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THE MACHINIST

ULTIMATE GUIDE TO PROFITABLE MANUFACTURING

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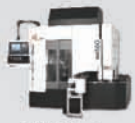

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VMC 1260, VMC 640 APC, VMC 1050 APC

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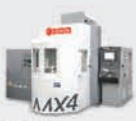

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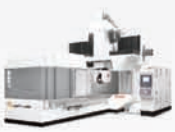

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People on a mission

EDITORIAL

People on a mission are folks who have the vision to see the spectacular and the perseverance to make it happen. And more often than not, they take up tasks that are usually considered undoable or even foolish. In fact, these are the people who start off where others give up. History is full of such inspirational examples.

During the period of high renaissance in Italy, many artists had been baffled by a large piece of marble. The stone had been assigned for a work of great art by the officials at the Florence Cathedral. Even the great sculptor Agostino di Duccio tried his hand. He spent weeks on it hoping to create a masterpiece but was unable to give it any appropriate form. Another well known artist Antonio Rossellino took up the responsibility almost a decade after Agostino di Duccio had given up. He too gave up. Even the legendary Leonardo da Vinci was consulted but even he stayed away from it. Finally, no one could do anything worthwhile with it and it was almost abandoned.

A 26-year old, budding artist on the way to his studio saw the stone in its deserted state. Something struck him about it. The sculptor in him had discovered a beautiful statue hidden inside the now disfigured stone. He convinced the authorities that he could take up the 'job' and arranged for the stone to be taken to his studio. Some people even laughed at him for carrying a burden with him. But the young man was least bothered; his mind had envisaged the possibilities that others had failed to recognise. It took him about four years to complete what is considered today as one of the finest pieces of art in world history. The name of the art: the statue of David. The name of the artist: Michelangelo. And it is a coincident that this issue celebrates another Italian legend – FIAT – and we also celebrate FIAT's endeavours to revive its fortunes in the Indian automotive market.

PEOPLE ON A MISSION ARE FOLKS WHO HAVE THE VISION TO SEE THE SPECTACULAR AND THE PERSEVERANCE TO MAKE IT HAPPEN.

In the last two covers, we talked about two companies and their respective leaders who have been doing well. This time we bring to you a company that's demonstrating a remarkable fighting spirit. Tell us how you like it.

Niranjan. M

Editor

THE MACHINIST
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CHIEF EXECUTIVE OFFICER
Tarun Rai

CHIEF FINANCIAL OFFICER
Subramaniam S

PUBLISHER, PRINT & PRODUCTION CONTROLLER
Joji Varghese

EDITOR | **Niranjan Mudholkar**
niranjan.mudholkar@wwm.co.in +91 9819531819

ASSISTANT ART DIRECTOR | **Sanjay Dalvi**
sanjay.dalvi@wwm.co.in

SUBSCRIPTIONS
subscriptions.rmd@timesgroup.com
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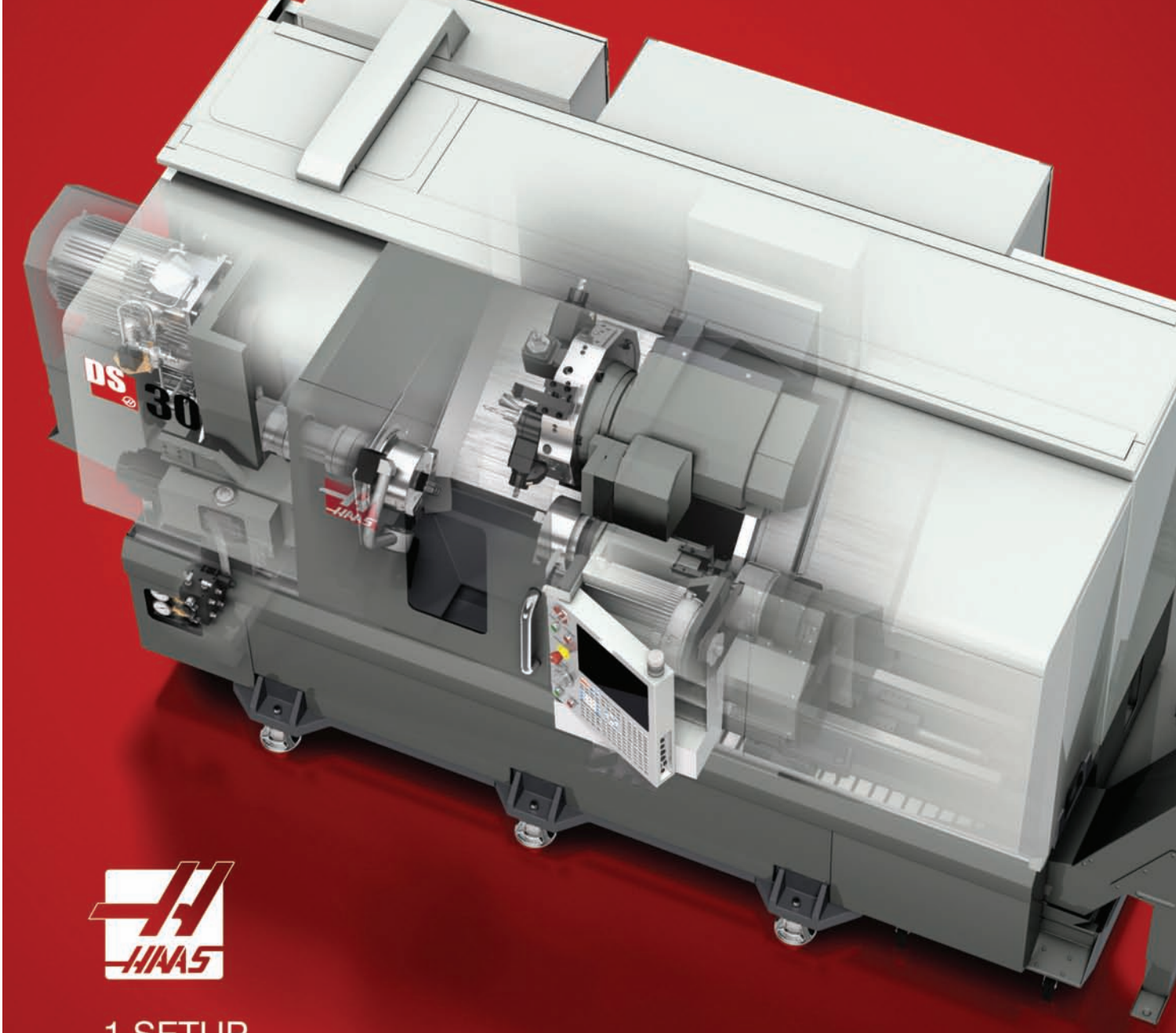

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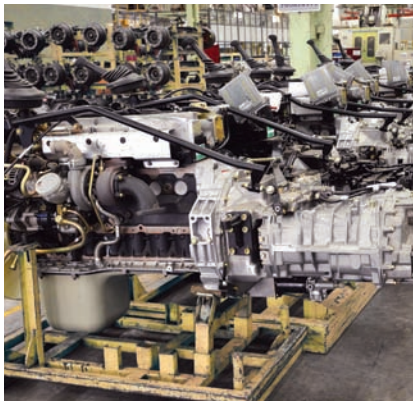

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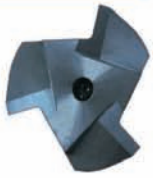

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NEWS

New rail coach manufacturing unit at Kolar, Karnataka

The Union Cabinet has given its approval for setting up a new rail coach manufacturing unit at Kolar, Karnataka. The unit will manufacture 500 coaches per annum at an estimated cost of Rs1460.92 crore (excluding cost of land) with active participation of State Government. The Ministry of

Railways will finance 50 percent of the cost and the Government of Karnataka shall provide the required land as well as meet the remaining 50 percent of the project completion cost with escalation.

Indian manufacturing economy improves at strongest rate in February to reach a one-year peak: HSBC PMI

52.5 PMI in February

Up from 51.4 in the previous month, the PMI signalled a solid and stronger improvement in business conditions across the country's goods-producing sector.

Finally, there's some good news. According to the HSBC India Manufacturing PMI, operating conditions have improved at strongest rate in one year. The Indian manufacturing economy has showed signs of strengthening in February, with faster increases in output and new orders bolstering the PMI to reach a one-year peak. New export business also rose at a quicker clip. Up from 51.4 in the previous month to 52.5 in February, the headline HSBC India Purchasing Managers' Index (PMI) signalled a solid and stronger improvement in business conditions across the country's goods-producing sector.

Production growth accelerated on the back of a stronger rise in incoming new work. The pace of output expansion was solid and the quickest in one year. New orders increased for the fourth month running and at the most pronounced rate since February 2013. Consumer goods was again the best performing subsector of the manufacturing economy in February.

IET ties up with IEEMA for information exchange

The Institution of Engineering and Technology Services India has joined hands with Indian Electrical and Electronics Manufacturers Association. The agreement is aimed to facilitate the exchange and dissemination of technical information. This would cover three primary areas -- joint events and activities; dissemination of knowledge, and efforts to improve the state of engineering education in India. The MoU will make it easier for the two leading organisations to work together to plan technical lectures and talks as well as to jointly develop programmes, activities and materials aimed at enhancing the quality of engineering education in India.

Shekhar Sanyal, Director and Country Head, the IET India and Sunil Misra at the launch of partnership between IET & IEEMA for development of engineering education in India

Shekhar Sanyal, Director and Country Head, the IET India, said: "With its tremendous potential to impact the engineering and technology scene, the agreement demonstrates the IET's commitment to this aspect."

Sunil Misra, Director General, IEEMA said, "We firmly believe that collaboration and co-creation is the only way forward."

Toshiba wins major order

Toshiba JSW Power Systems Pvt Ltd has been awarded a contract by NTPC Ltd. The contract is for the supply of two 800MW super-critical steam turbine and generator island packages for the Darlipali Super Thermal Power Station in Darlipali, Orissa state. The new steam turbines will enter operation by early 2018. Toshiba JSW will carry out engineering, procurement and construction (EPC) of the complete steam turbine and generator island packages.

In January 2014, Toshiba Corporation reinforced its thermal power generation business in India by integrating the engineering function of Toshiba India Pvt Ltd into Toshiba JSW Turbine and Generator Pvt Ltd, a manufacturer of turbines and generators based in Chennai.

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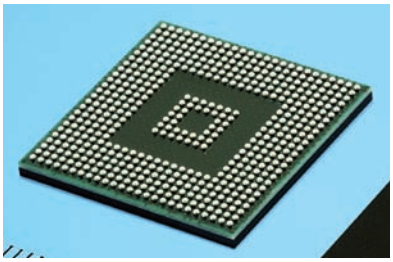
MAIT welcomes Govt's decision to set up fabrication unit

Manufacturers' Association for Information Technology (MAIT) has welcomed the government's decision of setting up of two semiconductor manufacturing facilities in India. Commenting on this much needed approval, Amar Babu, President, MAIT said, "Considering the fact that more than 65 per cent of current demand for electronic products in India is met by imports, the recent policy initiatives of the government to set up fab manufacturing and semi-conductor units will transform the Indian electronics manufacturing sector and create opportunities for Electronic Design and Manufacturing (ESDM). It will cater to the domestic demand for hardware manufacturing and also act as an export hub. We at MAIT, hope that the con-



sortiums chosen to set up fabrication units complete the projects in time. This development would also have a positive impact on our economy and generate employment besides sending right signals to the investors."

The Cabinet has approved setting up of two semiconductor units entailing investments of Rs51,550 crore. It will prepare a detailed project report and has announced to issue a letter of intent.

Aid to Bell-Metal Industry

The Ministry of Micro Small & Medium Enterprises (MSME) is implementing the National Manufacturing Competitiveness Programme, MSE-Cluster Development Programme and Credit Linked Capital Subsidy Scheme for providing assistance towards modernisation in the country. The benefits are also provided under NEIIP (North East Industrial Investment Promotion Policy) and under state industrial policy to Bell metal industry in Assam. Further, under MSE-Cluster Development Programme of Ministry of MSME, a proposal for setting up a Model Common Facility centre at Bell Metal Cluster at Hajo Kamrup of Assam was approved by Ministry with a financial involvement of Rs160.61 lakh and Rs 81.66 lakh have been released as first instalment.

Tata Steel conferred the Indian MAKE Award 2013

Tata Steel has won the prestigious Indian 'Most Admired Knowledge Enterprises' (MAKE) Award 2013 at CII's 'Knowledge Summit 2014'. The Indian Most Admired Knowledge Enterprises (MAKE) award aims to recognise organisations (founded

Ganesh Natrajan, Vice Chairman & CEO, Zensar Technologies Ltd. giving away the award

and headquartered in India) for their ability to create shareholder value by transforming new as well as existing enterprise knowledge into superior products, services and solutions.

Tata Steel has previously won the Indian MAKE awards on seven occasions since its inception in 2005.

KBL's Fifth ARC opens in Bellary

Kirloskar Brothers Ltd (KBL) opened doors to its fifth Authorised Refurbishment Centre (ARC) at Bellary in Karnataka. The ARC facility in Bellary spreads across 2,000 square feet and will offer service and repair facilities for all small, medium and large pumps manufactured by KBL. The facility will offer services like overhauling of pumps, impeller balancing, hydro testing, corrocoating, performance enhancement, testing, shot blasting & painting and lastly it will also cater to customers having annual maintenance contract (AMC). Genuine spares are

Inauguration of KBL's ARC at Bellary at the hands of Mr Sanjay Kirloskar,Chairman & Managing Director,KBL

available at KBL refurbishment centres across India for ensuring longer pump life and enhancing energy efficiency. KBL has five refurbishment centres.

Frost & Sullivan recognises Siemens PLM Software

Siemens PLM Software has been recognised by Frost & Sullivan as 'Company of the Year for PLM in India, 2013'. Frost & Sullivan recognises outstanding industry achievements by awarding top companies in regional and global markets in various categories. The nominations are independent, third-party objective analysis of industry best practices that also includes voice of customer analysis. Niju V, Director, Automation & Electronics Practice, Frost & Sullivan said, "Siemens PLM Software has a well chalked out strategy to penetrate the Indian market with its range of solutions and customer centric delivery model. The enhanced value addition delivered by Siemens PLM Software to its customers has enabled it to maintain its market leadership in India."

Boost to manufacturing

"It will help to boost the sagging morale of the auto industry, specially the SUV manufacturers. The automotive industry is the backbone of growth for the manufacturing sector, so revived growth in the automotive industry would have a positive impact on these key downstream and upstream manufacturing sectors."

Piyush Munot, MD, ZF India

"The FM has reiterated his focus on developing the manufacturing sector, and specifically talked about fast tracking large infrastructure projects like DMIC, and about introducing innovative measures of financing infrastructure development, which has been a key concern over the last few years."

Mahendra Singhi, Group CEO, Cement, Dalmia Bharat

"The government's move to provide relief to the struggling manufacturing sector augurs well for the steel industry. However, there is an urgent need for a comprehensive review of the entire mechanism for grant of clearances (such as the environmental and forest clearances) to industrial projects in the country."

TV Narendran, MD - Tata Steel, India and South East Asia

"One of the main focus areas of the interim budget has been the revival of manufacturing, which is encouraging. This will help the industrial segment of paint industry which has been adversely impacted by the slowdown.""

Sameer Nagpal, CEO & MD, Shalimar Paints

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(Joji Varghese)
Date: March 1, 2014
Signature of the Publisher

Enhancing performance

High performance organisations demonstrate their commitment to growth not by what they say, but by what they do and how they behave.

By Raj Kalady

More and more organisations are now focusing their attention on enhancing performance and increasing profitability. To accomplish these goals, they need to ensure their employees focus their attention on behaviours that drive organisational success.

Clearly, organisations are concerned with their ability to engage employees and achieve maximised performance. Much of the impact of performance management derives from its ability to engage employees in their work. When employees are engaged, they are given opportunities to capitalise on their strengths, to receive appropriate support and feedback, and to find their work to be motivating. An organisation can leverage the power of these engaged employees by focusing their efforts on promoting the business strategy.

All businesses want to see themselves as high performance organisations, but sadly, not all are. One of the most significant factors that separate high performance organisations from the rest of the pack is their mindset. High performance organisations will always have a growth mindset! That mindset will help them stand out. High performance organisations demonstrate their commitment to growth not by what they say, but by what they do and how they behave.

Driving organisational success

Conducted since 2006, Project Management Institute's (PMI) Pulse of the Profession is the annual global survey of project management professionals. The Pulse of the Profession charts the major trends for project management now and in the future. It features original market research that reports feedback and insights from project, program and portfolio managers, along with an analysis of third-party data. According to the Pulse of Profession report (PMI) 2014, an organisation's success is dependent on understanding high project performance—projects completed on time, on budget and meeting original goals.

Our Pulse research shows that high-performing organisations are more likely than their low-performing counterparts to focus on agility and strategic alignment thus minimising the wide chasm that organisations face today. As a result, the increased success of their strategic initiatives is substantial; high performers average twice as many successful strategic initiatives than low-performing organisations.

"When employees are engaged, they are given opportunities to capitalise on their strengths, to receive appropriate support and feedback, and to find their work to be motivating."

An organisation's focus on agility and strategic alignment not only impacts the success of its highest priority initiatives, it also leads to better project performance overall; 89 percent of projects at high-performing organisations meet original goals and business intent, compared with just 36 percent at low-performing organisations. And high-performing organisations lose 12 times less money than low performers (US$20 million versus US$230 million for every US$1 billion spent on projects).

Understanding what practices—strategic and tactical—high performing organisations have in place is crucial to improving an organisation's success. Along with high alignment of their projects to organisational strategy and organisational agility, high-performing organisations succeed through a strategic focus on people, processes and outcomes.

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People

Not only must organisations focus on the development of their talent and the practices by which they do that, they also need to focus on managing their people through rapid organisational changes that stem from new strategic initiatives. And further, organisations need to ensure executive sponsors are in place to help drive the organisational changes.

Talent Management: PMI research shows that organisations need to focus on the development and training of their talent in order to achieve superior project performance, successful strategic initiatives and become high performers. Organisations are currently facing unique challenges: few organisations are focusing on knowledge transfer and this might be hampered by the fact that nearly two-thirds of organisations report using outsourced or contract project managers. Furthermore, 26 percent of organisations plan to increase the percentage of project managers who are contracted or outsourced in 2014, compared with just 20 percent in 2013.

However, there is a direct correlation between effective talent management and better project performance. PMI's Pulse of the Profession In-Depth Report: The Competitive Advantage of Effective Talent Management showed that organisations that align their talent management to strategy have more successful projects and waste fewer project dollars. Our research revealed that high-performing organisations are more than twice as likely as their low-performing counterparts to align talent management to organisation strategy—a significant competitive advantage.

> "Along with high alignment of their projects to strategy and agility, high-performing organisations succeed through a strategic focus on people, processes and outcomes."

Processes

For the past several years, the PMI Pulse research has confirmed that organisations can clearly benefit from maturing their project, program and portfolio management processes. The Pulse data demonstrates that process maturity leads to success. Despite this, our latest Pulse findings reveal that many organisations are not taking sufficient action to mature their processes—as evidenced by the trends in the perceived value of project management, the growth of project management offices (PMOs), the use of standardized project management practices throughout organisations, and the maturity levels of project, program and portfolio management.

Outcomes

Successful organisations have a continued focus on the outcomes of the intended benefits of their projects and programs. Benefits realisation is the practice of ensuring that the outcome of a project produces the projected benefits claimed in the business case. This is achieved through the establishment, measurement and communication of the expected benefits of an organisation's initiatives. High benefits realisation maturity is inextricably linked to the success of projects—and strategic initiatives. Despite this, our latest Pulse research reveals that fewer than one in five (17 percent) organisations report high benefits realisation maturity. High performers are nearly eight times more likely to be mature in their benefits realisation processes.

Payoffs

The payoff for organisations maturing their benefits realisation is worth the effort. Firms that report being highly mature with 'benefits realisation' see an average of 73 percent of their strategic initiatives meeting original goals and business intent.

In the past few years, organisations have faced headwinds, resulting in a chasm between their actual state and their vision of success. High organisational agility and high alignment of projects and programs to an organisation's strategy have become integral to navigating an increasingly competitive market environment. Strategies are being shaped by customer expectations and demands and by the modest global economic growth forecasted for 2014.

This 2014 Pulse of the Profession report reveals a clear imperative for organisations to take action now to become high performers and optimise their project management practices to mitigate the millions lost on failed projects.

Reference: Project Management Institute – Pulse of Profession Report, The High Cost of Low Performance 2014

The author is Managing Director, Project Management Institute, India

Messe München International

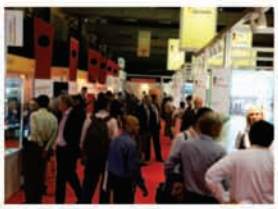
LASER World of PHOTONICS INDIA

SEPTEMBER 23-25, 2014, BANGALORE INTERNATIONAL EXHIBITION CENTRE

Highlight of LASER World of PHOTONICS INDIA 2013

LASER WORLD of PHOTONICS INDIA once again recognised as an important gateway for technology exchange

India as a market for photonics components and applications is in high demand. The 2nd edition of the LASER World of PHOTONICS held in BEC, Mumbai played host to **118 exhibitors** alongwith the international country pavilions from **Germany, Japan, China, UK** and European Photonics Industry Consortium **(EPIC)** and 3,364 visitors during the three day period. The "Symposium on Laser Material Processing" and Seminar on "Laser Applications: Opportunities and Challenges" was also co-held along with the exhibition that was delivered the visitors by various industry experts. The trade fair was also supported by **Ministry of Communication and Information Technology, Ministry of Micro, Small and Medium Enterprises- Government of India** and The National Small Industries Corporation **(NSIC)** and industry associations like Indian Laser Association **(ILA)**, Optical Society of India **(OSI)**, Photonics Society of India **(PSI)**, The Optical Society **(OSA)** and **SPECTARIS**, Germany



About LASER World of PHOTONICS INDIA 2014

India's only industry gathering for optical technologies will be staged in Bengaluru. Offering you a platform in the heavily manufacturing-focused southern Indian state of Karnataka. On the scientific front the state of Karnataka and the south of India are preeminent in optics and laser research and development. The region boasts a wealth of universities, engineering schools and polytechnic universities.At the same time, Messe München International organizes electronica India and productronica India at the modern trade fair site of the Bangalore International Exhibition Centre (BIEC), so that exhibitors and visitors can also benefit from synergies with the electronics industry.

Exhibitor Profile

Photonics Components

- Lasers and optoelectronics
- Optics
- Manufacturing technology for optics
- Sensors, test and measurement
- Services

Photonics Applications

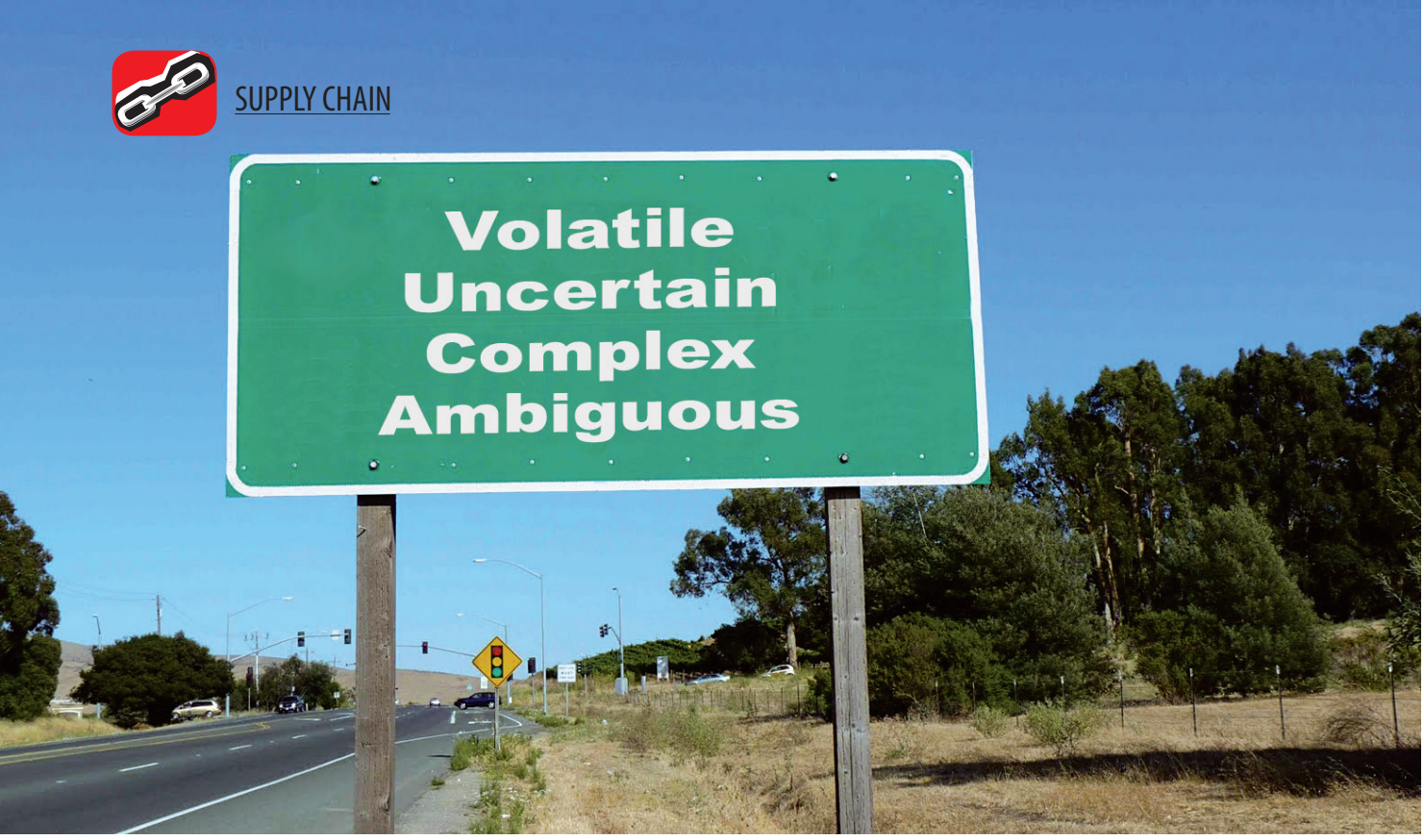
- Laser systems for production engineering
- Optical measurement systems
- Optical information and communication
- Biophotonics and medical engineering
- Imaging
- Illumination and Energy
- Security

Visitor Profile

- **Automotive**
- **Aviation / Aerospace**
- **Clothing / Garment**
- **Contract manufacturing / Job shops**
- **Electrical engineering / Electronics**
- **Jewellery / Diamond cutting**
- **Photovoltaic**
- **Precision mechanics /Optics**
- **Science / Research**
- **Semiconductors**
- **Telecommunications**
- **Toolmaking / Machine manufacturing**

For further details contact:

MMI India Pvt. Ltd.| Ms. Rima Dodhia | Mobile: +91-98332 20450 | Email: rima.dodhia@mmi-india.in | URL: www.photonicsindia.net



In the VUCA world

If we look at some of the trends which will be shaping the future of businesses and supply chains and the potential inter-linkages between these trends, it will become obvious that VUCA is here to stay.

By Nikhil Pingle

The current global economic situation with increasing pace of change, growing global commerce and lack of predictability about the future is often being described with the new term VUCA (volatility, uncertainty, complexity and ambiguity). The VUCA framework is shaping the development of new organisation development and leadership thoughts across the globe. So let us take a moment to demystify the term VUCA.

VUCA best describes the volatile and chaotic business, economic and physical environment that we all face nowadays. In the VUCA environment there are more changes, a faster rate of change and the size of changes are so impactful that they are termed as 'disruptive'.

The VUCA nature of our surrounding environment is not a new phenomenon, but it seems to have amplified in the last decade as technology has advanced at a rapid pace and organisations have become more globally connected than ever. The systems under which the world operates and the ways in which businesses operate are vast and complex – interconnected to the point of chaos & uncertainty and the linkage between cause and effect becomes indiscernible.

VUCA

Volatility – high rate of change

Uncertainty – unclear about present situation and future outcomes

Complexity – multiple key decision factors

Ambiguity – unclear about cause of an event

Future is VUCA

If we look at some of the trends which will be shaping the future of businesses and supply chains and the potential inter-linkages between these trends, it will become obvious that VUCA is here to stay.

Emergence of megacities

The UN's World urbanisation prospects report indicates that urban population will be 70 percent of total world

	Examples of evolution in past	Examples of evolution in future
Adapt	Modify strategy to launch product in new market, relocate facilities, change sources of supplies, outsource manufacturing	Creation of team within the organisation to work on supply chain analytics, new technology adoption, shared services, etc
Co-evolve	Traditional and e-commerce distribution networks to cater to increasing customer service requirement Evolution of ERP system based on collaboration between IT firms and industry	Co-evolution of cloud computing framework between supply chain service providers and customers Investments by competitors in controlling natural resources and in developing
Co-operate	Sharing of data between consumer products firms and retail stores to improve availability and reduce inventory Cooperation between organisation and its suppliers / customers for replenishment	Tie-up with an innovation firm, technology platform and market research firm and retail store to deliver customised products and personalised service offerings based on real-time customer behaviour at point-of-sale
Diverge	Changing the distribution model from traditional channels to online retailing	Creation of splintered supply chain catering to different product-customer segments enabled by real-time planning and optimisation

population by 2050, up from current levels of 50 percent. Indians are already witnessing their top cities expanding to become megacities and to support this population growth there are significant infrastructure investments that have been planned. Logistics and distribution infrastructure will also require commensurate investments to cater to this dense urban population.

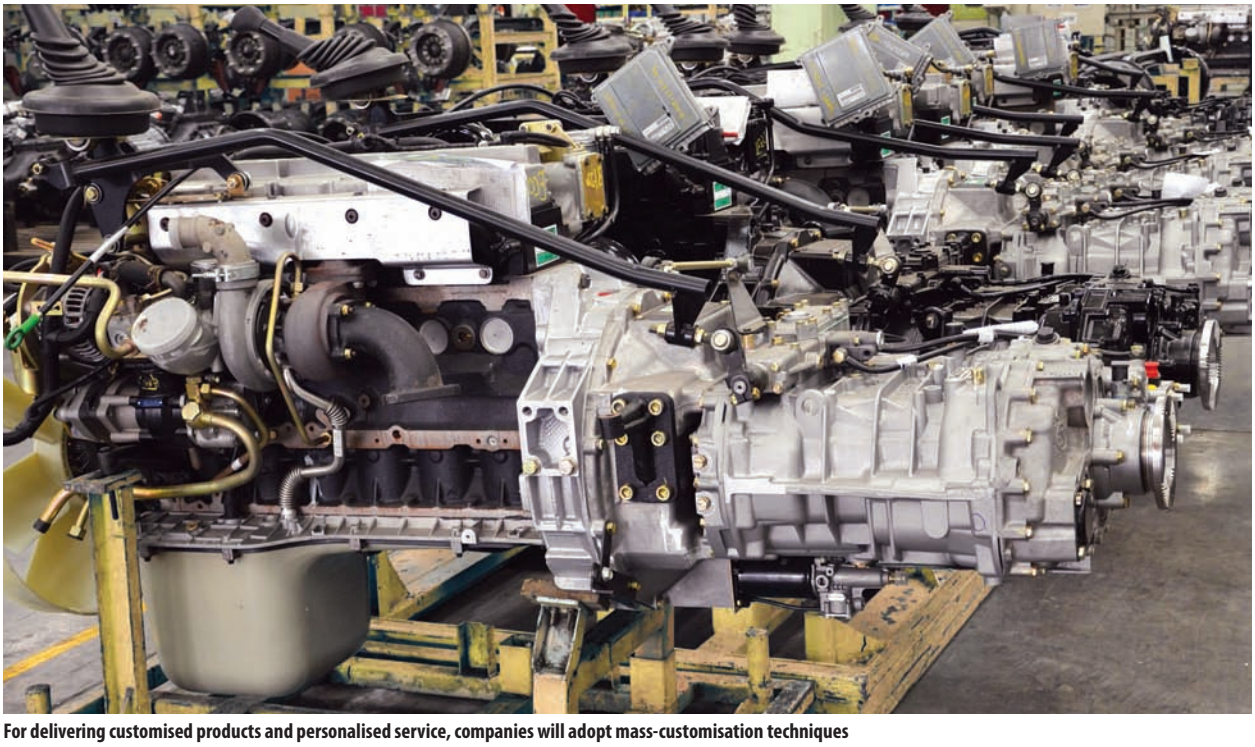
Customer expectations

Future customers will require customised products and a personalised service. For delivering on these expectations, companies will adopt mass-customisation techniques and tie-up with agile service providers. Simulation models will be created for analysing buying and usage behaviour of customers. Supply chain managers will need to optimise the cost to serve to remain competitive in such a market place.

> "As the issues of business process integrity and data security get addressed, more and more organisations will initiate implementation of cloud solutions."

Advances in technology

Some of the latest advances in technology are the smart machines to enhance man-machine collaboration, 3D printing than has the potential to transform industries and body-adapted electronic gadgets which will provide real-time information about the consumer. As



For delivering customised products and personalised service, companies will adopt mass-customisation techniques

Cloud computing offers significant potential to connect all customers and supply chain partners over a single platform

organisations evolve their business strategy to harness the potential of these technologies, supply chain professionals will also need to tailor their planning, sourcing, manufacturing and distribution processes around these developments.

Analytics for decision-making

Predictive models will enable integration of weather pattern changes to demographic data to provide a more accurate forecast of customer demand. Smart devices and sensors will provide end-to-end supply chain and will feed in enormous amount of data. Supply chain planning will then leverage analytics for real-time optimisation and fulfilment decisions.

Cloud computing

Cloud computing offers significant potential to connect all customers and supply chain partners over a single platform with low upfront costs and shorter implementation timelines. As the issues of business process integrity and data security get addressed, more and more organisations will initiate implementation of cloud solutions.

Control over natural resources

The growth of world population and energy requirements will put pressure on natural resources such as energy, water and food. Many firms have already taken positions to exercise control over scarce natural resources which will ensure continuous supply for their captive consumption and also for trading. Different countries are also facing issues of food scarcity and they have signed pacts with other countries to ensure their food security. Due to fluctuations in demand-supply for these natural resources, the prices of such commodities will continue to be volatile.

Policy changes

After the global economic crisis and the threats of sovereign defaults, countries have begun to appreciate the inter-connected nature of the global trade. This is coupled with every country's desire to maximise its own growth and balance inflation. Hence countries have made significant shifts to their regulatory and economic policy and conducted stress tests to prevent recurrence of the crisis. It is believed that over the next decade the regulatory environment will continue to be under pressure.

Concern on sustainability

Consumer awareness and concern about importance of sustainability will put pressure on organisations to take more responsibility of their emissions and carbon footprint. Supply chain leaders will start investing time and resources to convert sustainability from a reputation risk issue to a source of competitive advantage.

Talent pool

The future of the procurement and supply chain marketplace will hold critical shortages of skilled professionals as experienced staff retire and demand to fill their roles increases. As employers will need more specialised and targeted recruitment to find qualified workers with the appropriate skills and experience, talent exchanges and contractual workforce will become the order of the future.

Evolve to survive

With the realisation that VUCA cannot be avoided, resisted or managed, supply chain leaders will need to embrace it and design their supply chain strategies and operating models to survive and perform in the future world. In such a world, the idea that companies can define a supply chain strategy as responsive, efficient, resilient, lean will be grossly inadequate. At the same time, an objective of optimising their supply chains once and for all circumstances and customer segments is a fantasy.

Application of the theory of evolution suggests four approaches along which supply chains have evolved in the past and will continue to do so in the future. Creating the future supply chain requires will require the ability to spot trends, get a fresh perspective from leaders across other disciplines, be flexible and rapidly transform the supply chain network.

> "Future customers will require customised products and a personalised service. For delivering on these expectations, companies will adopt mass-customisation techniques and tie-up with agile service providers."

The author is Associate Director, KPMG in India

Key to operational excellence

With companies competing on a global scale along with stringent customer demands/requirements, end-to-end supply chain integration is turning out to be critical for business success.

By Nitin Kalothia

Advancement of technologies and new developments in logistics/supply chain are breaking physical boundaries. Organisations are increasingly becoming multi-nationals and their supply chains crisscross the globe. With companies competing on a global scale along with stringent customer demands/requirements, end-to-end supply chain integration is turning out to be critical for business success.

Clear/real-time visibility and effective control over supply chain are equally becoming integral factors towards ensuring right quality, product delivery, and availability at shorter lead times with least possible impact to the environment. Focusing on extended supply chains also provides ample avenues and opportunities for companies to become operationally lean and agile in comparison to the traditional approach of looking within the walls of manufacturing activity.

With organisations competing on a global scale, end-to-end supply chain integration is critical for success. Additionally, with increasing customer demands to cut costs and reduce delivery lead times while providing quality products, the focus has shifted from just optimisation in manufacturing to increasing the overall supply chain efficiency. Organisations are realising these benefits, and hence there is immense pressure on the supply chain to ensure that the right quality product is available at shorter lead times to ensure uninterrupted and smooth production while managing supply chain costs.

> “Focusing on extended supply chains also provides ample avenues and opportunities for companies to become operationally lean and agile in comparison to the traditional approach.

Supply chain management

Supply chain performance management is the practice of managing the effectiveness and value of the supply chain by aligning trading partners, service providers, employees, processes, and systems to a common set of goals and objectives. Supply chain management analyses supply chain process requirements to produce objective metrics; it uses technology to track processes according to those metrics and provides managers with reliable information they can use to make accurate assessments of, and better decisions about operations and personnel.

Integrating through IT

Manufactures are linking key suppliers and customers to their Enterprise Resource Planning (ERP) systems to enhance transparency in the supply chain and capture customer's requirements on a real-time basis while being

able to communicate the material requirement to vendors to meet supplies on a Just-in-time (JIT) basis. Companies are focusing on reducing procurement lead times by reducing information flow time and using the replenishment model for 'C' class items.

Suppliers have access to the stock levels of customers and once stocks reach minimum levels they are replenished automatically by the supplier. Concept of 'Smart Bins' is becoming common in the industry today. Suppliers are being relocated or a warehouse is established near the manufacturer for uninterrupted JIT supply. The trend to invest in IT infrastructure to effectively link all the critical suppliers and customers is on the rise. The IT industry is presently seeing a boom in the requirements of supply chain solutions to integrate the complete value chain.

Lean and green

Companies are working towards rationalising their vendor base to be able to focalise efforts to make them efficient and reliable with respect to quality and delivery. A few companies have even divided their suppliers into tiers, which helps them reduce total data processing, and streamline the information flow. Information flows only to the Tier I supplier who directly meets the plants requirement with the support of Tier II and III suppliers.

There is also increased focus on ensuring that the supply chain is greener by reducing the environmental footprint across the chain. Companies are looking at the impact, risks, and the opportunity available in the supply chain and identifying projects that will help make their supply chains sustainable. Vendors are being trained on these concepts, though in a small way and there is a much ground to be covered.

"Companies are looking at the impact, risks, and the opportunity available in the supply chain and identifying projects that will help make their supply chains sustainable.

Flexibility

Organisations are making efforts to train suppliers on new manufacturing techniques to improve their performance and hence supply chain performance. Employees from the customer's manufacturing plant spend time at the supplier's manufacturing locations to support and guide implementation of new manufacturing practices. It's a win-win situation both for the customer and the supplier. This results in suppliers having flexible and reliable operations, with which they can meet the variable demand without maintaining high inventory levels. They also cut manufacturing costs by eliminating non-value added activities in their manufacturing processes. Companies having reaped the benefits of activities like Value Stream Mapping (VSM) and Value Engineering in-house now conduct such activities at the suppliers' end to reduce their costs and increase efficiency.

Self certified suppliers

Today, suppliers supply parts directly to the assembly points or at the point of use thus eliminating any incoming inspection or storage that minimises additional material handling and reduces the cost of quality. Regular supplier audits to ensure that processes are in control and quality systems are followed are a regular feature in many industries. Supplier's quality performance is reported at regular intervals in Parts Per Million (PPM) and sigma levels instead of percentages. Incoming quality issues are analysed to arrive at the root cause to initiate preventive actions. Original Equipment Manufacturers (OEMs) ensure and validate the effectiveness of such preventive actions through audits to ensure that similar problems do not reoccur.

Global purchasing

Companies are harvesting the benefits of volume based costing to reduce raw material costs. The movement is towards a global purchasing system that combines the requirements of all different manufacturing locations worldwide to gain volume based discounts compared to local purchasing (from different vendors) by negotiating and purchasing for each individual unit.

A leading vertical and horizontal transport manufacturing company used this approach to reduce the cost of purchase of its critical items by 15 percent to 20 percent. The travelling cable used across all its manufacturing locations was manufactured

Employees from the customer's manufacturing plant spend time at the supplier's manufacturing locations to support and guide implementation of new manufacturing practices.

Suppliers are being relocated or a warehouse is established near the manufacturer for uninterrupted JIT supply.

by one company. Each individual unit had initially negotiated the prices for their volume requirements. The company paid different prices in different parts of the world for the same product. Negotiating with the travelling cable supplier for a global purchase order, the company lowered the 'travelling cable' cost by 15 percent to 20 percent.

Logistics optimisation

Organisations are relooking at logistics to reduce both the cost and lead time and in the process reduce environmental impacts. Logistics routes are being reviewed and optimised. The concept of milk run is used effectively by companies to get materials in kits at regular intervals, directly to the assembly lines. This saves time by consolidating materials in the plant by the operators.

This concept is used by companies for products that are used inside the manufacturing locations and also for the bought out items that need to be sent to the customer, which do not require much of value addition. With the focus on reduction of costs and environmental impact, organisations are reviewing transport modes and switching to multimodal transport to get the maximum benefit (road to rail transport, air to ship travel). Also, utilisation of vehicle space is another critical metric being used to monitor logistics efficiency.

Future challenges

For Indian companies, one of the biggest challenges in optimising supply chains and making them more efficient is the availability of good infrastructure. With bad road conditions in many parts of the country, inefficient ports and conventional material handling and storage systems being used, organisations are left with no choice but to build a buffer at every stage and hence maintain higher levels of inventory.

Use of IT systems to integrate the supply chain has increased significantly in the last decade but still vast ground needs to be covered to have a truly integrated supply chain with seamless information and material flow. This will require huge investments. Are companies willing to invest into building this kind of infrastructure and is the return on investment justified? For some companies, the answer is certainly yes, as they have already done it but a large number of companies are still holding on primarily because of the investment factor and not-so-clear/ justifiable return on investment.

A rational change will be required in the mindset of the organisations to look beyond its boundaries focusing on the extended supply chain/ vendor base and understanding the ultimate impact and benefits of a reliable, receptive and responsible end-to-end value chain! Companies have to start looking at the global picture instead of the local picture to reap bigger benefits. Optimised inventory in the supply chain, responsive and optimised vendor base immensely add to the companies' bottom-line.

> "Companies are working towards rationalising their vendor base to be able to focalise efforts to make them efficient and reliable with respect to quality and delivery.

Conclusion

The focus for the past few years in supply chain management has been on developing and managing vendors along with managing the global supply chain. While the focus remains unchanged, the expertise of third party logistic providers and efficient use of IT solutions to integrate the end-to-end supply chain is likely to be leveraged to enhance the same.

Costs, quality, and timely delivery are still the focus for many companies. With increasing competition, companies are focusing on reducing the total inventory in the supply chain by increased visibility and better planning.

Developments are taking place in the country's infrastructure with companies investing time and money into improving supplier's performance through implementation of systems. Advanced IT systems are also optimising the supply chain. Frost & Sullivan expects these changes to provide the required competitive advantage to organisations.

The author is Director, Manufacturing & Process Consulting Practice, Frost & Sullivan

Geared with success

With more than 3,000 quality visitors, the IPTEX and GRINDEX 2014 expo was able to bring together the entire industry value chain in three days.

The success of any trade show is primarily determined by the quality and quantity of the exhibitors as well as the visitors. Another key contributing factor is the ability of the show to showcase the latest technology and highlight the industry trends. Against these parameters, the IPTEX and GRINDEX 2014 show clearly came out to be a winner.

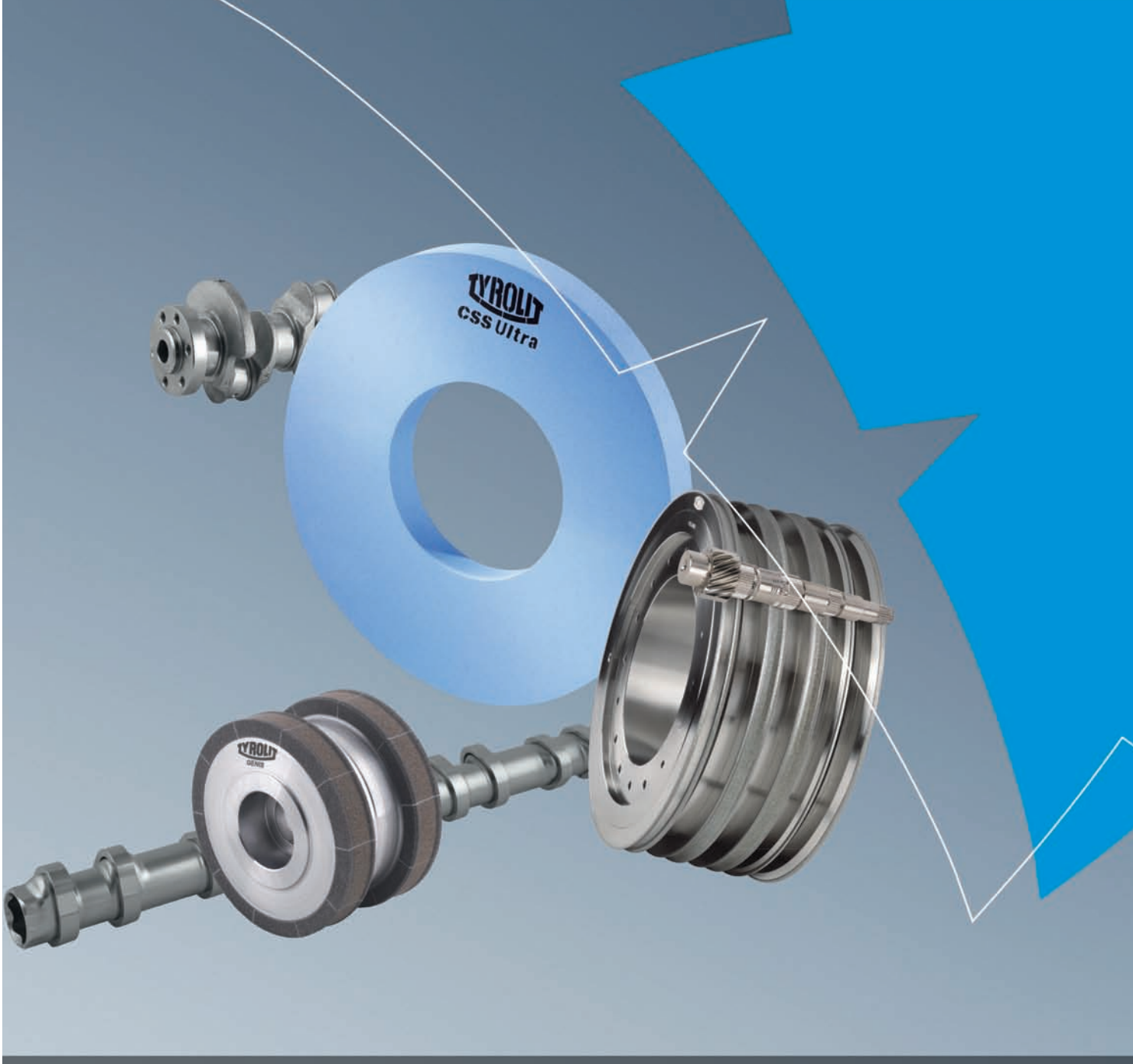
Held from February 27 to March 1 at the Bombay Exhibition Center in Mumbai, the show saw over 95 exhibitors from various countries like Spain, Japan, China, Czech Republic, Italy, Germany, UK, and USA showcasing a wide range of products. These included gear transmission products, gear processing equipment, cutting tools, gear inspection/ testing/measuring instruments, chain/belt drives, grinding machines, tool grinding machines, abrasives, software and other finishing products and processes.

> IPTEX 2014 created a platform for us in reaching the specific market segment of the transmission industry. Having good solutions in our kitty to serve the customers involved in manufacturing of power transmissions, it was a nice opportunity for us to share with them on our capabilities to serve them.
>
> **Subrahmanya Kumar V,** Country Sales Manager – India, Tyrolit India Superabrasasive Tools Pvt Ltd

Dignitaries at the inauguration

At the end of the second day, the organisers hosted a networking event for the exhibitors, which gave the participants in an informal setting for interaction. "It makes a lot of sense for us to participate in this event as it gives us the opportunity to interact with peers, customers and competitors. So this is a kind of industry get together, a platform for exchange. People are coming for networking. Iptex is always about networking. The interactive sessions and the technical seminars add a great value. You also get to know about latest trends and technology. The organisers have put sincere efforts in the getting the entire value chain at this show and that is something which needs to be applauded and supported," said Prasad Kizhakel, MD, Klinglenberg India Pvt Ltd.

This exclusive exhibition has been emerging as one of the most promising platform for the gears and power transmission equipment industry to share knowledge and explore business opportunities. IPTEX has been created with the mission to provide a consistent channel of communication to the members of this industry to come together under one roof. "IPTEX 2014 created a platform for us in reaching the specific market segment of the transmission industry. Having good solutions in our kitty to serve the customers involved in manufacturing of power transmissions, it was a nice opportunity for us to share with them on



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our capabilities to serve them. While we appreciate the initiatives of the organisers for focusing on the niche areas like this, we are very sure of getting benefitted out of participating in this Expo," said Subrahmanya Kumar V, Country Sales Manager – India, Tyrolit India Superabrasive Tools Pvt Ltd.

With more than 3,000 quality visitors over three days, the show has clearly made a mark for itself in this industry. The Expo was supported by American Gear Manufacturers Association (AGMA) and had the association support from ITAMMA.

Earlier on the first day, the inauguration team consisting of Dr Sreeram Srinivasan, President & ED, Shanthi Gears Ltd, Joe Franklin, President, AGMA, Prasad Kizhakel, MD, Klinglenberg India Pvt Ltd and Anitha Raghunath, Director, Virgo Communication, lit the traditional lamp and formally declared the Expo open for business.

While welcoming everyone, Raghunath also thanked the exhibitors for their participation. Franklin spoke briefly about the growth of the show and its journey from the first edition and congratulated Virgo communication for doing a great job. The Key note address by Dr Srinivasan emphasising on The Indian Gear Market – Current Status & Future Trends was well received and appreciated. He also urged all the industry representatives to join hands and take the industry to next level. After the key note address a round table discussion was organised, which was moderated by Sulaiman Jamal, MD, Bevel Gears. The panellists and the audience interacted and discussed various key issues pertaining to the Indian gear industry. All other sessions including the roundtable were well attended by the audience. The parallel technical sessions had indeed become a knowledge-sharing platform.

Tyrolit stall busy with relevant visitors

"The technical seminars were quite good. It is an interesting initiative. Some of the top companies have put up their stalls here so the visitors get an opportunity to experience and witness the latest in the field. The visitor quality has been quite good. We have seen knowledgeable visitors and that I think has been the highlight of this show," said DD Chawathe from Gear Consultancy. Chawathe also told The Machinist that AGMA is planning to start its educational courses in India which will give a boost to the industry as the industry will be exposed to the latest knowledge in the sector.

According to S Kumar, Head-Engineering, Shanthi Gears Ltd and K Sendhil Vel, Head of Sales & Marketing, Shanthi Gears Ltd, the show was truly successful due to good quality of exhibitors and visitors. "The organisers have done a good job in getting all the right people together. We have been able to connect with the entire value chain of the industry. That has been a big positive from this show. The seminars too have been very good."

Rajesh Pradhan, Executive Director, Cosmos Impex (India) Pvt Ltd, was particularly happy about the arrangements at the show in terms of the space and the infrastructure provided. "The quality of visitors has been quite good. We have seen only relevant visitors coming to our stall; there have been no casual customers like you see at so many trade events nowadays," he said. Cosmos had displayed its high-end creep feed grinders. "We want to make these machines affordable for the SME segment," said Pradhan, reflecting another dimension of the exhibition in terms of its usefulness for the SME segment.

Crowd at the registration counters

India beckons

With plans to invest over Rs3,000 crore in India over next five years, for Toshiba, India is important not only as a market, but also as a strategic export and development base.

Toshiba Corporation has recently announced a comprehensive strategy for expanding its social infrastructure business in Asia and around the world that positions India as a strategic business hub. On his maiden visit to India, Toshiba's President and CEO, Hisao Tanaka, along with the top executives of the company, shared the Group's roadmap for Indian continent.

Tanaka said, "For Toshiba, India is important not only as a market, but also as a strategic export and development base with highly talented people. Toshiba will position India as a strategic world business hub in its thermal power, energy transmission and distribution equipment, water and waste-water treatment, and software development businesses. In the five years from FY2013 to 2017, the company will invest over US$500 million, equivalent to Rs30 billion in India, and create employment for over 5,000 people."

Yasuharu Igarashi, Executive Officer and Corporate Executive Vice President responsible for Toshiba's Power Systems business explained a regional and global expansion plan centering on Toshiba JSW Power Systems, joint venture corporation with JSW Group, with a turbine manufacturing plant in Chennai. The company is currently manufacturing five supercritical turbines and generators ordered by NTPC Ltd. and others.

Looking to the future, Toshiba will reinforce and expand its thermal power business in India and the wider region in cooperation with Toshiba's global engineering function.

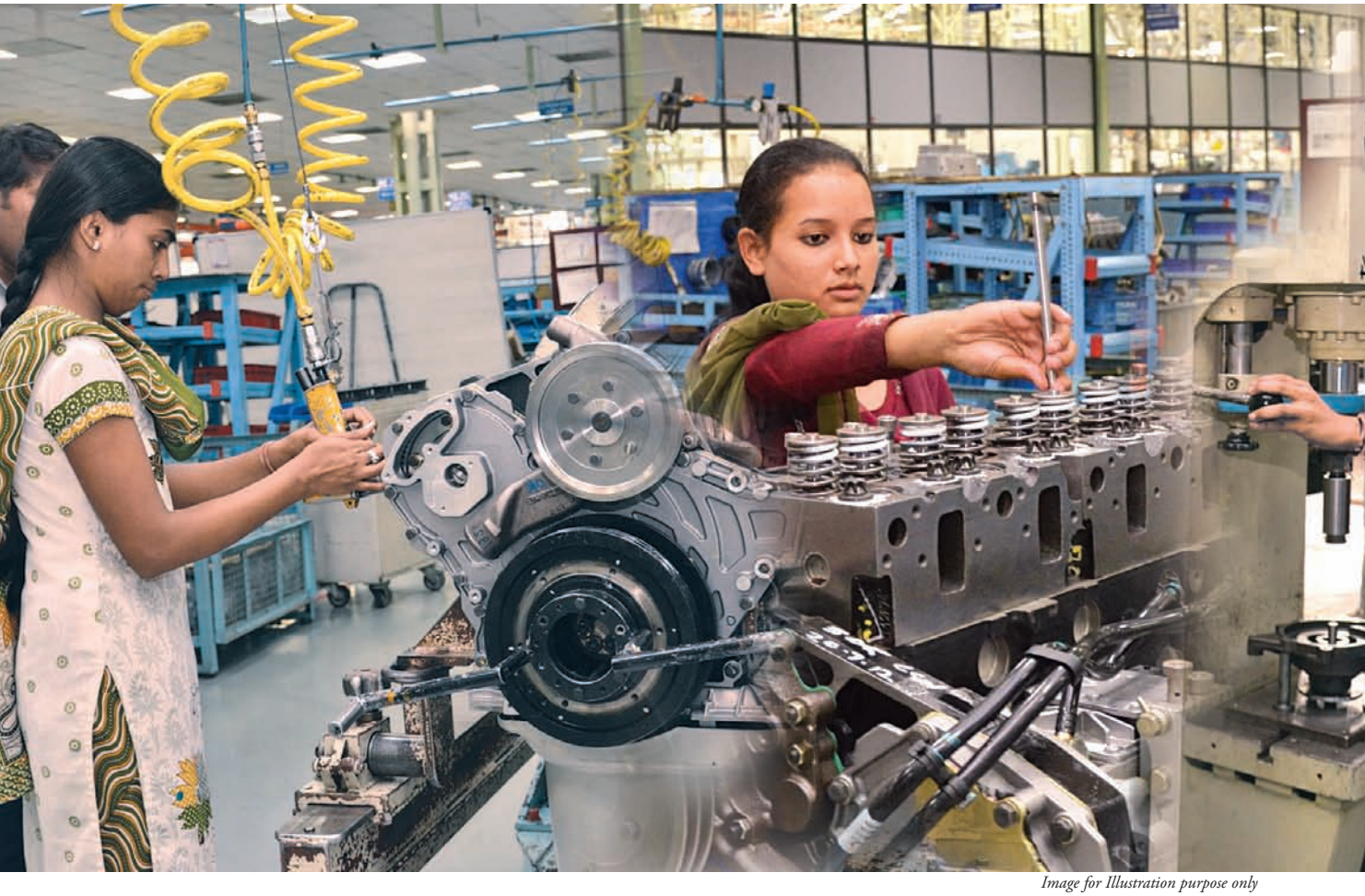
In the field of hydroelectric power generation, Toshiba is also eager to contribute to the development of India by deploying Toshiba Group's comprehensive capabilities. Through cooperation with plant engineering company TPSC India, Toshiba will offer one-stop solutions covering engineering, manufacturing, procurement, commissioning and services in India.

Toshio Masaki, Executive Officer and Corporate Executive Vice President responsible for Toshiba's Social Infrastructure Systems business, shared Toshiba's Group's integrated capabilities. Toshiba Transmission & Distribution Systems (India), a company built around the acquisition of Vijai Electricals Ltd's power transmission and distribution businesses in December 2013, and reinforced with Toshiba's know-how from Japan, provides Toshiba with a platform for a full-scale entry into India's T&D market. The company will offer Toshiba's latest design, development and production capabilities in order to supply a wide range of T&D products in India and beyond, in the wider global market. The company will also supply compensators for high voltage networks and railway power supply systems in India.

> "Toshiba targets a sale of US$3billion, approximately Rs180 billion in FY2017 from the India region, some seven times the current level. By FY2017, Toshiba expects to employ about 8,000 people in India, 2.5 times the current figure."
>
> **Hisao Tanaka,** Toshiba's President and CEO

Shinichiro Akiba, Executive Officer and Corporate Senior Vice President responsible for Toshiba's Community Solutions Business, offered a vision of the global realisation of a sustainable next generation society grounded in innovative community solutions. In this key business area, Toshiba has been promoting business with highly capable and experienced Indian partners. For instance, Toshiba Johnson Elevators (India) was established in October 2012 as a joint venture with Johnson Lifts. This alliance will strengthen growth and expand operation in the Indian lift market.

"Toshiba targets a sale of US$3billion, approximately Rs180 billion in FY2017 from the India region, some seven times the current level. Employment will also grow with this expansion. By FY2017, Toshiba expects to employ about 8,000 people in India, 2.5 times the current figure. Over 70% of the sales growth and employment creation will come from infrastructure-related businesses," added Tanaka.



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Empowering women

Diversified industrial manufacturer Eaton is working towards enhancing the employability of women engineering students, says **Nitin Chalke**, MD – India

By Niranjan Mudholkar

The manufacturing sector has always been dominated by men. However, women employees are now slowly making their presence felt on the shopfloor as well as other manufacturing related divisions. The good news is that the industry too is keen to promote participation of female employees in key engineering roles. In fact, many like Eaton are also addressing the issue at the grass root level. Eaton has recently launched the third batch of 'Garnishing Talent' in association with Confederation of Indian Industry (CII) and Cummins College of Engineering for Women (Pune).

170
Number of students who have benefitted from this program in the past two years. This year 103 students have been shortlisted

This two-month program includes third year engineering students as well as students from second year who have joined after completing diploma courses. The Garnishing

Talent initiative assists women engineering students from vernacular and semi-vernacular backgrounds to acquire soft and social skills. For the third consecutive year, Eaton will provide funding and training support to the participating students from Cummins College.

Students from engineering disciplines such as mechanical, instrumentation, information technology, computer science and electronics & telecommunications will be identified through a defined assessment process. A team of 16 Eaton employee volunteers will design and impart focused training sessions.

Nitin Chalke, Managing Director – India, Eaton, is happy to get associated with the program for the third consecutive year as it gives Eaton an opportunity to further strengthen its efforts and belief in 'Inclusion & Diversity. "Soft skills are important for individual and professional development. I am confident that the participants of this program will benefit from this unique experience," he says.

So what motivated Eaton to start this initiative? Chalke believes that through this programme, Eaton has taken its Skill Development and Affirmative Action initiatives a step further. "The program is a reiteration of Eaton's commitment to enhancing employability of the student community. The program is focused on equipping students from vernacular, semi-vernacular and rural background with appropriate soft and social skills critical to achieve individual and professional success.

The program leverages Eaton's association with leading academic institutions in Pune region and facilitates interactive sessions between students and experienced trainers from Eaton." The success of the programme since last two years has encouraged Eaton to support this significant cause yet again.

Around 170 students have benefitted from this program in the past two years. This year 103 students have been shortlisted for the program. The students are from mechanical, instrumentation, information technology, computer science and electronics & telecommunications disciplines of engineering.

How much of the course is practical? Chalke says that there is a lot of emphasis on the practical aspects. "We recognise that the industry today requires confident and industry-ready talent pool and we are happy that we have been able to contribute resources and skills for this cause. It is encouraging to see the program maturing into what we had envisioned at the start."

Students from engineering disciplines such as mechanical, instrumentation, information technology, computer science and electronics & telecommunications will be identified through a defined assessment process.

Given the immense value of this programme to the industry and society, is Eaton looking to tie-up with any recognised university or educational institute to further enhance the scope of this programme?

"Yes, 'Ignited innovators of India' is another initiative by Eaton in association with College of Engineering, Pune. The initiative is aimed at providing a platform to students who aspire to become social entrepreneurs and intend to bring in small yet significant changes in the world around them. Eaton has been providing mentoring, funding and networking support to the participants at every stage of their project lifecycle. Eaton has supported this program since 2011," Chalke shares.

"We recognise that the industry today requires confident and industry-ready talent pool and we are happy that we have been able to contribute resources and skills for this cause. It is encouraging to see the program maturing into what we had envisioned."

Traditionally, very few women take up hardcore engineering jobs that would expose them directly to the shopfloor. Does Eaton encourage more female employees on its shopfloors? Chalke says that Eaton firmly believes openness to diversity widens its access to the best talent and inclusion allows the organisation to engage the talent optimally.

"We foster an inclusive environment by reinforcing behaviours that recognise value and leverage the different perspectives and backgrounds of our employees. These unique perspectives help us generate more innovative ideas and make better decisions for our company and customers," he says.

In fact, every year diversity workshops for women and physically challenged engineering students are organised as part of Eaton's India University Relations initiative. "We initiate diversity centric activities every year at plants to encourage more and more women to take up shop-floor roles."

MAN ON A MISSION

With a sense of urgency and enthusiasm, **Nagesh Basavanhalli**, President & MD, Fiat Group Automobiles India Ltd, wants to revitalise his company's fortunes

By Niranjan Mudholkar

While the Fiat brand is well known worldwide, we believe that it needs to get back to its rightful presence and get back its rightful share in the Indian automotive industry, and the time is now.


FIAT
FIAT
NEW
LINEA

There are winners and there are losers. And then there are those who are fighting to go beyond. The Fiat brand carries substantial weight globally but it hasn't been able to create that magic in India. 'So far', Nagesh Basavanhalli, President & MD, Fiat Group Automobiles India, may want to add to that.

"While the Fiat brand is well known worldwide, we believe that it needs to get back to its rightful presence and get back its rightful share in the Indian automotive industry and the time is now. And our job is to do that and we are really on a mission to accomplish that," he says, still looking surprisingly fresh after a long press conference to launch the new Linea. His energy and enthusiasm are almost infectious.

I congratulate him on the launch and tell him that I witnessed similar zeal even at the various launches at the Auto Expo. There seems to be sense of urgency as well as excitement to leave behind the tough times that Fiat India has been experiencing over the last few years. It seems you are ready to take on the competition heads on, I ask him. "Absolutely, we believe so. Look at the timing with which we have introduced the new products and look at the timing with which we have grown our showrooms. We want to get back in the thick of things in the Indian automotive market and we want to do it fast. Well, we have done our homework for the last two years and we believe we are ready," he says. The smile refuses to leave his face.

The Fiat Group views India as a strategic market and Basavanhalli is confident of replicating the Groups' global standards in this country across the board including sales, market-

> "We will start localising Abarth in the 2015 time frame. The Avventura will of course be significantly localised; about 85-90 percent just like the Linea and the Punto. And it will happen before December 2014.

Giving back

The Fiat Group had started an interesting skill development programme much before Basavanhalli had joined. Called 'Diksha', it is an effort to provide educational avenues and technical training for the youth of the country. This initiative will use the knowledge, concentration and training available with Fiat to offer best vocational training to the students interested in making a career in the manufacturing world. With such a refined style of vocational training the students would be skilled to work in the automobile industry. The programme continues under Basavanhalli as well with Fiat's manufacturing plant supporting it completely.

ing, distribution and after-sales departments. "We have undertaken a series of initiatives in order to provide a very high level of service to all of our business partners and to further engage with our customers. The current organisational structure provides us with a solid platform to elevate our company as one of the prominent players in the Indian automobile market."

How about the manufacturing capabilities? "Our manufacturing capabilities and capacities at the Ranjangaon Plant are definitely geared up to meet our aspirations and if the need be we can even look at expanding the same in the near future," he says. Fiat is looking to launch a slew of products across segments to keep itself fresh and relevant in

> "Our manufacturing capabilities and capacities at the Ranjangaon Plant are definitely geared up to meet our aspirations and if the need be we can even look at expanding the same in the near future.

Manufacturing facility

Fiat's Ranjangaon facility (a JV with Tata Motors) produces passenger cars and engines. The facility supports both of its partners, FIAT and Tata Motors. According to Basavanhalli, the partnership with Tata Motors is working quite well at the manufacturing facility. "This manufacturing facility has enabled us to leverage synergetic benefits and will further aid us in tapping the potential that the growing Indian market has to offer. The facility will also be utilised for manufacturing of some of the new products that will be launched in future."

The manufacturing facility is spread over 200 acres. Over 4,000 highly trained personnel are directly or indirectly employed by the plant. It is capable of producing 200,000 cars and 300,000 engines annually besides 300,000 parts and accessories. Fiat currently manufactures the Linea and the Punto at the plant. It also manufactures Fiat's successful 1.3 litre Multijet diesel engine and 1.2 & 1.4 litre Fire gasoline engine. The investment in this Ranjangaon facility already exceeds Rs4,000 crore. The plant has already rolled out 250,000th car and 500,000th engine.

the market on an ongoing basis. "That along with a 100 plus dealer network and upcoming marketing initiatives, we will be in a strong position to capitalise on the competitive market."

Since he is talking about introducing new vehicles, how strong is Fiat's R&D in India? How about the R&D activities? "We have our global R&D centre in Turin supporting us but more importantly, we have one of the biggest technical centres in Chennai working for us. We have over a 1,000 engineers working for us in Chennai and Pune. The beauty of this is that they are already working global platforms for other global markets like Brazil, Turin and Detroit. And now we have the global knowledge and competence that they have built over the years working global platforms. These engineers now are also working on products for the Indian markets. We have taken the lessons from the global platforms and global engineering and are now bringing it to India as well. We have set some of things in the past and now is the time to see them fall in place."

Going international

In order to replicate Fiat Group's international standards in technical and soft skills training, U-NETVERSITY, Fiat Group's global training school is already conducting and overseeing the entire training program that involves training about 50 personnel in a single day. The entire training program is designed to support the complete set of FIAT Group and Chrysler Group systems including the prominent ones such as LINK-e- Entry for warranty parts supply.

> "We have one of the largest warehouses in the Asia Pacific region. We have listened to our customers. And we want to make sure that our spares are available and are affordable. We have all the spare parts available at this warehouse all the time.

One of the exciting launches for Fiat at the Auto Expo was the Abarth 500. Initially, of course, it will be a CBU but Fiat intends to assemble it locally at the Pune plant. "We will start localising Abarth in the 2015 time frame. The Avventura will of course be significantly localised; about 85-90 percent just like the Linea and the Punto. And it will happen before December 2014," Basavanhalli shares.

Fiat operates a fully equipped warehouse that is

capable of stocking up to 6000 different parts at any given point in time. "This is one of the largest warehouses in the Asia Pacific region. We have listened to our customers. And we want to make sure that our spares are available and are affordable. We have all the spare parts available at this warehouse all the time. In addition to that, our partners are stocking the fastest moving parts," he says. The warehouse is equipped with the latest IT systems that tracks and updates dealer' spare parts requirements on a real-time basis. It therefore enables FGAIPL to deliver the necessary spare parts to metro customers within 24 hours and non metro customers within 72 hours.

The power of BLACK

The Carbon Black Research Laboratory drives quality improvements in the product portfolio and develops innovative products that meet the customers' needs.

Birla Carbon is the largest manufacturer and supplier of high quality Carbon Black additives globally and is a flagship business of the US$40 billion Aditya Birla Group. Birla Carbon's current footprint extends across 12 countries with 17 manufacturing facilities having a combined annual capacity of two million tonnes. The acquisition of Columbian Chemicals Co and it's subsequent integration led to Birla Carbon becoming the global leader in the carbon black business. Now with manufacturing presence in each of the key markets of Asia, Europe and the Americas, Birla Carbon delivers uniform product quality and consistent experience worldwide.

Birla Carbon provides a complete portfolio of products across ASTM (American Society for Testing and Materials) grades and speciality blacks to meet the specific end requirements across rubber, plastics, coatings, inks and other niche industries globally. Its key brands include Birla Carbon, Raven and Conductex. The global manufacturing presence with significant production capacities and supply capability ensures regular and uninterrupted availability of consistent quality products for customers. The customers include leading brands and companies across tyres, rubbers, plastics, inks and paints sectors globally.

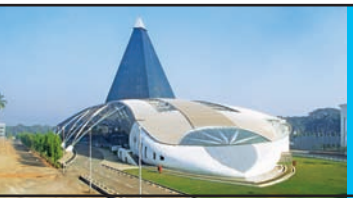
Birla Carbon has two state-of-the-art technology centres at Marietta (US) and Taloja (India), besides well equipped laboratories across its manufacturing units. The continued focus on R&D ensures consistent high quality products delivered in line with the requirements of customers. The contemporary R&D infrastructure also provides for customised products to be developed in conjunction with customers.

China Weifang

Research & Development

As the leading carbon black company, Birla Carbon's Research & Development is future focused on developing and using world-class carbon black technology for the benefit of its customers. It is focused on continual enhancement. This is done through its efforts across Process Technology, Product Technology and Technical Service capabilities.

Birla Carbon forms partnerships with its customers to ensure that they obtain consistent quality and performance



Technology Platforms

Located at the Aditya Birla Science and Technology Company (ABSTC)'s premises at Taloja in Navi Mumbai, the Carbon Black Research Laboratory serves the Birla Carbon business globally at all stages of the value chain. It aims to create a world-class R&D organisation that utilises and develops the most cost-effective technology for fulfilling customer needs.

SUSTAINABILITY

Birla Carbon is committed to sustainable development. Its sustainability aspects include employee safety, environmental stewardship, efficient use of carbon black and a key focus on conducting operations in a responsible manner. Birla Carbon is an environmentally conscious supplier with concentrated effort on sustaining and improving the environment through optimisation of resources and reduction of emissions. All its locations comply with or go beyond all local as well as governmental environmental regulations. 'Green Technology' has been adopted in the organisation's operations. Its certifications include: SA -8000 (Social Accountability); ISO- 14001 (Environment Management); OHSAS 18001 (Safety and Health).

as well as the necessary technical service in support of their most important applications. The customers also have access to new products and technical platforms to meet their most challenging needs.

The Applications Laboratory tests customer formulations of rubber, plastics and dispersions using carbon black, especially when developing new grades. The pilot plant at Patalganga develops new processes to produce specialty grades of carbon black.

The R&D team extensively uses technology management tools such as the Stage Gate Process and Six Sigma methodology to deliver high quality products and processes to the Birla Carbon business and its customers.

Process technology

The Process Technology group at Birla Carbon is leading and driving the process operations strategy of environmental stewardship and sustainability. This group works towards creating the most efficient and advanced production technology.

Utilising Computational Fluid Dynamics (CFD) and many years of top level engineering expertise, the process engineers continue to pioneer technology development in the manufacturing plants to deliver the quality and products that customers require. Importantly, this is done in as efficient and environmentally friendly manner as possible. For example, Birla Carbon takes advantage of the additional energy in its plants to produce electricity for local consumption, further reducing the CO_2 footprint.

Product technology

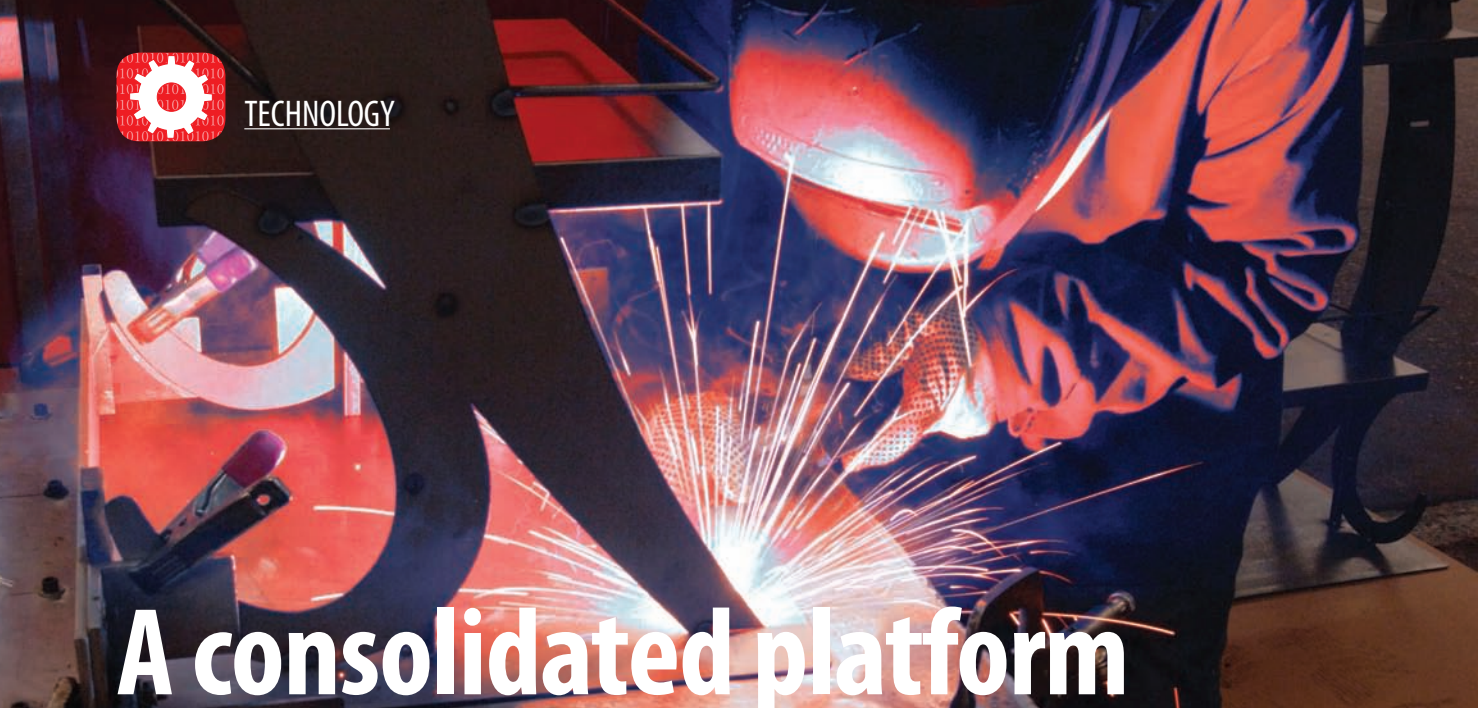
The Product Technology group, along with the Technical Service group in each region of the world, is leading the effort in ensuring that customers meet all of their product-based technical needs. This includes quality, performance and new products. In particular, these groups work very closely with the customers on a daily basis so that customers have the technical support required to successfully meet their product challenges.

> "The team's focus can be broken into five core areas impacting different parts of the business including Process technology, Application development, Product development, Feedstock and Quality."

Dr. Santrupt B Misra, CEO, Birla Carbon, & Director, Group Human Resources, Aditya Birla Management Corporation Pvt Ltd.

Laboratory services

The Technology Laboratories in Mumbai (India) as well as in Marietta (Georgia, US), are housed in world class technical facilities containing modern laboratory equipment. These labs have experienced scientists and researchers with expertise in not just carbon black technology but also across rubber, plastics, inks and coatings technology. These laboratories are open for the benefit of customers, researching carbon black and its related present and potential applications.



A consolidated platform

Metal fabrication manufacturers need to mature in their understanding about customer experience and better grasp the vital role that modern enterprise resource planning plays.

By Anish Kanaran

To strengthen their traditional business and to open up new sales markets, metal fabrication manufacturers need to mature in their understanding about customer experience and better grasp the vital role that modern enterprise resource planning (ERP) plays. One approach is to revise the entire value chain from production to management. Flexible, industry-oriented ERP can help to automate routine operations, reduce raw material and energy costs, and improve performance and customer satisfaction levels.

A recent IDC Manufacturing Insight white paper recently revealed that there is a big gap between companies with a mature or immature customer experience strategy, which directly influences their competitiveness. The white paper highlights that while the majority of metal fabrication manufacturers agree that improved customer experience is increasingly important to generating growth and higher profitability, they do not have a clear understanding of how to enhance their overall customer experience, the critical business benefits it can deliver, and the central role technology can play in providing a superior customer experience.

Unique challenges

Companies in the metal fabrication sector face a unique set of challenges within the manufacturing industry. Many metal fabrication manufacturers are moving away from producing standard, catalogue-based items to instead manufacture items to custom orders. This suddenly means that no order is the same and customer service becomes absolutely paramount. A manufacturer's ability to deal with prospects and customers more efficiently, from product design to configuration and production, becomes essential to beating the competition and creating long term customer loyalty. Many still believe, however, that the single most critical factor for their customers to continue buying from them is only related to meeting their price expectations. They don't clearly understand the link between operational excellence and its impact on the customer.

> Flexible, industry-oriented ERP can help to automate routine operations, reduce raw material and energy costs, and improve performance and customer satisfaction levels.

The influence of this approach will clearly remain for a while, but leading metal fabrication manufacturers need to understand that factors such as concerns around supply reliability, poor product quality and long lead time, impact the customer experience negatively. We urge these manufacturers to work on improving their customer and market insight and address these critical operational factors head-on in order to grow their businesses.

Call to action

There is a clear call to action for all metal fabrication

manufacturers, a great opportunity to gain competitive advantage by taking a more mature approach to customer experience.

With nearly twice as many metal fabricators than in any other industry still believing that price is the main influence to customer loyalty, the gap is widening between the mature and immature companies. There is a significant opportunity for those that take the leap to differentiate from their competitors, sell value-added services and increase market share. We urge all metal fabrication manufacturers to assess their maturity level around customer experience and to look at how modern, next-generation ERP capabilities can help them achieve a more customer focused strategy.

Reaping the rewards

Some manufacturers are already seeing the benefits of making a change to their strategy. A family owned business, Chirch Global was started by Anthony L Chirchirillo in 2002. The company offers cost-effective precision metal fabrication, stamping, progressive die tooling, and sub-assemblies manufactured in Northern Illinois and China. As a result of the company's global business model and its investment in the right ERP platform, Chirchirillo says the company has made a quantum leap—and cites several metrics that underscore this statement.

Return on equity (EBITDA/Equity) exceeded 50 percent in 2010. With regard to top line growth, sales revenues increased by 17 percent from 2009 to 2010, and Chirch saw the addition of new customers in new industries, diversifying the company's customer base. The company also saw gains in employee productivity; the number of Full Time Employees (FTEs) was reduced by 31 percent from 2009 to 2010, while concurrently driving top line revenue growth and throughput.

These outstanding results demonstrate how Chirch is succeeding in its goal of helping its customers "compete with anyone...anywhere in the world," in bringing customers a winning combination of globally competitive prices; access to Chinese resources to support U.S. manufacturing expansion; local customer service, distribution and Just-in-Time delivery, with adherence to the highest quality standards.

A consolidated platform

The correct ERP should focus on sector-orientated best practices to offer a complete, integrated solution, supporting manufacturing processes as well as quality and product management. The solution should be based on the principle of a single consolidated platform and applications in an integrated system with central data storage. This makes it easy to integrate operative processes and link them to accounts: from order receipt through to purchasing, production, maintenance and warehouse management, delivery logistics, customer service and sales planning. The right ERP is built on a service-oriented software architecture (SOA) offering three important advantages. Firstly, outdated flexible individual applications can be replaced by modern ERP modules. Other existing systems can be retained by integrating them into the overall system using prefabricated interfaces. A second benefit of the SOA concept is that the IT modernisation can either be introduced on a step by step basis or using a big-bang approach. Overall, SOA therefore ensures that a modern ERP system can be expanded flexibly.

Cover all angles

Commodity prices, production costs and product quality are critical economic factors in the metal fabrication industry and these are influenced by numerous interdependent parameters. An ERP system should cover them all. It should link, for example, inventory control with material requirements planning (MRP) and functions for buying suggestions to ensure that materials are delivered on schedule and reduce just-in-time deliveries. Another important factor in the metal fabrication industry is that ERP can be used to fulfil strict requirements regarding the traceability of product and material certifications - e.g. for customers in highly regulated industries such as aerospace, defence and the manufacture of medical devices. It is also possible to manage quality assurance and processes with stocks that are controlled serially.

An open and modern ERP platform that leverages mobile technology and provides more collaborative and customer-facing capabilities including quality, service and warranty management and CRM is central to creating a superior customer experience which can improve competitiveness. Metal fabrication manufacturers need to act now.

The author is Channel Director for Epicor in the Middle East, Africa & India

Dignitaries inaugurating the 2013 edition in the traditional way

Moving to Karnataka

Laser World of Photonics India revolves around innovative products as well as their industrial solutions and applications, which reflects actual developments in the industry.

This year, Laser World of Photonics India, the country's only industry gathering for optical technologies, is being held in Bangalore from September 23 to 25. The region in India's south is one of the country's industrial strongholds. Messe München is thus offering participants a platform in the heavily manufacturing-focused southern Indian state of Karnataka. Uniquely, this year's event will be held at the modern trade fair site of the Bangalore International Exhibition Centre (BIEC) in parallel with the electronics trade fairs electronica India and productronica India.

At Laser World of Photonics India practitioners from the most diverse sectors will experience how laser technology and optical techniques are developed and applied. At the previous edition of the event, 118 companies from 15 countries had exhibited. There were 3,644 visitors from industrial sectors such as the automotive industry, toolmaking telecommunications, medicine, diamond industry as well as from research establishments. More visitors from the producing industries are expected in 2014 as a result of the joint event by the three technology trade fairs.

Bhupinder Singh, Deputy CEO of MMI India says: "MMI India and the Exhibitor Advisory Board jointly decided on a one-off basis to relocate the 2014 event venue to the heart of this southern Indian manufacturing region. The diverse industrial sectors in the south that stand to achieve significant technological progress through the use of laser technology will reap a rich dividend from Laser World of Photonics India. Held in tandem with the established trade fairs electronica India and productronica India (also from the MMI India stable), this joint event creates significant synergies for visitors to the trade fair and we are offering an attractive diary date for all."

Global growth market

Photonics is the use of light as a tool in numerous manufacturing applications. Lasers harness the attributes of light, such as ultrashort pulses, accuracy, speed or its contactless, non-wearing mode of action. Technologies such as laser technology, optical measurement technology or imaging are used in modern manufacturing; for example lasers machine different materials or imaging and measuring techniques are used for optical process monitoring. The photonics industry

About MMI India

As part of its international strategy, Messe München founded its own affiliated company in India with a registered office in Mumbai, in September 2007. MMI India Pvt Ltd has been founded to provide Messe München with timely and competent organisational support for its increasing involvement in India.

With six subsidiaries abroad - in Europe and in Asia - and 67 foreign representatives covering 90 countries, MMI has a network that spans the globe.

in India is an important industry of the future. It should pave the way for the progress and growth of industrial applications. Light as a tool is an enormous global growth market.

Optical technologies

Centre stage at the trade fair will be the many and varied applications. Optical information and communication technology is used in IT. Laser material machining and measuring technology are important for the automotive and aerospace industries and the tool making/machine tool industry. But laser-based manufacturing techniques are also employed in the electronics industry for making solar modules. Biophotonics is used in biotechnology and medical technology. The textile industry can use laser to cut and engrave fabrics. Besides this, lasers are also used to cut diamonds. Ninety-two percent of the diamond pieces of the world are cut in Surat, Gujarat state in India.

About the event

The Laser World of Photonics trade fairs and their congresses in Germany, India and China are the most important marketplaces and think tanks of the global laser and photonics industry and its users. They combine research and application and promote the use and ongoing development of optical technologies.

Messe München International has staged Laser World of Photonics every two years in Munich, Germany since 1973. Laser World of Photonics India revolves around innovative products as well as their industrial solutions and applications, which reflects actual developments in the industry around the world. The event intends to boost the growth of the Indian laser industry by focusing on the industry's leading technologies. It offers opportunities to exhibitors and visitors alike.

Visitors at last year's event

Accompanying conferences add great value to the industry

Event venue

With its potent industry platform Laser World of Photonics India, MMI India is supporting the southern Indian region's strategy of harnessing this modern technology for production purposes. The trade fair in Bangalore taps into the state of Karnataka with its more than 61 million inhabitants and, further afield, cluster regions for application and research, such as, Chennai or Cochin. The heavily industrialised region leads the nation in fields, such as, precision tool manufacturing or software exports. It is the world's fourth largest technology cluster after Silicon Valley, Boston and London. A large proportion of optical fibre communication also links some of the best IT companies in India, making optical-fibre a topic of interest for all of these.

Academic stronghold

In addition to practitioners from industry, this show is also a meeting place for optics and laser technology researchers and developers at the accompanying conferences. Here too the Bangalore venue is an advantage. The region boasts a wealth of universities, engineering schools and polytechnic universities. For example, there are prestigious establishments such as the Raman Research Institute in Bangalore, the International School of Photonics at Cochin University of Technology, the Department of Opto-electronics, University of Kerala, and the Indian Institute of Technology Madras in Chennai.

> "The photonics industry in India is an important industry of the future. It should pave the way for the progress and growth of industrial applications. Light as a tool is an enormous global growth market."

Messe München collaborates closely with the Indian industry associations Optical Society of India (OSI) and Indian Laser Association (ILA) as well as the international association Optical Society (OSA). Messe München's many years of experience in the photonics arena also benefit the entire supporting program. Last year the world's leading trade fair Laser World of Photonics celebrated its 40th year of existence in Munich and today this brand can call on a robust, worldwide industry network that will also prove advantageous for practitioners and exhibitors alike at the new event venue.

The New Sine Qua Non

While India already boasts of several world-class manufacturing plants, one area that we still lag behind global standards is the area of safety and environment.

By Mukund Vasudevan

Manufacturing in India could be poised for breakthrough growth. With China becoming more expensive (rising labour costs, appreciating currency), many countries are looking for alternatives. India with its lower costs, comfort with English language, and availability of skilled engineers, could become that alternate location of choice.

However, for this to happen, on a sustainable basis, a lot needs to be done in areas of land reforms, labour reforms, infrastructure development and tax simplification. This is the larger picture.

At the industry level, the pressing need will be to adopt the best manufacturing practices as a whole. While India already boasts of several world-class manufacturing plants, one area that we still lag behind global standards is the area of safety and environment. For many Global MNCs safety and environment are of paramount importance. They don't view safety or impact of their operations on environment as a "costly, nice to have", but as the most important aspect of doing business.

In fact, safety and innovation are closely related. Today, there are several innovative solutions that make manufacturing much safer. For example, we have applied some of our best manufacturing practices for innovation and safety in India, and will continue to do so.

Fuel leak detection systems

On October 29, 2009, at 7:30 PM, a major fire broke out at an Indian Oil Corporation (IOC) tank terminal near Jaipur. The tank was holding 8,000 kilo litres of oil. This fire killed 12 people and injured over 200. The blaze continued to rage out of control for over a week after it started and during that period, half a million people were evacuated from the area.

> "We often make the mistake of thinking that a 'slow' leak is a 'small' leak. A slow leak results in a large spill if the detection system is too insensitive to detect leaks below a given threshold or below a certain percentage of flow.

The incident occurred when petrol was being transferred from the IOC's oil depot to a pipeline. The cause was a leak that set fire to 50,000 kilo litres (1,800,000 cu ft) of diesel and petrol out of the storage tanks at the IOC Depot. This fire could have been prevented with innovations like the fuel leak detection system.

We often make the mistake of thinking that a 'slow' leak is a 'small' leak. A slow leak results in a large spill if the detection system is too insensitive to detect leaks below a given threshold or below a certain percentage of flow. Far too many leaks are

discovered when someone notices the smell of fuel, or after surface/below ground water has become contaminated. The key components of an effective fuel detection system include sensing cables, probes and sensor interface modules and alarm panels.

Sensing cables provide early detection of below ground or above ground 'weeps and seeps' before they accumulate into large spills. And the location is reported to the nearest meter. Probes detect fuel floating on water or fuel accumulating in low spots like sumps or valve pits or on flat surfaces like pump pads. The probes react instantly to even a thin film of fuel and can be reset and reused and even 'wet tested' if desired. The sensor interface modules and alarm panels are designed to energise the sensor cables and probes, monitor their condition and report the existence and location of any leak detection to operators and other alarm and supervisor systems.

> The latest high-integrity pressure protection system provides a solution to protect equipment in cases where high-pressures and/ or flow rates are processed and the environment is to be protected.

High-integrity pressure protection system

This is a safety instrument system (SIS) designed to prevent over-pressurisation of any line or unit at a chemical plant or oil refinery. In old traditional systems, over-pressure used to be dealt with through relief systems. Once a set pressure is exceeded, a relief system opens an alternative outlet for the fluids in the system. This is done to avoid further build-up of pressure in the protected system. This alternative outlet generally leads to a flare or venting system to safely dispose the excess fluids. In sharp contrast to a relief system, this system aims at stopping the inflow of excess fluids and containing them in the system.

Conventional relief systems also have other disadvantages such as release of (flammable and toxic) process fluids or their combustion products in the environment, and often a large footprint of the installation itself. With increasing environmental awareness, relief systems are not always an acceptable solution.

The latest high-integrity pressure protection system provide a solution to protect equipment in cases where high-pressures and/or flow rates are processed and the environment is to be protected. This system is useful when the economic viability of a development needs improvement and / or the risk profile of the plant must be reduced.

The system has tremendous applications in the Oil and Gas Industry, upstream and pipeline (including subsea) with respect to compressors, turbines pipelines, well heads, and underground gas storage systems. It is also used in refineries for applications up to API 15000.

UL/FM fire pumps

For specific applications, UL/FM certified fire pumps are much safer than standard fire pumps. The UL/FM Fire Pumps are tested and listed for use by a third-party testing and listing agency, such as UL or FM Global. They follow the rigorous standards of the NFPA – National Fire Protection Association, an International non-profit membership organisation founded in 1880 that has about 300 codes and standards influencing every building, process, service, design, and installation in the US as well as many of those used in other countries. With 81,000 members from more than 100 nations, it's the world's leading advocate of fire prevention and an authoritative source on public safety. One of the major advantages of the UL/FM Fire Pump is that it is recognized by global insurance agencies who charge smaller premiums for a factory with UL/FM Fire Pumps.

Sine qua non is a Latin expression which means an essential element or condition.

The author is MD & Country Head, Pentair India.

The real resource

Falling index of industrial production in India is a result of skill crisis, policy failure and labour-related issues.

By Rajesh AR

My mother is an ardent devotee of Lord Ganesh and prides in having an envious collection of various forms of the Lord. But she is upset these days and is planning to stop buying and collecting the idols. According to her, these days most of the new forms of Lord Ganesh are not in made in India. They are all made in China and she doesn't want to pray to a Chinese Ganesh. More often than before, we are witnessing our Indian companies importing finished goods from China and market them under their respective brand names. According to government figures, Chinese imports leapt from US$ 32.45 billion in 2008/9 to US$ 52.25 billion in 2012/13.

Many Indian marketers feel that importing goods from China is cheaper than manufacturing these in India, be it idols, toys, bathroom fittings, textile machinery or diesel engines. The contribution of the manufacturing sector to our country's GDP is stagnated at 15 percent for almost 30 years as compared to China with the same sector contributing 34 percent and growing, year-on-year. 23 percent of Indian workers are in the 'industry', with 50 percent in the construction sector and the remaining in the manufacturing.

What makes china so attractive? A key reason is it disciplined work-force, which is both skilled and semi-skilled, besides being cheap. Another advantage is the country's favourable currency and economies of scale, especially in manufacturing low end engineering and high-volume products.

Even though, the labour force in our country is the second largest in the world after China, India has had the highest number of labour related disputes and unrest in the world, leading to loss of man hours affecting productivity, sometimes even lock outs. The most affected sub-sectors in this regard are the manufacturing, quarrying and mining sectors. Such unfortunate incidents have led to huge destruction of property and sometimes even deaths of senior management, to recall, a few reported untoward incidents include those that occurred in Maruti, Sunbeam, Micro-Tech, Bajaj, Denso and at other manufacturing plants.

> "Many a times, the management fails to understand the culture of the region where the manufacturing unit is located. 'Industrial relations' has already become neglected in management education, thanks to the high growth of the services sector in the country."

Manufacturing companies need to expose their workers to modern techniques, machinery and training facilities

Management failure

Main issues for labour unrest are companies not allowing the formation of unions, contract labour, and offering low wages. In some cases the work gets so hectic that workers hardly get time to use wash rooms, have very short lunch breaks and are heavily penalised for late comings and absenteeism. Many a times, the management fails to understand the culture of the region where the manufacturing unit is located. 'Industrial relations' has already become neglected in management education, thanks to the high growth of the services sector in the country.

Many manufacturing jobs do not expose the worker to modern techniques, machinery and defi-

The youth should be encouraged and motivated to take up manufacturing as a career

nitely no training facilities, the latter which is very vital for the country's unskilled labour, which is also not addressed by the country's education system.

At a time, where multi-tasking is the norm world over, workers in our manufacturing sector lack even basic skills for primary level of work which is a major concern. To add to this, the image portrayed by the manufacturing industry is that of dirty, dark and dangerous environment coupled with low pay and no job-security. The latter being a result of numerous lay-offs in the recent years which in reality were to reduce the number of unskilled workers. Another humungous task is getting older employees to enrol onto a training programme and help them to develop skills. The Indian labour law also does not support in firing underperforming workers.

One should also not forget the changing economic environment of consumerism – aspirations of the current generation of work force, white or blue collar, are similar, they all want to use the latest gadgets despite the hard economic situation and rising prices.

> "Many big manufacturing organisations are using 'contract' workers to bypass these rigid laws, in fact 70 percent of the workers are on contractual basis, out of which majority are still in the unorganised, informal sector."

Archaic labour laws

Leading Economists have long identified India's archaic labour laws as the biggest bane to the manufacturing sector. Some of the 51 Central and 170 state labour statutes are dated pre-independence. These stringent laws have allowed labour disputes and unrest, besides hindering growth in the labour intensive industries forcing them to remain small and not helping companies to restructure to increase productivity and output. Many big manufacturing organisations are using 'contract' workers to bypass these rigid laws, in fact 70 percent of the workers are on contractual basis, out of which majority are still in the unorganised, informal sector. Except for a few states - Maharashtra, Gujarat, Tamil Nadu and Karnataka, showing accelerating growth and employment in this sector, the rest of India is contributing to the decline in the share of the manufacturing sector.

The Government is already aware of the problem. It has brought in measures for skill development of the workforce. The National Skill Development Policy covers life-long learning, and effective convergence between school education, various skill development efforts of Government as well as the initiatives between Government and private sector, besides other measures.

This has led to setting up of a National-level council and promotion of the National Skill Development Corporation (NSDC) - a public-private partnership initiative to provide the funding and course guidance. The ambitious target is to scale up the rate of skill development and to inculcate skills to 500 million people by 2020.

Globalisation

Intense competition has risen with globalisation. The factors across the globe shaping the manufacturing sector today are the revolution in technology, increasing productivity levels and other efforts to bring costs down and existent trade barriers been lifted on manufactured goods. These are making it mandatory for developing nations to make significant investments in 'skill development'.

Manufacturing processes in organisations are benefiting from the systems such as Six Sigma, Total Quality Management (TQM), Lean Management and Just-in-Time. There clearly is an urgent need for trained man power in the manufacturing sector, but with the country's vocational system being inadequate, efforts should be made to strengthen public-private educational partnerships. Investments should be made in corporate-in-house training programmes and the youth should be encouraged and motivated to take up manufacturing as a career and exposure should be given to them on the various available options and growth prospects.

The manufacturing sector can create jobs and take the country out of the lingering economic crisis, with labour reforms from the Government, skill development from public-private partnerships, increase in pay and job-security of workers, follow international standards to improve the quality of products and bring in the 'competitive spirit' to increase exports. With right implementation of the above, our labour intensive manufacturing sector can achieve the same success we have achieved in the IT sector.

Although positive change is occurring in pockets across the nation, in reality, India still has a long way to go, as the centuries' old caste/community-based informal trades are 'alive' posing a challenge to change for the better and improvise.

The author is Executive Director, LabourNet Services India Pvt Ltd

One in a billion

This story recounts the journey of a Chinese entrepreneur, who emerged triumphant by focussing on his manufacturing business, and the role played by CNC machines in his success

By Matt Bailey

Like many of his generation, General Manager and founder of Suzhou Cheng He Auto Parts, Jian Su has a story that spans some of the most difficult and tumultuous years of China's recent history. This is of the latter half of the 20th century.

He left high school in 1974 and went directly to work. It was the era of Chairman Mao Zedong's Great Proletarian Cultural Revolution, which had started in 1966 to enforce communism. Part of Mao's programme to eradicate the country's cultural past meant there were few opportunities to attend college or university. Academics, teachers or senior government officials with capitalist leanings, or those who were not obediently committed to Mao's vision, were banished from office or imprisoned.

By this time, China was effectively cut-off from the rest of the world and its economy was in a parlous condition. The average American, for example, was over 30 times wealthier than the average Chinese, despite the US economy having plenty of its own problems.

Denied a higher education, the young Su became a workshop mechanic making auto parts for a state-owned truck manufacturing company. After the death of Chairman Mao, in 1976, the Cultural Revolution finally came to an end. Mao's successor Deng Xiaoping became leader and initiated a new era of reforms that would become the foundation for modern China and today's economic miracle. By 1977, Xiaoping's government allowed high-school kids to attend university.

"In my youth, I was a very good swimmer," says Su, "and by nature very competitive." He applied to the local Suzhou University on a sports scholarship, but when his application was accepted, his parents interceded. Both were well-educated scholars and didn't approve of their son studying such a

The company owns 17 Haas CNC machine tools

frivolous thing as sport. Thwarted, Jian had no choice but to stay in his job and continue his hands-on education as a machine tool operator.

In 1978 he noticed a provincial competition for machinists. He entered and by demonstrating his prowess with a manual lathe eventually finished third. There was no prize, other than the prestige, and at that time he had no real intention of making the machine shop his long term work place. But, it was this win perhaps that began new interests and a new train of thoughts about his career.

In 1979, with higher education re-established, he applied again to university, to study computing – specifically, industrial automation, which in China at that time was tantamount to studying science fiction. In 1983, he graduated with a bachelor's degree; importantly, his parents approved of and that would take him in directions he'd never previously imagined.

His new employer, national automotive company Dongfeng, spotted his talents and sent him to work as an intern at Toyota, in Japan. This was around the time the company was perfecting what eventually became known as The Toyota Production System, the precursor to lean manufacturing. During the early weeks of his stage, Su resolved a software bug that had baffled many of the company's engineers; an achievement that had him duly promoted and permitted to work on the line. "There were more than 40,000 employees at Toyota at that time," he remembers, "very few of whom were foreigners allowed the honour of joining a production team."

His tenure was cut short and his employers brought him home to head-up a 120million CNY (US$20million) technical reform programme. It was in 1995 whilst working at Dongfeng that he bought his first Haas CNC machine tool, as part of a project to make steering assemblies. The machine, an HS-2RP horizontal machining centre, was bought from Freeson, the Haas distributor in China at that time, which had close ties with the government. Su recalls how easy the machine was to install and operate, and how reliable compared to the East European and the domestic machines more readily available. "The government knew we had to invest in better technology," he says "so they worked with companies like Freeson, who were finding the best machine tools available in the west and bringing them to China." His early experiences with Haas left an indelible impression: "The machine I bought while I was at Dongfeng," he enthuses, "is still running to this day."

In 1997, Su was off again, travelling to the UK for a 6-month sojourn working on environmentally friendlier engines, at the University of Coventry. Shortly after, he travelled to and from Spain for 18 months, on another project making steering assemblies.

The company also makes large parts for the US air conditioning giant, McQuay International, some of which can take up to 10-hours to machine

"When CNC machine tool builders contact me, I ask them some questions. First: do you have a local factory outlet? Do you have a warehouse of spare parts? Can you fix my machine and have it back up-and-running by the next day?

Jian Su,
GM & founder Suzhou Cheng He Auto Parts, China

Travel broadens the mind, of course and, if permitted, will fill the spaces with fantasies and new ideas. It was during this dynamic period a particular idea formed eventually prompted him to start a company and make his own product. On December 31, 2002, Su quit his post at Dongfeng to set out on his own. His first business, RENHE, began trading the very next day, January 1, 2003, and he promptly patented his new design of automatic adjustment for drum brakes on trucks, to meet demand following the introduction of new regulations in the US.

Bank loans were notoriously hard to come by in China, at that time. For that reason and others, the Chinese have one of the highest rates of personal savings in the world. In fact, the government is continually trying to convince the population to save less and spend more, for the sake of domestic producers and that of the economy.

"I had saved money and I had lots of friends, some of whom were willing investors," says Su. "That's the most important thing, in China: To build up a good network of contacts. People are looking for opportunities."

The company's Haas VF-9 makes another, bigger arm for a CNC robot, 2.15m long

The first parts he made were for two, large customers, both of whom were good, reliable payers. The profit margins were 'very healthy'. Every penny he made, he reinvested it back in the business. When it came to investing in CNC machines, he knew exactly what he wanted, even if he has trouble finding it.

"I wanted to buy Haas machines," he recalls, "but I couldn't find the local distributor." So, he set aside funds to buy three machines from a well-known German manufacturer. "At the last minute, the local Haas factory outlet (HFO) heard I was buying machines and dropped in to see me. They arrived just in time!"

It was 2007 when he bought a Haas SL-20 turning centre. Up until then, the company had been making a cylindrical part of the brake adjuster at the rate of 300 per day. The new Haas, however, could make the same part at a rate of thousand per day! "The Chinese built machine was unreliable and often broke down," he says. "Once we had the SL-20, we didn't need the Chinese machine anymore." In 2008 he bought another Haas SL-20. Then, another three Haas machines: an SL-40, an EC-1600 horizontal machining centre and a VF-3SS super speed vertical machining centre.

What he hadn't foreseen at the time was an event that could have rung the death knell for his new and thriving business. In 2008, his largest customer moved to the Hubei Province, insisting that suppliers also move, to keep delivery times to a minimum. Although the relocation wasn't very far, Su couldn't simply move the Haas machines: The import duty had been paid to his local province, which meant they had to stay there. All of a sudden, he had five, idle Haas machines and no local customers.

Looking for ways to help their customer stay in business, the local HFO put Su in contact with the nearby manufacturing plant for US air conditioning giant, McQuay International, also a Haas customer and soon to be part of the multi-national Daikin Industries. McQuay had recently been told by the Chinese authorities to source more parts locally. They agreed to give some of the work to Su, provided he promised to invest 30million CNY (about US$5million) over three years in new equipment.

> He finds out what projects the customer is working on, and he pre-empts them by investing in the machines and the technology to make the parts before they actually need then.

"We started by agreeing on a one year probation period," remembers Su. "If it went well, the second year would be the first full year of the deal." In fact, 2010 was his first full year, which turned out to be even more profitable than he had anticipated, recouping half of his initial investment. The contract continued as the customer said it would, and by early 2013, Su had invested almost US$8 million.

At the time of my visit, Su was building a new 10,000 sq ft factory, next door to the original one. In case you're wondering, he did also follow his automotive customer to Hubei, where he bought more Haas machines to continue making his patented brake drum adjusters.

Much of the work Su undertakes for McQuay is R&D – prototype parts for new products. "The margins are higher than production work," he says. He finds out what projects the customer is working on, and he pre-empts them by investing in the machines and the technology to make the parts before they actually need then. When the time comes, he's ready and waiting. "We also work on the process, as well as the parts, so we can provide the finished, production parts in the volumes required, if necessary."

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>
> **Jian Su,**
> GM & founder Suzhou Cheng He Auto Parts, China

Now, the company owns seventeen Haas CNC machine tools. As well as making large parts for A/C units, some of which can take up to 10-hours to machine, the EC1600 is used to machine surfaces on a 1.5 m long arm for a CNC robot, with a cycle time of four hours and accuracies up to within 20 microns. The EC500 is also busy making arm components for CNC robots, and the Haas SL-40 turning centre, the first in the region, makes pistons for the A/C compressor units. The Haas VF-3 uses a rotary table and tailstock to hold gearbox housings and the Haas VF-6 is being used to machine a box panel mounted on an HRT450 and support. The company's Haas VF-9 makes another, bigger arm for a CNC robot – this one, 2.15m long! "We make ten per month," says Su. "The faces also have to be parallel and square to within 20 microns, which on such a large part require the machine to be very rigid."

Su particularly likes how Haas machines have small footprints, compared to other makes. "They get the job done as well as any other machine tool, but they take up less space. In fact, they usually have longer travels and higher performance than more expensive machines." He also likes the simple control.

Su particularly likes how Haas machines have small footprints and simple control, compared to other makes.

Memories of hardship and struggle are still fresh in the minds of China's new entrepreneurial manufacturers. Su, like his contemporaries, never takes for granted his success or his future. Although he believes his very first Haas machine, the HS-2RP, brought him good luck that continues to this day. His plan is to retire when he is 60 years old and to travel the world, which is a goal that informs almost every business decision he makes. He intends to buy more Haas machines, he says, because they are predictable, reliable and well supported.

"If we have a problem, the service technician from the local HFO will be here within an hour or two, even if it is 8pm. Other CNC machine tool builders contact me and ask if they can come and see me. I ask them some questions, first: do you have a local factory outlet? Do you have a warehouse of spare parts? Can you fix my machine and have it back up-and-running by the next day? They can never answer me, which is why I will never look at their machines, let alone buy one."

China's decades of ill-conceived social engineering have finally given way to stability and private enterprise. Second and third generation Chinese business owners will one day tell stories of how their parents and grandparents struggled to make lives for themselves. The rest of the story is yet to be written. But, in the first few years of what many are already calling The Asian Century, China is having as much, if not more impact on the rest-of-the-world and the global economy than America and Britain did during the early stages of their Centuries.

Where America's growth was fuelled by immigration, and Britain's in the nineteenth century was based on expanding its empire, China's is dependent to a large extent on internal migration, as a billion rural Chinese move from the countryside to become urban consumers and stake their claim in the biggest revolution in the country's history.

The author works for Haas Automation

Motion plastics

Cologne headquartered igus has started the world tour of a retrofitted micro car to test the resilience, reliability and potential of its innovative plastic technology

The iglidur on tour press event. *All images: Courtesy igus.*

igus, the global manufacturer and pioneer of plastic motion technology, recently marked the 30th anniversary of its dry-tech product group 'iglidur' in an innovative way. The day was commemorated by the start of the world tour of a retrofitted micro car. This micro car, fitted with iglidur components puts the resilience, reliability and potential of its innovative plastic technology to test, as it embarks on a round-the-world-trip called 'iglidur on tour'.

igus, which has been successfully operational in India for the last ten years, is known for its research in 'tribopolymers' (friction and wear optimised plastics). It embarked on this ambitious practical test to demonstrate the capabilities of the extensively tested and amply proven innovative plastics technology. A team from Cologne University of Applied Sciences took up the project 'plastination' of the micro car. The aim was to replace everything possible with igus plastics, including brake pedal, windscreen wipers, window lift mechanism, shift unit, seat console, handbrake, alternator, throttle valve and the convertible roof. Attention was even paid to ensure visual likeness as well.

The small car will travel across 20 countries over a period of nine months. The journey has already started at the Auto Expo in India and the Indian tour will be followed by a tour of three other Asian countries (Japan, South Korea and Taiwan) before the small car makes its journey to America. On arrival, the plans include a coast-to-coast trip straight through Canada and the US. The next part of the tour includes a journey to Europe, where the retro-fitted car will meet several customers at trade fairs and igus offices.

The project was officially presented at last year's plastics trade fair 'K' and the retrofitting work began shortly after. igus CEO Frank Blase welcomed guests to the official launch of the journey at igus' head quarters, Cologne: Blase said "We are using all our years of expertise in the field of 'motion plastics' – plastic components that drive, support and supply – to send a small car around the world. igus bearings have been fitted at 56 points to demonstrate the capabilities of igus tribopolymers: to reduce costs and improve technology."

> "The aim was to replace everything possible with plastics, including brake pedal, windscreen wipers, window lift mechanism, shift unit, seat console, handbrake, alternator, throttle valve and the convertible roof."

Development of polymer bearings

Gerhard Baus, authorised representative of Bearings at igus GmbH, looked back at how bearing products have developed over the last 30 years. "The research we have conducted has enabled us to continually optimise the materials used for polymer bearings in terms of wear and friction. There are now around 100 different formulas, including 45 catalogue

The last phase of remodelling of the micro car

materials." Special bearings are available for almost every area of application. All igus polymer plain bearings contain millions of tiny little solid lubricants. These make external lubrication unnecessary and prevent dirt from sticking to the bearings.

Markus Feth, Head of the Automotive Division at igus, highlighted the importance for the plastic specialists: "Fifty percent of all the bearings we manufacture are used in cars. As parts are always precisely tailored to customers' needs, not only are our standard products used, but also a broad range of custom-made solutions."

'Plastination'

To prepare the car for this ambitious practical test, it first had to be retrofitted by a team from Cologne University of Applied Sciences under the leadership of Johannes Thomé and the igus bearing developer Michael Krug. The aim was to replace everything possible with igus plastics – as much as it is technically feasible and permitted by TÜV regulations. The metal bearings on the brake pedal, windscreen wipers and window lift mechanism, along with the shift unit, seat console, handbrake and alternator were replaced with pure polymer bearings. The throttle valve and the convertible roof were also replaced with iglidur bearings.

Many modules had to be disassembled and rebuilt to factory and functional specifications. Although standard plain bearings could often be used, in some cases CAD modules were needed to create carefully customised spare parts. The components were then milled or turned from iglidur bar stock. This involved the use of several of the 45 different iglidur catalogue materials. igus' high-performance plastics were installed at a total of 56 bearing points. Attention was even paid to ensure visual likeness, viz, in the seat locking mechanism. Having successfully completed all modifications to the small car, the team of vehicle mechanics and plastic developers is thoroughly excited about the world tour.

"Many modules had to be disassembled and rebuilt to factory and functional specifications. Although standard plain bearings could often be used, in some cases CAD modules were needed to create carefully customised spare parts."

Great potential for automotive

More and more manufacturers are discovering the qualities of cost-effective, high-performance components made from tribopolymers. 'Motion plastics' are used in numerous modules, from seat and convertible roof systems through multi-link hinges and engine compartment components to undercarriage applications. This trend will become even greater in the future. This is because maintenance and corrosion-free polymer plain bearings that require no external lubrication, and weigh seven times less than metallic rolled bearings, speak for themselves. They are kind on both the environment and the pocket as they reduce production costs and offer a longer service life thanks to their wear-resistant feature.

Motion plastics are the ideal solution for dampening noise in the vehicle interiors At the same time, however, their robust structure and resilience make them equally predestined for 'outdoor use', which will be clearly manifested when they encounter the many weather conditions, altitude kilometres and road types along their journey. The range of potential uses has far from been exhausted and perhaps the polymer-bearing-packed car's demonstration trip around the world will inspire developers to come up with new and exciting ideas and concepts.

Mega machining magic

Manufacturing industry professionals from all over the world will flock to Chicago in September 2014 to see new solutions that can improve their efficiency

Labelled as the largest display and demonstration of global manufacturing technology in the western hemisphere, the International Manufacturing Technology Show (IMTS) is scheduled for its 30th edition at Chicago's McCormick Place. Manufacturing industry professionals from all over the world attend IMTS to see more than 15,000 new machine tools, controls, computers, software, components, systems and processes that can improve their efficiency. They gain valuable ideas and insights from over 1,100 of the world's leading equipment producers.

The show theme for 2014 is 'Come Together' and is a call to action for senior manufacturing professionals from more than 119 countries to interact at IMTS and see the latest technology to get ideas and find answers to their manufacturing problems and challenges.

Reflecting the strength of manufacturing in the world economy, early results on participating exhibitors and exhibitor floor square footage contracted are both ahead of the IMTS 2012 pace at 1,117 (a 23 percent increase) and 1.151 million net square feet (an 8 percent increase) respectively.

Over 1,900 exhibitors from the metalworking industry will display their products and productivity solutions covering 1.2 million net square feet of floor space.

Pavilions

To help guide visitors around the vast exhibits and find their areas of interest quickly and easily, IMTS is organised into nine pavilions. The Abrasive Machining/Sawing/Finishing Pavilion will feature technology for applications that require high tolerance and precision surface finish including grinding technology, as well as sawing and cut-off machines and a variety of finishing technologies, such as lapping, balancing, honing and polishing machines.

The Controls & CAD-CAM Pavilion will offer the world of

What:
IMTS - International Manufacturing Technology Show

Who's doing it:
AMT - The Association for Manufacturing Technology

When:
September 8-13, 2014

Where:
McCormick Place, Chicago, IL USA.

Crowds wait for the South Hall to open to visitors on Tuesday morning at IMTS.

Visitors evaluate equipment in the North Hall.

Visitors in the North Hall watch a demonstration in progress.

custom automation and the latest software needed to extract the maximum efficiency from machine tools to optimize plant operations and cost efficiency. In the EDM Pavilion, everything from CNC wire EDM equipment to die sinking machines can be found by manufacturing professionals in the tool and die industry and especially those who specialise in one-off or specialty components.

The Fabricating/Laser/Additive Pavilion is devoted to showcasing the latest technology in fabricating, metal forming, laser and waterjet-based machining and additive manufacturing, along with displays of welding, metal treating and marking equipment.

The Gear Generation Pavilion is devoted to gear cutting, forming and finishing, as well as broaching, shaping and slotting machines and will spotlight traditional applications such as auto, construction, mining and ship-building, plus the emerging alternative energy and wind power sectors.

100,000 +
Total number of business visitors expected to visit

Focusing on the myriad of goods needed to run a plant, the Machine Components/Cleaning/Environmental Pavilion will offer everything from the parts to service and monitor machines to the components necessary for safe and environmentally responsible operations.

The Metal Cutting Pavilion is the centre of the very foundation of the machine tool industry. Here, visitors will find the latest innovations in metal cutting equipment including machining centres, turning centres and the entire range of metal cutting technology.

The Quality Assurance Pavilion features metrology equipment and systems that keep processes on track, as well as the equipment that will check the accuracy of machines.

The Tooling & Workholding Systems Pavilion offers all the necessities and innovative solutions to tooling challenges. Here, visitors can maximise the investment in their machinery and equipment by finding the latest technology that will allow for minimum setup and machining time, give new capabilities to older equipment and explore the latest in state-of-the-art workholding systems.

Concurrent shows

IMTS 2014 will also feature two co-located shows, Industrial Automation North America at IMTS and Motion, Drive & Automation North America at IMTS. Industrial Automation North America made its debut as a co-located show with IMTS in 2012. Returning in 2014, it is sure to showcase the best in process, factory, and building automation. The 2014 introduction of Motion, Drives & Automation North America (MDA NA) further expands the range of technologies and solutions presented at IMTS by bringing together the power transmission, motion control and fluid technology sectors. Both of these events are being developed by IMTS partner, Hannover Fairs, USA.

Live manufacturing!

The Emerging Technology Centre (ETC) returns to IMTS featuring an amazing step forward in the production of energy-efficient vehicles. IMTS partner, Local Motors, has agreed to actually manufacture, not just assemble, its new city vehicle – the Boston Bullet – at IMTS.

A new manufacturing process – Additive-Subtractive – will utilise the new 3D printing/additive technology to produce major components that can then be machined to exacting standards. Several IMTS exhibitors are poised to contribute machinery and technology for the production of parts for the car which will be completed and ready to drive out of McCormick Place by the close of the show.

Conference

Educational opportunities will abound. The four day IMTS 2014 Conference runs Sept. 8-11 and is slated to include 69 sessions that explore topics including materials engineering, manufacturing technology and trends, alternative manufacturing processes, metrology/quality and plant operations. Conferences sponsored by Hannover Fairs USA during the week are the Motion, Drives & Automation Conference, ISA Inside: Training Sessions at Industrial Automation North America and the Global Automation and Manufacturing Summit. The CleanTech Conference will be offered by the Midwest Global Alliance. EOS North America is offering its North American Users Conference. IMTS will once again welcome 9,000-plus students and educators to expose them to the career opportunities in manufacturing through hands-on learning and networking with industry professionals.

About Tapukara Plant

Location: Tapukara Industrial Area, District Alwar, Rajasthan

Area: 450 acres

Installed production capacity: 1,20,000 units /annum

Employment: Approximately 3,200 associates

Cumulative investment: Rs3,526 crore.

New chapter of growth

Honda Cars India begins car production from its Tapukara plant in Rajasthan

Honda Cars India Ltd (HCIL) has started the production of cars from its Tapukara Plant in District Alwar, Rajasthan. Honda Amaze is the first car to roll out from the new plant. HCIL plant in Tapukara is the first car manufacturing plant in the state of Rajasthan.

Spread over an area of 450 acres, the facility is an integrated manufacturing unit including all functions of Forging, Press Shop, Powertrain shop, Weld shop, Paint shop, Plastic Moulding, Engine assembly, Frame assembly and Engine Testing facility. This plant is the culmination of the best manufacturing know-how and practices gathered from Honda's global operations. It employs optimum automation, latest equipment and best layout for achieving high quality, best ergonomics, improved operational efficiency and safety. The plant is highly focused on conservation of the environment and efficient use of energy and other natural resources.

With a cumulative investment of Rs3,526 crore, Tapukara plant currently employs about more than 3,200 associates. The Tapukara plant is the second plant of HCIL which started its Phase I operations in September 2008 with Press Shop and Power Train Unit for engine components. With the start of production of cars in the second plant, HCIL's total installed production capacity has been increased to 240,000 units/ annum in India.

During the current fiscal year 2013-14, HCIL set a new record of crossing one lakh unit sales for the first time in a financial year by selling 101,370 units in the April 2013 to January 2014 period registering a growth of 78 percent over same period last year which is the highest growth among other brands in the industry.

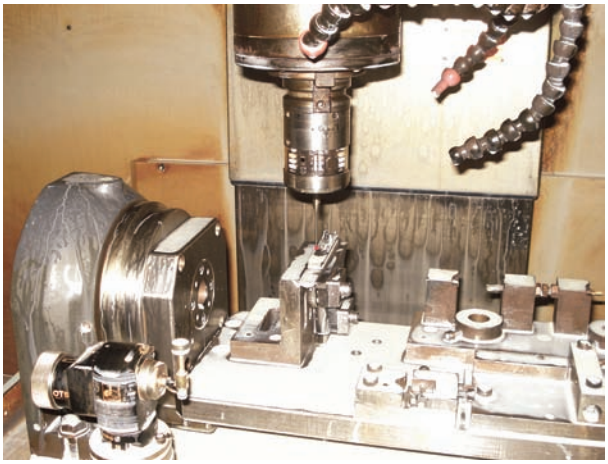
Yoshiyuki Matsumoto, Managing Officer, Honda Motor Co Ltd, Japan and Representative of Development, Purchasing and Production in Asia & Oceania Region said, "India is an important market for Honda and with the beginning of car production at Tapukara plant, we are advancing our commitment to expand Honda's business in India. We are thankful to the Government of Rajasthan for extending all the support to participate in the industrialisation of the state." Hironori Kanayama, President & CEO, Honda Cars India Ltd. said, "The beginning of car production from our second plant is a significant milestone for HCIL. With overwhelming response to our current models like Honda Amaze and the all-new City and promising future line-up, we are ready to cater to the strong demand for Honda cars from our customers in India."

"India is an important market for Honda, and with the beginning of car production at Tapukara plant we are advancing our commitment to expand Honda's business in India."

Yoshiyuki Matsumoto, Managing Officer, Honda Motor Co. Ltd., Japan and Representative of Development, Purchasing and Production in Asia & Oceania Region

Triggering success

Correct integration of touch trigger probes and broken tool detection systems, in combination with the innovative software required, can result in a highly efficient system



The OMP60 and OTS optical tool setting probe on a machine tool at Associated Tooling.

Associated Tools, a Kolkata based manufacturing company, uses BFW, LMW and Hurco machine tools. Each one is fitted with Renishaw touch trigger inspection probes and tool setting systems, for supplying products to the defence industry. Since adopting the machine tool probes, Associated Tools have benefited from an elimination of component rejections, and a 66 percent reduction in tooling set up times.

HJ Bishnu, now Director of Associated Tools, took on the responsibility for the manufacturing unit in 2005 and filled the company's workshop with the very latest manufacturing technology, including LMW, BFW and Hurco CNC machine tools – all equipped with a variety of Renishaw touch trigger probes and tool setters.

HJ Bishnu, Director, Associated Tools has noticed dramatic results with the introduction of Renishaw's OMP60 touch trigger probe.

Investing only in machines was not enough

When he first took charge, there were various issues surrounding the production techniques. Bishnu recalls, "After investing so much in CNC machines, we were still facing problems with slow machining cycle times, setup idle times, inconsistencies in quality and operator errors."

Initially, each manual indexing process took around 45 minutes. This, followed by a further 30 minutes while the machine checked the position, made the set up a slow and inefficient process. In addition, the inconsistency in quality was five percent and the rejection rate 1.5 percent. The tool setting process was also manual, which again contributed to time delays. Bishnu had visited Seco, Pune, and had seen firsthand the benefits of Renishaw's touch trigger and tool setting probes, and decided they would have a great impact on his own machining process.

Dramatic results

With the introduction of Renishaw's OMP60 touch trigger probe and OTS contact tool setting probe, Associated Tools began to see dramatic results. Introduction of a CNC fourth axis and OMP60 makes indexing automatic. For every indexing position, the reference point is set automatically, meaning that the component setting time is reduced to 20 minutes and the rate of scrap is reduced to almost zero percent.

The cable-free OTS optical tool setting and broken tool detection probe also brought about successful process improvements; the tool setting time was dramatically reduced and also benefited from increased accuracy. Even the tool life was optimised.

Well placed to compete

With two decades of experience and the increased accuracy and decreased set up times resulting from Renishaw probing techniques, Associated Tools is now on track for growth. With the focus on manufacturing and supplying components, Associated Tools aims to double or triple its defence unit turnover. With rapid process development, stable and predictable processes and automated machines, Associated Tools is well placed to compete for high accuracy work.

Outstanding efficiency

Associated Tools has proven how the correct integration of Renishaw's touch trigger probes and broken tool detection systems, in combination with the innovative software required, can result in a highly efficient system for the manufacture of precision components for the defence industry.

As Bishnu concludes: "Since we started using Renishaw probes and software, we have been able to consistently manufacture critical components. Component rejections and manual errors have been eliminated completely."

The cable drag chain re-invented

A cable carrier developed specifically for use in environments with heavy contamination from chips and dirt.

Tsubaki KabelSchlepp is one of the world's leading suppliers of cable carriers, guideway protection and conveyor systems. Founded as a small start-up nearly 60 years ago, the company has since become a global player, with foreign representations and subsidiaries in over 50 countries. KabelSchlepp cable carrier systems are in use around the world, ranging from standard applications to such complex applications as industrial robots, offshore oil rigs and the space shuttle. Tsubaki KabelSchlepp therefore has developed an impressive solution for these types of environments with their cable carrier TKA55. The closed plastic cable carrier was also awarded the Eco-Link label of excellence, and fulfils the very strict environmental compatibility standards of Tsubaki Group. The all-round closed structure of the TKA cable carriers effectively prevents the intrusion of contamination particles into the cable space, and allows for reliable protection right up to the connection area. For this special design the TKA received the IF product design award 2013.

TKA was developed specifically for use in environments with heavy contamination from chips and dirt. Wood, metal or plastic chips entering into the cable space of cable and hose carriers can quickly result in costly problems. Carriers wear faster, the service life of the routed cables and hoses is shortened, and the availability of the entire machine or system is failure.

The innovative design of the TKA contains an optimised sideband and cover contours which effectively prevent functional faults caused by chips and dirt entering into or sticking to the cable carrier. The compact new cover designs fit seamlessly into one another and reach over the sidebands to form a compact, closed unit. The covers can be opened and removed easily on the inside or outside to load the cable carriers. The interior of the TKA55 can be modularly partitioned with various divider solutions for even cable distribution. The TKA offer secure hold even under severe mechanical stresses, e.g. when used with hydraulic lines. The smooth, dirt-repellent contour of the sidebands with their encapsulated stroke system prevents the entry of any foreign objects. The TKA55 cable carriers are particularly tight and therefore reliably protect cables and hoses from dust, dirt, chips and spray water right up to the connection area in accordance with protection class IP54.

The tightness of the TKA55 was tested and attested in accordance with IP54 by the German Technical Inspection Authority TÜV Nord. With this attest in accordance with IP54 the user receives comprehensive protection from all-round spray water and dust entering in harmful quantities, along with complete contact protection.

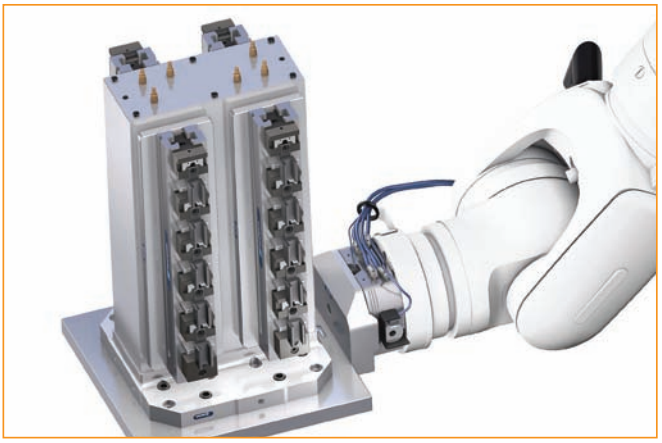
In addition, the optimised geometry of the TKA chain links and a triple encapsulated stroke system allows the TKA55 to span extensive unsupported sections. The integrated gliding surfaces make the cable carrier the ideal solution for long travel lengths. Integrated noise damping ensures that the cable carrier is running silently and with low vibration at all times. The closed cable carrier is available in over 300 varieties with interior widths between 15 mm and 175 mm. Generally speaking cable carriers are a smart solution to ensure the safe guidance of cables and hoses. Here is what it's all about, the use of TKA cable carriers is advantageous e.g. in industries like Machine tools, Metal-cutting manufacturing, Steel mills and Wood processing industry.

Features and advantages of cable carriers

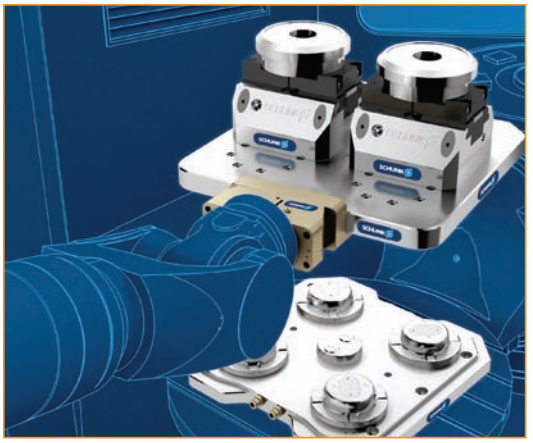
- Cable drag chains are an integrated part of the machine or a material handling equipment which gives un-interrupted supply of power, data and control signals to the machinery.
- They also convey media like Air, Fluid & Water in large diameter hoses.
- Conventional Systems which can be replaced by cable carrier systems.
- Better compared with Festoon Systems.
- Better compared with Cable Reeling Drum.
- Better compared with Bus Bar System.
- Better of using cable carriers over conventional systems.

For more information, contact, Kabelschlepp India Pvt Ltd, Ph: 080-41158997, Fax: 080-41158998; E-mail: india@kabelschlepp.in; www.kabelschlepp.de

Automatic machine tool loading



The powerhouse: The Schunk robot coupling VERO-S NSR maxi 220 is designed for handling of heavy pallets up to 1,000 kg.



With the permissible pallet weights from 1 to 1,000 kg the Schunk VERO-S NSR robot couplings cover an enormous spectrum. For ensuring a process-reliable pallet change, every module is equipped with an automatic cleaning function now.

Fast pallet change - now of up to 1,000 kg:

The compact Schunk robot couplings VERO-S NSR continue to set standards at high-efficiency, robot-supported pallet change on machine tools: with the module VERO-S NSR maxi 220 the system is becoming even in the heavyweight class a superior favorite for pallet handling. It transfers torques up to 4,000 Nm, and can reliably handle up to 1,000 kg (at 800 x 800 mm). Due to the developed locking system with patented strokes (fast and clamping stroke) from Schunk, such large masses can be handled. Locking is done form-fit, and is self-retaining. All the components of the powerhouse are made of hardened, stainless steel. In order to ensure a process-reliable function in challenging environments, it is completely sealed against chips and coolant. Moreover, a standardised cleaning function ensures a chip-free surface contact between pallet and robot coupling. For process monitoring, locking and unlocking conditions are monitored via a position sensor, and the presence of pallet via an inductive proximity switch. Repeat accuracy amounts to 0.02 mm.

Upgrade of the modules up to 350 kg

The innovative family-owned company also completes the VERO-S NSR sizes with smaller and medium-sized sizes: in order to achieve maximum process stability, these standard modules are also equipped with a cleaning function now. Steel inlays at the contact areas make the robot couplings extremely wear-resistant. Despite the upgrade, the module weight remains unchanged. Due to the consequent lightweight design, the modules with optimized interfering contours weigh 400 g (NSR mini 100), 1,600 g (NSR 160). They are suitable for reliable handling of pallets up to 75 kg (at 200 x 200 mm), or up to 350 kg (at 400 x 400 mm). Together in a team with the new heavy-duty module NSR maxi 220, they are covering the complete range from 1 to 1,000 kg.

Contact: Satish Sadasivan
Ph.: 080-40538999; Fax: 080-40538998, Email: info@in.schunk.com, Web: www.in.schunk.com

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Cabling solutions for greater efficiency

At this year's Hannover Messe, the Lapp Group will be presenting cabling solutions that it claims help increase efficiency in production. The new Industrial Ethernet cables of the Etherline EC series feature a space and cost-saving star quad design. The Lapp Group is also expanding its range to include Industrial Ethernet cables with a PUR sheath, which have UL approval and a 1000 V rating.

The four cores of the new Industrial Ethernet cable are routed in parallel as a star quad instead of using 'twisted pairs'. Dispensing with the twisting reduces the outer diameter of the cables by almost ten percent. This is of particular relevance, as industrial ethernet is increasingly being used in sensor/actuator applications where there is often little space available, for instance when active distributors or switches are used in the field. For wiring within a control cabinet, small bending radii are required. The new cable is also better suited for this application. The star quad design not only saves space here, but also materials - and therefore reduces costs.

Compact process automation controller

The Industry Sector of Siemens launched Simatic PCS 7 AS 410 Smart - a compact process automation controller for small to mid-sized standard DCS applications. A new addition to the Siemens Simatic controller family, it comes with the same hardware ruggedness and proven quality as that of the powerful AS 410 controller. This compact, affordable and easy-to-use controller provides repeatability, meaning once a standard solution is designed, the same can be used for several similar applications as well. This feature not only reduces engineering efforts but also ensures lesser time-to-market.

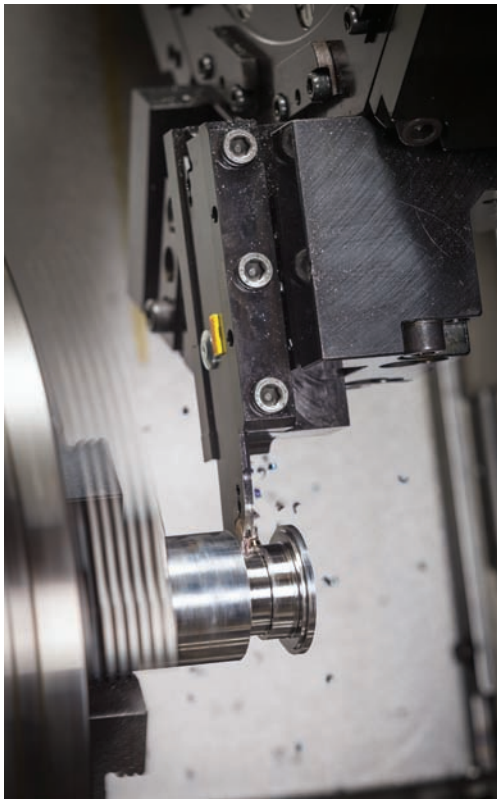
Designed in Germany for round-the-clock industrial applications, AS 410 Smart can withstand harsh temperature conditions, vibration/shock and EMC requirements. It is also equipped with a conformal coating, which is in line with G3 standards, thus making the controller highly robust.

With a speed of 450 MHz, this multi-processor system is equipped with 48 MB memory and can be scaled up to 800 Process Objects. Simultaneous management and control of different process tasks at different cycle times is yet another advantage of this high speed controller.

Additionally, owing to user friendly and simple configuration, lesser training efforts are required for plant operators and maintenance personnel. AS 410 Smart also provides ease of maintenance to customers as only one controller-spare part needs to be managed.

With the addition of AS 410 Smart to the Simatic PCS 7 portfolio, Siemens is now well equipped of addressing the different requirements across all Process Automation market segments.

Secure and efficient parting off with plug and play coolant



CoroCut QD – the reliable system from Sandvik Coromant for deep grooves and parting off with long overhangs expands the offer of inserts and durable tools with over and under coolant. The system is supported with plug and play adaptors for easy handling and efficient coolant supply. For bar feed manufacturers, process security in terms of good chip control and long reliable tool life is the key to an efficient production. To meet these needs CoroCut QD combines strong tools and inserts with rigid clamping and efficient coolant supply.

Chip control and easy coolant connection: An important aspect for long tool life and few machine stoppages is good chip control. This is achieved by combining over- and under coolant on all tools which keeps the temperature down at the cutting edge for less tool wear and a more stable performance, while at the same time providing for efficient chip evacuation. Add to the support from plug and play adaptors for easy coolant connection and a rigid yet user-friendly clamping mechanism for easy insert changes, and you get CoroCut QD. A system that not only ensures process security, but also easy handling for real machining efficiency.

Durable tools: At the cutting edge, the cutting forces are high. To withstand this, the tool material has high fatigue resistance and the tool tip seat features a back stop so the insert stays in its position preventing the seat wearing down when the insert is indexed. Also the inserts themselves are developed with good coating adhesion and high edge-line security, for long tool life in every parting off operation.

The system, first introduced in Oct 2013, builds on the well-proven Q-Cut and CoroCut ranges, expanding the options for these processes.

For more info, www.sandvik.coromant.com

Spindle speed boosted

For 2014, Haas Automation has boosted the spindle speed of its very successful DT-1 Drill/Tap center from 12,000 rpm to 15,000 rpm, giving customers the ability to run higher feedrates for small tools and high-speed machining operations.

The DT-1 is a compact, high-speed drill and tap machine with full milling capabilities. The machine features a generous 508mm x 406mm x 394mm work cube and 660mm x 381mm T-slot table, while maintaining a very small footprint. The powerful BT-30 taper spindle now spins to 15,000 rpm, and allows rigid tapping to 5000 rpm, with up to four times retract speed. The spindle is coupled directly to the motor for smooth, quiet operation and extreme thermal stability. An 11.2kW vector drive system provides 62Nm (peak) of cutting torque for milling and boring operations.

The DT-1 provides cutting feedrates to 30.5m/min for high-speed milling, and the machine's 20+1 side-mount tool changer swaps tools quickly to reduce non-cutting time. High-speed 61m/min rapids combine with high acceleration rates to shorten cycle times and increase throughput.

For efficient chip removal, the DT-1 features steeply sloped internal sheet metal. Optional twin chip augers transport chips to exit at the rear of the machine, allowing multiple machines to be placed close together. A 170L flood coolant system is standard, with options for a programmable coolant nozzle and high-pressure through-spindle coolant systems. Built in the US by Haas, the DT-1 Drill/Tap Center is backed by the worldwide network of Haas Factory Outlets – the most extensive system of support and service in the industry.

For more information, visit www.HaasCNC.com

Extended product line for grooving & parting-off

Seco has announced a special focus on products for grooving and parting off applications in 2014. The company's portfolio of products for grooving and parting off now includes expansions to the X4 tangential tool, MDT (Multi-Directional Turning) system, 150.10 parting-off blades and Mini Shaft boring tools. While each of these products has its own unique set of features and benefits, they all bring stability, reliability and productivity to manufacturers performing grooving and/or parting operations.

Through a unique design and interface, X4 provides a flexible and high-performance solution to parting-off and grooving applications. It incorporates strong tangential inserts with a rigid clamping system to maximise security and enable larger depths of cut. The X4's multiple cutting edge widths, ranging from 0.5 mm to 3 mm, provide flexibility in grooving while also minimising material waste in parting-off operations. With a maximum cutting depth of 6.5 mm, the X4 can cut off parts up to 13 mm in diameter. New to the range are round/full radius profiles and profiles for circlip grooves.

The MDT system provides a variety of indexable inserts, toolholder styles, cutting widths and grades to support external, internal and axial machining in a variety of operations, including grooving, parting-off, turning, threading and profiling. MDT offers high levels of stability via a V-shaped top clamp and a serrated interface between the underside of the insert and the toolholder.

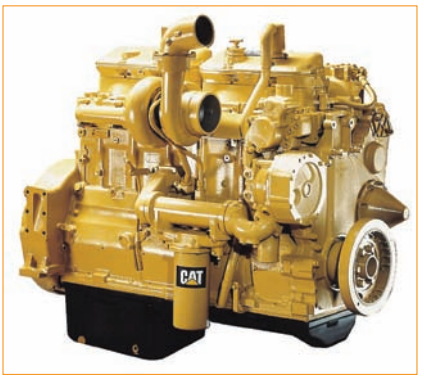
Intended for parting-off applications, the 150.10 product line consists of inserts with widths ranging from 1.4 mm to 6.35 mm, single-ended (short) and double-ended (long) HSS blades for holding the insert as well as basic shank toolholders (or with Seco-Capto interface) for accommodating the HSS blades. 150.10 is now also available with Jetstream Tooling Duo to optimise coolant supply increasing product performance and reliability.

Mini Shaft handles the internal machining of small bores such as grooving, turning, profiling or threading. It features a unique cross-serrated interface and a large contact area that secures indexing accuracy, rigidity and long life of the toolholder. Internal 'through' coolant channels and a coolant outlet close to and directed toward the cutting edge promote better chip evacuation, increase tool life and improve surface finish.

For more information, Tel: 02137-667300; Email: reconditioning.india@secotools.com; www.secotools.com/in

Economical industrial diesel engine for lesser regulated countries

Caterpillar India has launched its industrial diesel engine. This engine provides customers in lesser regulated countries in the Asia Pacific region, including India, with an economical, fuel efficient and dependable solution. The Cat 3406C is designed and built for industrial, electric power and petroleum engine applications.



According to the company, the engine is easy to install, operate and maintain featuring many shared components from the original engine design. One of the benefits of the engine is that fuel consumption is optimised to match operating cycles of a wide range of equipment and applications while maintaining low operating costs. The 3406C incorporates many other features to enhance performance and safety and reduce lifecycle costs. The mechanically-governed 3406C engine will be available in the power range 218 kW (292 bhp) to 365 kW (490 bhp) for industrial and petroleum applications.

The 3406C industrial engine is manufactured in a state of the art production facility in Hosur, Tamilnadu, India. Ramin Younessi, Vice President, Industrial Power Systems Division said, "The Cat 3406C can be used in areas that are rugged, experience extreme weather conditions, and where fuel quality is less than premium."

Endless threading

The Walter Prototyp Prototex Eco Plus increases productivity in through-hole threads. The Prototex Eco Plus from the competence brand Walter Prototyp really stands out among through-hole taps. Above all, this is due to their universal application combined with outstanding performance. Thanks to new manufacturing techniques, Walter AG has succeeded in further optimising this multi-talented tool.

Like the Paradur Eco Plus – its counterpart for blind-hole threads – the Walter Prototyp Prototex Eco Plus has a wide field of application. This tool, which is designed specifically for through-hole threads up to 3.5xD, is manufactured from HSS-E-PM. It can be used for components of steel (ISO-P), stainless materials (ISO-M) up to 1350 N/mm2 , cast iron workpieces (ISO-K), especially GJS/GGG, and non-ferrous metals (ISO-N), for example, AL wrought alloys, AlSi alloys with up to 12% Si content, and Cu wrought alloys or pure copper. Such versatility means that this tool is of interest to all machining sectors. In other words, in companies that have a wide range of products, this all-rounder can, if necessary, reduce tool changes on the machine and reduce the range of tools that are held in stock.

A new, special type of pre-treatment for the cutting tool material results in an improved surface which, in turn, leads to improved adhesion of the THL hard material coating. This results in a considerable increase in performance and in a significantly longer tool life. "Tests showed increases of between 25 percent and 60 percent, depending on the application," explains Timo Mager, Senior Product Manager for threading tools at Walter. An optimised geometry in the chamfer section also increases process reliability. This characteristic is extremely important because thread cutting is often the final operation when machining a workpiece, which may have had many other costly operations.

The Walter Prototyp Prototex® Eco Plus is the multi-talented tool among through-hole taps. A special pre-treatment gives the coating improved adhesion and therefore increases performance. The tool is also available as an option with internal cooling and radial coolant outlet.
Image: Walter AG

Walter emphasises the versatility of the tap is by offering numerous different designs, e.g. in terms of cooling and lubricating it can be supplied with internal cooling and a radial coolant outlet; TiN coating is available as an alternative to the THL hard material coating; a left-hand version is available as are the four tolerance classes 6HX, 6GX, 2B and G-X. A number of thread profiles and sizes are available for delivery, including Metric threads M2 to M30, metric fine threads M6x0.75 to M22x1.5, inch threads G1/8 to G1, along with UNC and UNF variants. Manufacturers may also benefit from the possibility of using the tool with minimum quantity lubricant.

For more information, www.walter-tools.com

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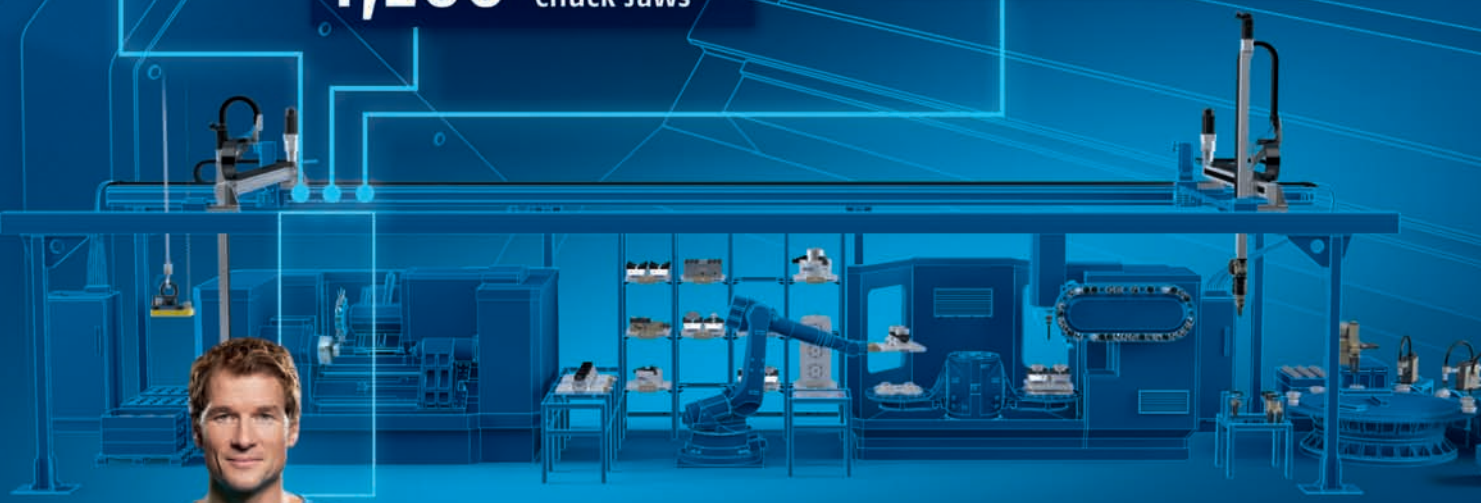

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