing a complete solution for the existing design and upcoming models. It also shows that the Indian manufacturers are beginning to look for solutions rather than buying parts, which will allow us to engineer the design together with them.



terms of product displays and launches?

We have launched Mechanical face seal and Cassette Seals which are specifically engineered for rotating applications in extremely tough environments where they withstand severe wear and prevent ingress of harsh from harsh and abrasive external media. This is being promoted for the Indian industry as we feel that the market is maturing to a scale to use such seals or materials. Cassette seal CSL 1500 is one of the latest product along with the innovative high versatile compounds namely M12 and Z82 which can work in a variety of fluids, and under different system temperatures.

What has been the highlight of your participation in



It is believed that Excon reflects the industry's current scenario and shows the way forward. How has been Excon 2015 show in this light?

After returning from the Excon, our belief that the economy's woes are over has been strengthened. Looks like the green shoots of recovery are already beginning to grow taller and that the year ahead will keep us busy. As rightly said, the infrastructure segment, and that includes most of the Excon participants, is the reflection of the economy. We could see a strong commitment from the major players during the Excon show.



JCB India showcases 25 'Made in India' machines

JCB India Limited presented an exciting line up of 25 "Made in India" machines along with technology innovations at Excon 2015. Apart from new variants of its existing machines, JCB also showcased the new "ecoXcellence" range of Backhoe Loaders. Also on display was the JCB 220LC Xtra Tracked Excavator - a new entrant from JCB India in the 22 Tonnes market, the much awaited 455 ZX Wheeled Loader in the 5 Tonnes segment and the new Master Loader. "All our products are manufactured with the philosophy of 'One Global Quality' which means the equipment we manufacture in India can be used in any part of the world," said Vipin Sondhi, MD and CEO, JCB India Limited.



Scania showcases its flagship range of premium mining tippers



Scania Commercial Vehicles India Pvt. Ltd. showcased its premium mining tippers, the P 410 (8x4) coal body and P 410 (8x4) SSAB rock body, at Excon 2015. Scania also showcased its special aftermarket customer support applications and services like Fleet Management Service (FMS), Scania lubricants and other genuine parts. Scania is also enabling customers with convenient finance options to make purchase of vehicles easier. Anders Grundströmer, Managing Director, Scania India and Senior Vice President, Scania Group, said: "Scania is bullish on the Indian market, especially the mining sector, and we are confident of growing further in the coming year. We have consistently delivered best-in-class products embedded with the most advanced safety features, comfort and quality, helping customers achieve increased operational efficiencies. Our products are designed to withstand the toughest and most demanding mining conditions."

thyssenkrupp Industries launches new product line

thyssenkrupp Industries India, part of the Industrial Solutions business area of the thyssenkrupp group, launched its new product line offering holistic crushing and screening solutions for the aggregate industry at Excon 2015. The new products of thyssenkrupp Industries India's aggregate crushing plant portfolio are Kubria® Cone Crusher, Single-Toggle EB Jaw Crusher and Multirok® Vertical Shaft Impactors which will cater to infrastructure and mining sectors.

Sivasubramanian Natarajan, MD at thyssenkrupp Industries India, highlighted, "We are delighted to launch our indigenously manufactured new product line for aggregate crushing and screening plant at Excon 2015 including the display of our primary and tertiary plants and vertical shaft impactor."



SCHWING Stetter India launches 16 new product and technology innovations



SCHWING Stetter India launched 16 new products and technology innovations during Excon 2015. With product expertise of XCMG, one of the Top 5 world renowned construction equipment manufacturing companies, it launched an exclusive range of SCHWING-XCMG Wheel Loaders and Motorgraders in India. This also marks the entry of SCHWING Stetter into the Earthmoving segment. Anand Sundaresan, Vice-Chairman & MD, SCHWING Stetter India said, "Every year, we strive to increase our product range and expand into parallel product lines to suit the requirements of the construction industry. Last year, we successfully entered the material handling segment

with the tower cranes and launched the Self Loading Mixers as well. During EXCON 2015 we will showcase our latest product innovations that are developed and upgraded keeping in mind suit the current needs of the construction industry which will in turn help the customers to grow their business."



Adding 'value'

Yatendra Kumar, Business Head, MotulTech India, shares industry examples showing the advantage of using high performance lubricants



MotulTech is the industrial lubricants division of the Motul group, an international French group, specialist for more than 160 years in high performance lubricants. More than century and a half of uninterrupted activity has allowed us to constantly modernise itself and climb to the vanguard of technology. This permanent quest and the determination to move forward have led the company to an envied position in its sector. The company enjoys worldwide repute and is unanimously recognised for the quality of its products, capacity to innovate and involvement in the world of competition.

The innovation & the Challenge: In line with our hunger to offer the innovative products to the industry, we have developed one of our deformation products "MT TUBE GEL". This product is in gel form and is highly environment friendly. One of our customers approached us with the typical problem of using graphite based product for highly demanding deformation process to manufacture an elbow of 150 mm and 200mm diameter. The customer was using a 500 Tn press for this operation. The major challenge for us was the initial cost of our product. Our product was more than 10X of their existing product. After a lot of thought amongst our sales, application and R&D teams, we gave a proposal to customer. It took three months to convince the customer for the trial. The customer was very hesitant to use our product due to the very high cost.

The results: Finally the trial started and within three days, results started to appear. The cost of lubricants per piece came

down from Rs10 per piece to Rs3 per piece and customer also observed reduction in power consumption by up to 25 percent during the operation. The best part was the cleaning of the product. Our Tube Gel is a water washable product. Hence, the customer also saved on the cleaning process. There is no need to use any chemical for the cleaning. The customer also got much better surface finish and consequently reduction in rework / rejection due to poor surface finish.



New innovation for new challenges: Similar to our Tube Gel, we have also developed a water soluble machining fluid which was tried at by an aerospace component manufacturer. The customer shared his challenge of very high cutting noise and high tool consumption. It was a job shop engaged in the manufacturing of high alloy aluminium components and some other difficult to machine (with high level of Nickel and Chromium) steel alloys. Customer was running the machine at very low cutting parameters. We studied the entire process along with the metalworking fluid being used by them.

We understood the problem and offered our top of the line, extremely high performance product "Stabilis 822 Ultra". Once again, we faced the similar challenge - high price of the product. Our price per liter was 3X of their existing product. We had a couple of meeting with the customer and he finally agreed to try out our product. As soon as trials started, with the very first component, there was no sound of the

tool from the machine! It was very smooth machining. Then our team discussed about the increase in cutting parameters and we were able to reduce the cycle time by 20 percent. Again we showcased our product strength and unlocked lots of value for our customers.

We have many more similar success stories in India and abroad. Please contact us.

Gel trial on fitting manufacturing, Date 25-11-2015								
Date	M/C Name	Product	Size	SCH/THK	Quantity Produced	Reject Qty	Total GEL Consumed (GMS)	Per PC GEL Consumed (GMS)
30/09/2015	EL-8	Elbow	6"	10S	45	0	460	10.2
01/10/2015	EL-8	Elbow	8"	5S	4	4		10.3
01/10/2015	EL-3	Elbow	2.5"	5S	21	0	300	
20/10/2015	EL-8	Elbow	8"	10S	46	0	440	9.6
25/11/2015	EL-8	Elbow	6"	10S	132	5	580	4.2



BFW – Ganesh Technologies Tech-center launched



Bharat Fritz Werner Limited (BFW), India’s major machine tool builder and a flagship company of the Kothari Group, has recently launched a Tech Center in Kolhapur along with Ganesh Technologies, its channel partner for the Kolhapur region. Kolhapur is major casting hub for automotive and farm equipment, and has seen several foundry based

industries operating here synchronously with the ‘Make in India’ programme. This region is growing consistently over few years, and has become a vibrant hub for manufacturing. To meet needs of customers in the Kolhapur region like Sound castings, Mahabal Metals, Mourya Industries, Caspro Metal, General Machine Tools etc, BFW has decided to strengthen its presence here by way of establishing a Tech Centre. M/s Ganesh Technologies is BFW’s channel partner for Kolhapur region. With the market knowledge, sales expertise and customer relationships developed over two decades, BFW is confident that this association will further strengthen the Kolhapur region and its support.

Initiatives at the Tech Centre include:

Products display: BFW will showcase cutting edge new products at Tech-Centre for customer’s next-Gen requirements.

Service & Spare-parts supply: It will position dedicated service engineers and stocking of the spares in tech-centre to closer to customers and providing effective after-sales and service.

Applications: Applications engineers stationed at Tech Centre providing solutions to challenging problems faced by customers.

Trainings: BFW will conduct customised and comprehensive training programs for production processes, engineering applications, maintenance etc.

Grind Master bags SME Business Excellence Award



Karur Vysya Bank and Dun & Bradstreet (D&B) launched an awards initiative to recognise and felicitate SMEs who have demonstrated exemplary performance in their respective fields. A rigorous filtering and selection narrowed to 26 awardees from amongst 100,000 plus nominations. Grind Master won the Award in the Mid Corporate segment under Engineering & Machinery sector. Sameer Kelkar, Executive Director at Grind Master represented Grind Master at the award program. The award selection was based on all round

performance and track record of the nominees. Grind Master has been growing at a phenomenal rate in the past few years, closing FY14-15 with a turnover of more than Rs.120 crore. As one of the large machine tool builders in India it qualified in the “Mid-Corporate” Category, thus also reflecting the transformation into a Professionally Managed Business. With a track record of developing breakthrough technologies including Microfinishing, Dynamic Balancing and Robotic Automation in the last few years, Grind Master represents India on the global stage with a very strong Export record. Recently completing the 50th machine in China, Grind Master has created a brand known for expertise, innovation in metal finishing internationally. “I have personally witnessed the journey of Grind Master for the past 32 years, earlier as a child watching his parents and in the last few years as a Team member. It has been a really exciting journey, and gives me great satisfaction and pleasure that we emerging on a national and international stage as a trustworthy and passionate machine builder as I celebrate 5 years in Grind Master. As we work towards becoming an international professional company I would like to personally thank all our customers, suppliers, well wishers, associates for their enthusiasm and support in this journey. Looking forward to an exciting future,” said Sameer Kelkar, Executive Director at Grind Master.



Robust precision welding machine for tool steel

With its economically priced PSM 400 Performance, SCHUNK is now bringing essential features of its high-end systems to traditional laser welding applications for tool steel.

Laser machine tools from SCHUNK are known for the excellent results they achieve in demanding welding tasks. Depending on the laser source used, they can process cast-iron parts, high-carbon-content steels, and even super alloys quickly, free of cracks, and economically.

With its economically priced PSM 400 Performance, SCHUNK is now bringing essential features of its high-end systems to traditional laser welding applications for tool steel. For this reason, only high-quality industrial components are used in the PSM 400 Performance.

Highly accurate linear axes, a fully-fledged CNC controller with real-time simulation, a robust laser source, reflection-safe fibers, and a stable, hardened T-slot table allow high precision and repeat accuracy. The machine is extremely quick to set up due to the user-friendly HMC controller and the unique teach-in function for lines, arcs, circles, and splines. Even parts which are complex, worn or damaged on the surface can be handled rapidly in three-dimensional space without time-consuming external programming.

Once programmed, welding procedures can be replicated any number of times in a stable process. This applies to the processing of identical nests in die manufacturing as well as to the production of standard parts in contract construction.

Compared to manually guided laser machining systems, the demands on the fine motor skills of the employees are significantly lower when using the PSM 400 Performance. This achieves consistent material application and precise welding lines in a stable process regardless of the experience of the operator. Tests have proven that significant improvements of quality in both two- and three-dimensional path profiles occur when using the PSM 400 Performance.

Powerful and durably designed Nd:YAG lasers by JK Lasers (GSI Group company) with outputs from 150 W to 450 W are available as laser sources. Their solid construction, high-quality ceramic cavities, and a thermally stable resonator ensure a long-term high beam quality. The pulse stability is +/- 0.5%. With a pulse peak power from 5 kW to 10 kW, the JK laser source generates pulse energy from 35 J to 100 J, respectively. The laser parameters can easily be matched to the specific properties of the materials. As in all PSM 400 laser machine tools, the CNC-controlled traverse path in the X, Y and Z directions is 400 mm.

The tool table is designed for parts weighing up to 250 kg. For loading and unloading as well as for machining, it can be electrically adjusted in height by 200 mm. If the options of the PSM 400 Performance are not sufficient, individual laser machine tools can be configured with the standardized SCHUNK module program to suit the customer's wishes.



The economically priced PSM 400 Performance from SCHUNK Laser Technology is designed specifically for laser machining in tool and die construction.

“Compared to manually guided laser machining systems, the demands on the fine motor skills of the employees are significantly lower when using the PSM 400 Performance. This achieves consistent material application and precise welding lines in a stable process.”

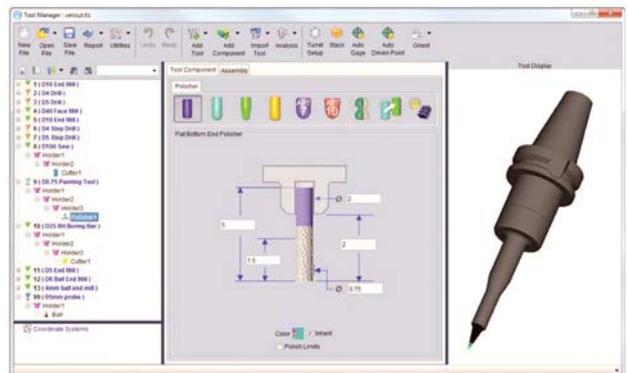
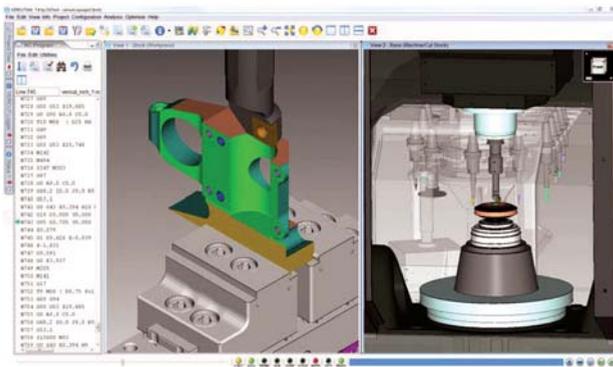
Whether a swiveling and extendable Y axis is needed, or an additional fourth and fifth axis, a high-end laser by Lasag with a pulse duration of up to 200 ms, a swiveling work piece support table or user-friendly wheel – the system can be tailored to the respective requirements.

For more information, contact: Satish Sadasivan; Schunk Intec India Pvt. Ltd.; Ph: 080-0538999; Fax: 080-40538998; Email: info@in.schunk.com; Web: www.in.schunk.com



VERICUT 7.4: CNC machine simulation gets simpler

VERICUT 7.4 includes many enhancements that further maximise productivity and profitability



In addition to new features designed to make NC programmers' jobs easier, nearly 500 customer-driven enhancements and software change requests have been completed in version 7.4. These updates utilize the latest technologies to enable faster processing speeds, longer tool life and increased part quality. Added features to the user interface simplify the most common user actions and significant developer hours have been invested to increase simulation speed by more thoroughly taking advantage of multiple processors and background processing.

The enhancements in version 7.4 provide the speed that organizations need to rapidly release new part programs to the shop floor, train new users, and continually optimize workpiece quality. Changes to how users interact with VERICUT further improve workflow and simplify day-to-day NC programming and simulation use. VERICUT is constantly refined to provide the flexibility and tools you require. CGTech is committed to continually introducing technology to automate manual tasks and increase productivity and throughput.

Ease-of-use Enhancements

In version 7.4, the first change you will notice is a Welcome Screen that automatically displays when first launching a VERICUT session. The Welcome Screen provides access to commonly used first actions for a VERICUT session. The user

Other new features

- New interfaces are available for integrating VERICUT with Creo Parametric 3.0, CAMWorks, and SolidWorks. The GibbsCAM-to-VERICUT interface is redesigned. Interfaces are available to nearly every major CAM system and are updated with each release.
- Connect with Kennametal's NOVO™, Iscar's IQCloud™, and other tooling suppliers via the Machining Cloud™.
- Kuka Robot Language (KRL) is supported.
- OptiPath automatically works through multiple setups.
- NC program syntax is checked automatically when a file is opened.

interface continues to get more customizable. VERICUT's desktop is enhanced with a new docking method enabling the desktop to be configured in the most efficient manner. The new docking method is very flexible and provides a high level of customization possibilities. Additionally, the Status window is completely redesigned for better viewing, customization and size. The Status window information is divided into Information Groups, each containing a specific list of information. The popular "Favorites" feature, added in version 7.3, has been enhanced to automatically read all sub-folders in a directory and a Favorites file can be opened by double clicking on it.

Tool Management Redesigned

Tool Manager's desktop and user interface is redesigned to enable easier user interaction. A new Tool Bar located at the top of the Tool Manager window consists of a combination of icons and pull-down menus providing easy access to all features needed to create and maintain tool libraries, create/modify tool assemblies, import tool assemblies and create or import OptiPath records. Also, in the Tool List, tool components now have a Parent/Child hierarchy allowing for better tool assembly management and modification. All Tool Definition windows have been redesigned to make tool definition easier. VERICUT 7.4 ships with a library of common tools, making it quick and simple to add new tools to a simulation session.

More Powerful Reviewer

The Reviewer is enhanced with a new MDI option in the Analysis menu, enabling you to move machine axes interactively. This feature is available in both the Windows Reviewer and in the iPad Reviewer App. Additionally, a Tools window is added to the Analysis menu showing all tools used in the Reviewer files. Selecting a tool in the Tools window automatically sets the "Start" and "End" motion markers that are used to define the range of NC program records in the NC Program. Version 7.3 and later Reviewer files are now upward compatible.

For more information: www.cgttech.com



CNC Double Column Plano Milling Machine

Shenoy Engineering Pvt Ltd, a Bangalore based SPM manufacturers, has designed a double column vertical Mill/Drill Machine which has a table of 6000x1500mm, stroke of 6230mm and admit between columns is 2000 mm. This machine is under assembly at the moment. Apart from heavy vertical and right angle machining, using Ø250 mm cutter, this machine can perform heavy, close pitch drilling operations, using U drills up to Ø50 mm and rigid tapping up to Ø 48 mm. In-built high pressure coolant facilitates quick chip evacuation.

The heavily ribbed, 12 mtrs long, segmented construction of the bottom base is designed to carry weight of 15 tonnes. Precision ground LM guides and blocks facilitates rapid traverse up to 5 meters per minute, slow cutting speed is as low as 30 mm per minute.

The X axis drive system consists of LM guides and Ø100 mm x 16 mm pitch, C3 class ground, preloaded ball screw and ball nut. The X axis traverse is through a combination of 47 Nm servo motor and a 3 arc minute backlash planetary gear box. The feedback for X axis slide is through a rotary encoder, mounted on X axis ball screw end.

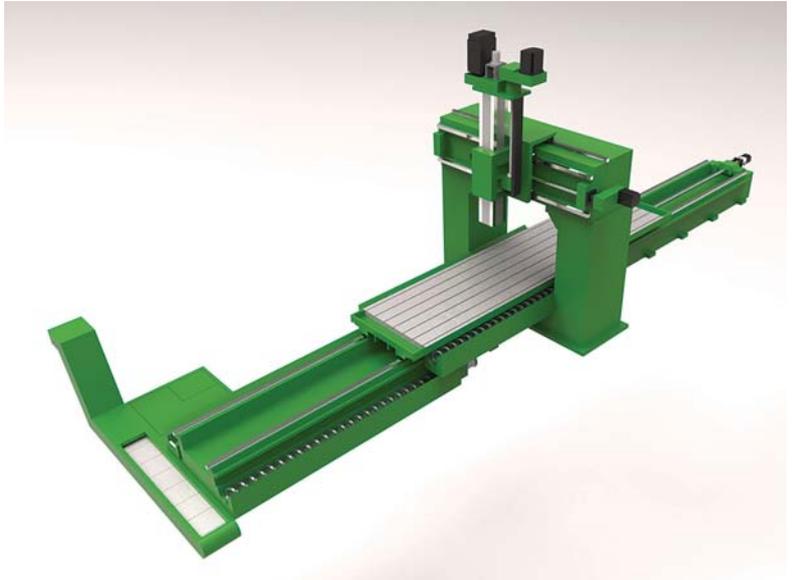
Pre-tensing of ball screws for arresting the float, innovative anti-sagging mechanism, metallic telescopic guideway covers etc are the other feature. Targeted positioning accuracy is ±10 microns for 300 mm length, maximum being up to 50 microns over the entire length of 6 meters stroke of X axis. Targeted repeatability is ±10 microns.

Cross (Y) axis, having 1,800 mm stroke, is bridge type construction and is resting on 2 columns. The axis feed rate is from 30 mm to 5000 mm through 36 Nm motor in combination with ground LM guides and blocks. The feedback is through linear scale.

“The machine is aesthetically designed and is having sliding door and modular type guard of an average height of two meters from the ground. The guard will also have transparent acrylic sheet for ease of viewing the machine and job.”

Mounted on the Y axis is the ram type milling head – ram having 1000 mm stroke, sliding through combination of male, case hardened guideway strips and female turcite lining. The main, BT-50 spindle is powered by 18 KW spindle motor and has rotary encoder feedback system.

The vertical feed of the ram is through 48 Nm servo mo-



“Apart from heavy vertical and right angle machining, using Ø250 mm cutter, this machine can perform heavy, close pitch drilling operations, using U drills up to Ø50 mm and rigid tapping up to Ø 48 mm. In-built high pressure coolant facilitates quick chip evacuation.”

tor with brake, in combination with timer belt-pulley & Ø 63 mm ball screw-box nut arrangement. The spindle can accommodate Ø250 mm cutter and is capable of speed up to 2500 RPM. Automatic arbor clamping & de-clamping is through Belleville spring stacks & hydraulic cylinder. The feedback system is through linear scale and counter balancing is through hydraulic.

CNC controller is Siemens-Sinumerik 828D and the servo motors are Sinamic IFK7. Spindle servo motor is IPM8 series and the drive for spindle & axes is S120 series.

The machine is aesthetically designed and is having sliding door and modular type guard of an average height of two meters from the ground. The guard will also have transparent acrylic sheet for ease of viewing the machine and job.

MPG, 3 tier lamp, guideway protection, optionally offered chip conveyor system, centralized, automatic lubrication system, multi-layered feed end limit switch mechanism, wipers for slides, optionally offered forced coolant thru for facilitating deep hole drilling, U drilling etc are the other features.

*For more details, contact: Shenoy Engineering Private Limited;
Ph: 09243437487 / 080-28361 767/725;*

Email: info@shenoyengineering.com; Web: www.shenoyengineering.com



Renishaw launches new CARTO software solution for calibration systems

Renishaw is launching a new free software suite for Renishaw calibration systems at EMO 2015. The suite includes Capture and Explore, which provide data capture and analysis for the XL-80 laser interferometer system. CARTO release 1.1 supports linear, angular and straightness measurement with a choice of keypress, position and remote (TPin) triggering. CARTO features a new database system which automatically stores and organises data for the user, simplifying operation and allowing users to quickly and easily compare data with historical results.

Capture has been introduced to the CARTO suite as an improved and updated data capture application with the following features:

- Orientation of machine movement is detected automatically, reducing the chance for human error in the process.
- The intuitive user interface allows new users to begin capturing data quickly with less requirement for training.
- All the core functions are available on one screen for efficient navigation.
- ISO-10360 target sequences can be automatically created, simplifying a challenging test set-up.

Explore brings the advances of XCal-View data analysis software to the CARTO suite with the following features:

- Tests in the database can be searched by different criteria (such as machine name, operator, and date etc.). This enables users to review historical test data conveniently.
- Multiple data sets can be overlaid on the same screen for



visual comparison.

- Linear error compensation files can be created from test results.
- Customisable test reports can be created with choices such as graph line thickness and adding company logos.

User-friendly interface: The intuitive CARTO user interface allows new users to begin capturing and analysing data quickly, without the need for training or reading lengthy manuals. The capacity for customisation throughout the suite means that both Capture and Explore can be tailored to suit an individual user's requirements.

Further development on CARTO will follow to add more features, including rotary, flatness and dynamic measurement. CARTO release 1.1 will be available to download free of charge from www.renishaw.com/carto.

New BMT/DO parting blade adaptors with precision cooling

Walter's new parting blade adaptors for BMT/DO machines distinguish themselves from others in two key ways: The coolant flows through the adaptor, and the coolant is transferred directly through the parting blade to the cutting zone. Both of these new features are crucial for ensuring optimal cooling of both the insert and the parting blade.

An O-ring seal ensures that the coolant is transferred effectively and without loss of pressure. For particular cases, the adaptors can also be used with external cooling, either instead of internal cooling or in addition to it. All that is needed is to shut off the coolant nozzle that supplies coolant internally.

The systems are designed so that the user only needs a single bracket, whether you are installing them in the standard position or overhead. An additional benefit is the centre height for each individual workpiece can be adjusted as required on



The new BMT/DO parting blade adaptor with direct coolant supply for precision cooling. Image: Walter AG

the adaptor itself within a range of +/- 0.5 mm. This allows an exact centre position to be achieved for the workpiece that is to be machined, without needing to carry out any extra work. The precision of the coolant supply means that only very short chips are produced and relatively little wear occurs when using the new Walter BMT/DO parting blade adaptors. The downtime required to clear large volumes of accumulated chips is a thing of the past; at the same time, the machine's productivity increases. The robust holder is designed to allow machining in any position required, and eliminates vibration during operation. Walter's new parting blade adaptors work with a coolant pressure of 10 to 80 bar. This means that they can be used on virtually any of the machines that are currently available on the market and

feature a BMT interface.

For more information, visit: www.walter-tools.com



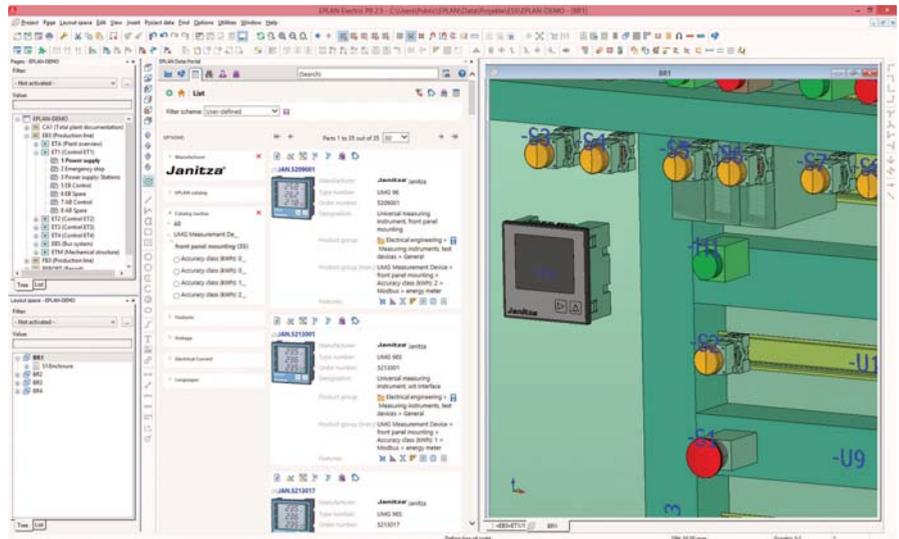
Eplan Data Portal - More than 100 Manufacturers

With start of the SPS IPC Drives, the Eplan Data Portal breaks a remarkable record. Over 100 manufacturers – many of them from the European, Asian and US-American markets – will have integrated their manufacturer data into the portal. In mid October, there were already 99 manufacturers with over half a million qualified device and product data entries listed in the portal – at the fair end of November there were around 110 manufacturers. The number of new members is also interesting: In 2015 alone, Eplan was able to gain 30 new manufacturers. One factor contributing to this extraordinary success is the

new parts data wizard for manufacturers, among other things. Based on Excel technology, manufacturer data can now be made available more easily in the portal and at the push of a button. Manufacturers don't need any special know-how – the technology can also distinguish between the commercial and graphics data within the listed allocations and collate it all together intuitively. Over ten manufacturers of clamps, cables, connectors and sensors have already experienced the simplicity of this new integration.

A Further 1.2m Device Data Entries per Configurator: But it doesn't end with the more than half a million integrated manufacturer data files: Those who use measuring instruments benefit from additional 1.2m variations in device data which can be configured in any specification. In addition to this, the measuring instrument manufacturer Endress+Hauser has already integrated existing web configurators into the Eplan Data Portal interface via web front-end. Based on the Eplan Engineering Configuration (EEC), which is online in the background, and in combination with the Data Portal, a plethora of potential variations can be configured online.

Global Expansion: New manufacturers within the field of measurement technology include Janitza with its digital panel meters, Ziehl with its measurement and monitoring systems and Flowserve, a US-American manufacturer of measuring instruments. Other new members from the USA are Mencom, Priority Wire & Cable and Comtran Cable – all successful cable manufacturers, Molex from the cable and connector field and Hubbell, also a US-American manufacturer of connectors. The Eplan Data Portal is therefore becoming the international hub of product data. The most significant new member from China is Chint – one of Asia's largest manufacturers of automation technology. Noark, a subsidiary of Chint, has also made contactors and circuit breakers available in the por-



Device data – like those of Janitza depicted here – can be inserted into the Eplan project with ease.

A parts data wizard has made the integration of product data into the Eplan Data Portal much easier. This benefits both the manufacturer and the user. For the first time, more than 100 manufacturers were represented in the portal when SPS IPC Drives started in November. With comprehensive device data, the more than 90,000 portal users worldwide will be able to simplify and accelerate their engineering processes. The necessary macros, component data and 3D data for the construction of a virtual control cabinet can be easily and directly integrated into the CAE design.

tal. Liaoning Create Cable from China produces cables and Ningbo GOOSVN Electronic is a manufacturer of connectors and addresses the Asia-Pacific market. It goes without saying that European manufacturers have also joined – for example, ILME, an Italian manufacturer of electrical connectors, KEBA, an Austrian manufacturer of automation technology and Roxtec, a Swedish manufacturer of housing accessories and cable penetration. Kabelschlepp has employed energy chains and conveying systems, Hirschmann is involved with its ethernet switches and other manufacturers such as Citel, HBM, Klemsan, Lumberg, Promet and Sensopart complete the portal with their data.

Conclusion: Users benefit from high-quality product and device data, whose wide range offers international manufacturers an ideal, flexible platform for true 'global engineering'. The data can be incorporated into the project 1:1 and guarantee users quick, efficient design while taking into account the current manufacturer data. The huge diversity of devices allows maximum freedom within engineering.

Source: Eplan Software & Service



Optimum performance for clamping full-cylindrical straight shanks

Hydrogrip chucks provide optimum performance for clamping full-cylindrical straight shanks, such as solid carbide drills and end mills. Activation of the chuck is achieved by turning the piston screw, which pressurises the silicon jelly and exerts force on a thin-walled membrane along the length of the clamping bore. This highly concentric clamping force not only holds the tool shank more securely, but also produces a dampening effect that reduces vibration and helps eliminate micro cracking on cutting edges.

A safety stop prevents chuck damage caused by over-tightening either with or without the cutting tool in place. Another unique feature is the special spiral wiper groove in the chuck's clamping bore that securely grips oily tool shanks. All BPTL hydrogrip chucks utilise a range of sealed, cutting-tool-reducing sleeves to maximise chuck versatility. Reducing sleeves can also be used for converting bores from inch to metric and vice versa.

Features

- TIR within 3 microns at nose and 5 microns at 4 times the cutting tool diameters.
- Improved vibration damping by using patented silicon compound as the pressuring medium.



- Up to 800Nm transmittable torque, depending on the diameter.
- Improved surface finish of the work piece.
- Higher work piece accuracy & up to 50% longer tool life.
- Increased productivity.
- Patented, leak-proof clamping system.
- Repeatability of 3 microns TIR over 50,000 cycles.
- Available on all popular taper shanks, including HSK

Function: Tightening the piston clamping screw exerts force on the pressure piston, which presses the hydraulic fluid, exerting force on the thin-walled expansion sleeve. This pressure causes the sleeve to compress around the tool shank, creating a highly concentric clamping force.

Effect: The hydraulic clamping system has a dampening effect. Vibration in a mechanical clamping system can cause micro cracking on insert cutting edges. This is prevented by the hydraulic expansion chuck and results in higher production quality and up to 4x better tool life. Birla Precision

offers wide range in hydrogrip adaptors on BT/DV/CAT & HSK tapers. Extra long gauge lengths are available to approach machining deep areas. Bore size ranging from 6 mm to 32 mm and 1/4" to 1 1/4" in inch sizes.

For more details, visit www.birlaprecision.in

Pramet unravels turning dilemma with new ranges

Pramet has introduced two new positive geometries and grades for turning applications in difficult to machine materials. Suitable for a variety of turning applications, the SF and SM geometries have been launched to support the machining of materials such as high temperature alloys and stainless steel.

Part of Dormer Pramet's second product launch of 2015, the SF geometry features a sharp, positive rake of 14.5°. It is suitable for finishing applications in continuous cut with very low forces. The SM geometry has a positive rake of 13° and is a wear-resistant, universal geometry for medium machining (finishing up to roughing) and suitable for continuous and interrupted cut.

Both geometries are available in a variety of grades and have been designed to promote low cutting forces and prevent work-hardening. This helps to reduce the risk of vibration



The SF and SM geometries support turning of difficult to machine materials.

when turning thin-walled components. In addition to the new geometries, two new turning grades have been unveiled by the global cutting tool manufacturer.

The PVD coated T6310 grade features a special sintering process which enhances cutting edge reliability and strength. Its new substrate with intermediate Cobalt content provides additional hardness and increased abrasion resistance to offer greater reliability and prolonged tool life. The T6310's triple coating provides durability for higher cutting speeds used when machining stainless steel, heat-treated and hardened materials. It is suitable for use with the new SM and SF geometries, as well as Pramet's existing NF and RM geometries, with a

total of 89 inserts now available.

For more information, visit: www.dormerpramet.com.



50 times better wear resistance!

Where do tribological filaments stand in comparison with standard 3D print materials? And do printed parts made of high-performance plastics actually have a lower abrasion resistance than injection-molded components? Now the motion plastic specialist igus has tracked down these questions in their test laboratory. One result was surprising.

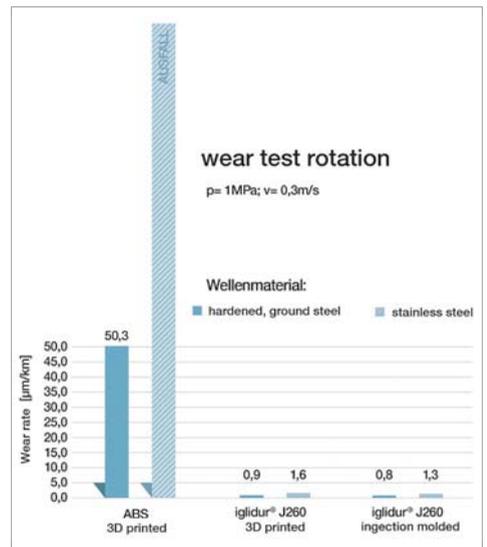
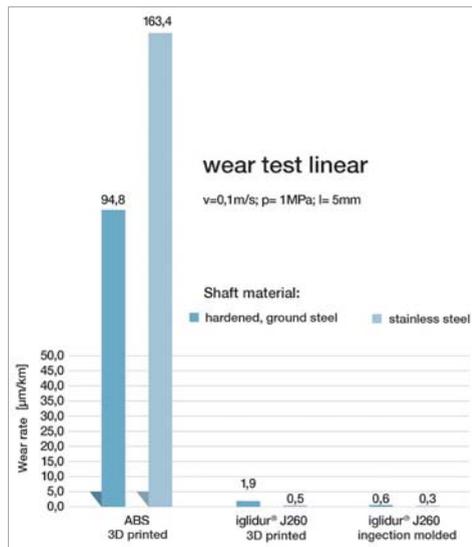
With high-performance plastics and additive manufacturing, two modern technologies which combined promise maximum freedom in construction and high abrasion resistance meet. In the igus test laboratory, tribological filaments of iglidur material J260 went up against conventional 3D print filaments (ABS) and injection-molded parts of the same igus material. Intensive linear and rotating test runs were carried out and evaluated in the in-house test laboratory on hardened, ground shafts of both steel and stainless steel over a period of several months. Because additive manufacturing with lubricant- and maintenance-free high-performance plastics is still a comparatively young field, the material experts at igus GmbH encountered an open-ended experiment.

Tribo-filament comes out ahead of ABS material

The result was surprising. It was clear that in both the linear and rotating tests, the abrasion resistance of bearings printed with tribological filament were comparable to the classical injection-molded components, even on both shafts. Thus where abrasion resistance is concerned, the printed components are almost on a par with the injection-molded components. Once again, the tests also clearly demonstrated that in comparison with conventional 3D print materials, the coefficients of friction for tribological filament are especially low. Thus in experiments pitting ABS against tribological filament, the rotating test on the stainless steel shaft even resulted in complete failure of the ABS part, while friction loss for tribological filament was still low. With these actual tests, the testers could demonstrate yet again how motion plastics play out their strengths in movement, even in 3D print. This is why it is possible for printed parts such as bearings or worm gears to be directly installed and used across industries.



igus tests the abrasion resistance of 3D print filament iglidur J260 in comparison with ABS and injection-molded parts in their test laboratory. (Source: igus GmbH)



Result of the test marathon: Here, the low abrasion rate of the tribological filament iglidur J260 comes out ahead in linear and rotational movement. (Source: igus GmbH)

Now 3D print your parts with igus

For igus, additive manufacturing is one more step to give the design engineer the greatest possible freedom in construction with lubricant- and maintenance-free plastics. The motion plastics specialist igus already introduced the world's first tribological filament for 3D printers last year, and has now expanded the series to a total of four materials. Since the Hannover Messe, igus has also offered a 3D print service. Customers can turn to igus with their 3D data and have their parts printed quickly and without complications. Delivery times for printed parts depend primarily on the complexity of the components; still, here too the goal is delivery within 24 hours.

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