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The official magazine of Indian Machine Tool Manufacturers' Association

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Special Feature on Exports 44

LASER DRILLING

Five Axes Do It Better

CNC TECHNOLOGY

Building the Best!

EMO

A Report

PROF SHOJI SHIBA

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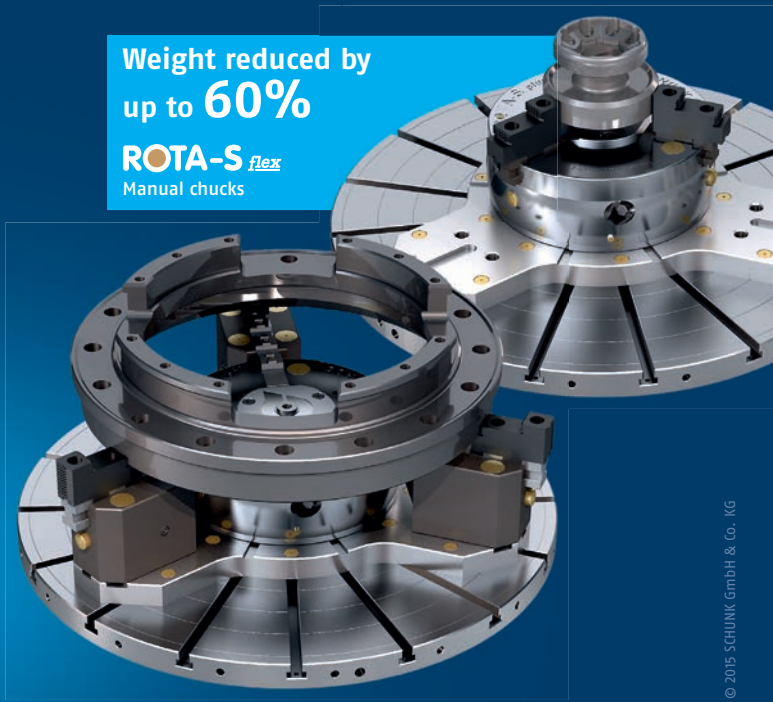

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Company Directory

Companies that are mentioned editorially in this issue

UMC-750SS
at
HAASTEC
PUNE SHOW

9-12, December 2015

10 a.m. to 6 p.m.

OTHER MACHINES ON DISPLAY:

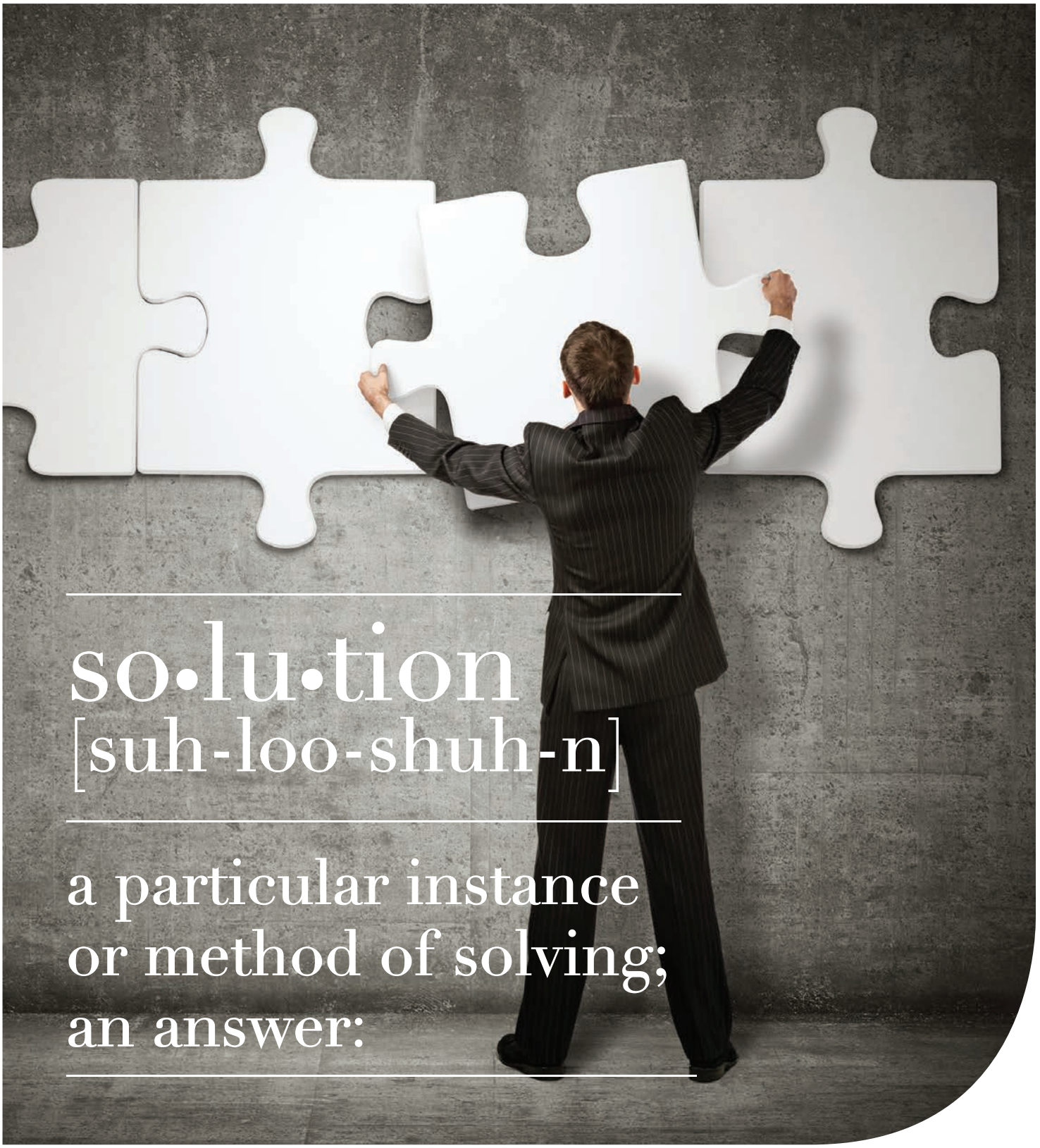
ST-35, VF-7/50, DT-1, VF-2SS, ST-10Y
Super Mini Mill, VF-2

SHOW DETAILS:

Date: 9-12, December 2015

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

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



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President, Indian Machine Tool Manufacturers' Association (IMTMA) and
Managing Director, TaeguTec India Pvt Ltd

Striving Towards Manufacturing Excellence

Greetings!

Moderate inflation, declining current account deficit, fairly comfortable fiscal deficit and good foreign exchange reserves have resulted in a relatively stable economy. The Reserve Bank of India's decision to soften interest rates is likely to attract fresh investments. The greenshoots evident from the improved competitiveness and macroeconomic developments have made India a sought after FDI destination. The country has moved up by 16 positions to the 55th rank on the global index of the world's most competitive economies. India is also the 7th most valued 'nation brand' as per Brand Finance's annual report on the world's most valued nation brands.

The momentum gained this year is expected to carry on in the next year paving the way for a higher growth trajectory in the manufacturing sector. IMTMA is working with the Government of India to enhance the competitiveness of the capital goods sector in order to boost the Indian economy. One of the measures undertaken in this direction is the creation of an 'Advanced Centre of Excellence' for R&D and technology development. IMTMA is also actively working with the Government of India and the Karnataka Government to establish integrated industrial infrastructure facilities (the machine tool park) in order to make the machine tool sector more competitive by providing an ecosystem for production.

The machine tool industry has taken ardent steps to bring innovations to the doorstep of regional industries. This will enable the machine tool industry to contribute in the development of the manufacturing industry. The first ever machine tool expo in Ahmedabad opened avenues to penetrate into niche industry sectors as well as the untapped regional market. The expo which exhibited a rich display of manufacturing technologies garnered good participation from across the manufacturing fraternity in the western region.

IMTMA's efforts towards making the Indian machine tool industry globally competitive received a major fillip when it took part in the 2015 edition of EMO that was held in Milano from October 5–10, 2015. The Indian group of industries that participated in the exhibition were able to connect with the global manufacturing industry and expand their business horizons.

Our upcoming flagship event 'IMTEX FORMING 2016' and another concurrent event, Tooltech 2016, will be held at the Bangalore International Exhibition Centre in Bengaluru. The show will create a unique platform for the machine tool fraternity to aid the development of the manufacturing industry throughout the country.

In this edition of MMI, you will get to read more on the metal forming industry and other initiatives undertaken by the Indian machine tool industry to connect the manufacturing sector with its global customer base. I hope this will prove useful for all the readers.

I would like to conclude by calling upon the industry to fully support our initiatives in our journey towards a vibrant domestic machine tool industry.

I wish you all good luck towards the end of this year.

Cheers!

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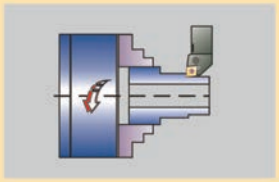


SC-8K
GANTRY LOADER

SC-14
BIG BORE LATHE

SC-25
CNC HEAVY DUTY LATHE

CNC Internal Grinding

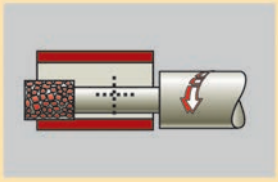
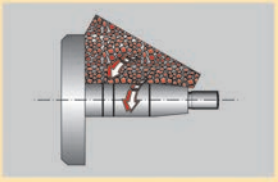


FIG-200 SPL CNC
BIG BORE GRINDER

FIGT-300 CNC
FOUR STATION TURRET

FIGE-150 CNC
ID / OD GRINDER

CNC Cylindrical Grinding



AWH-1500 CNC
LONG SHAFT GRINDER

AWH-2000 CNC
HEAVY DUTY GRINDER

SWH-400 CNC
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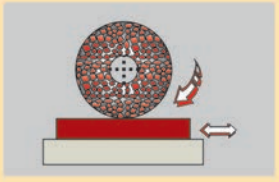
Surface Grinding



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SGR-60
ROTARY GRINDER

SG-63
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Automats

A15/25

TD36
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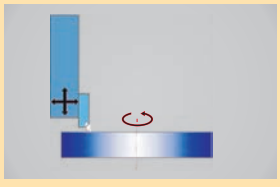
A42/60

Vertical Turning Lathe



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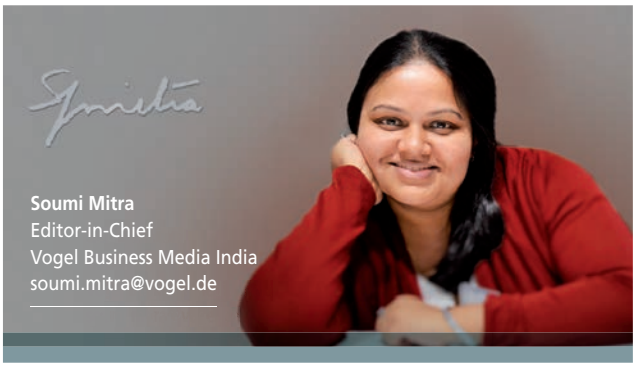

Soumi Mitra
Editor-in-Chief
Vogel Business Media India
soumi.mitra@vogel.de

Value is More Expensive Than Price

India is known as a country with numerous mesmerising monuments and the Taj Mahal is one such example. The nobel laureate poet Rabindranath Tagore rightly called the mammoth and stunning structure as *'A Dream in Marble'* and now I know why!

My recent visit to the white world heritage was a memorable one as I was spell bound by the sheer size and magnificence of one of the wonders of the world. This also got me thinking as to how was each corner of the Taj Mahal intricately designed with utmost precision by using materials of the highest quality.

"Efficient industry is the sole key to prosperity."

~Henry Ford

Quality is one of the core ingredients due to which the massive monument has become a global wonder. I wondered what if the Mughal emperor had taken quotations and opted to go for the lowest price to build the Taj Mahal?

The popular saying 'Value is more expensive than price' demonstrates the importance of quality that adds value to a product, service and in this case even a structure. This very same thought came to my mind when I visited EMO, one of the largest metal working exhibition in Italy recently. Some of the most innovative technologies showcased at the event reflect that value for money comes at a reasonable price as it enhances productivity and proves to be an asset for companies in the long run. Hence, it is important that we understand the essence of value when we invest in long term projects.

With this thought, I wish you a happy read and encourage you to discover the latest technologies with us.

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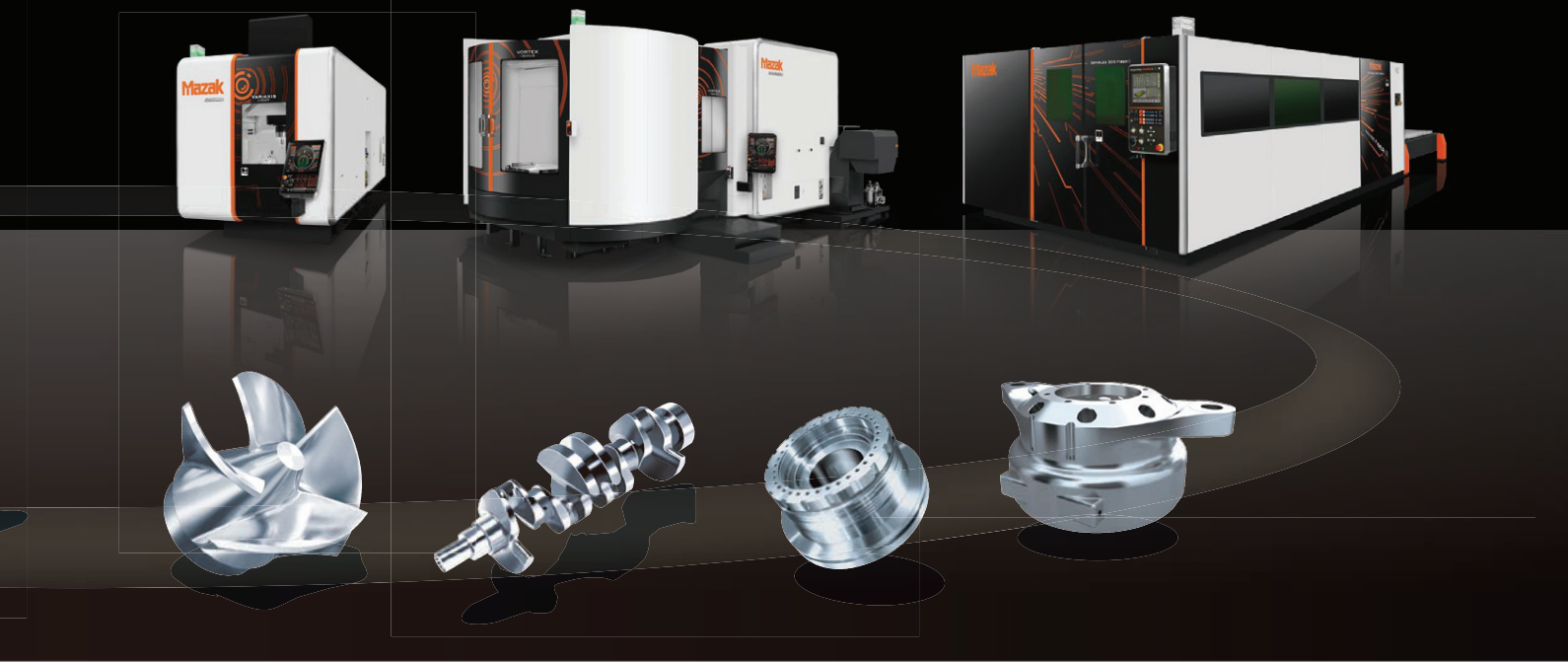

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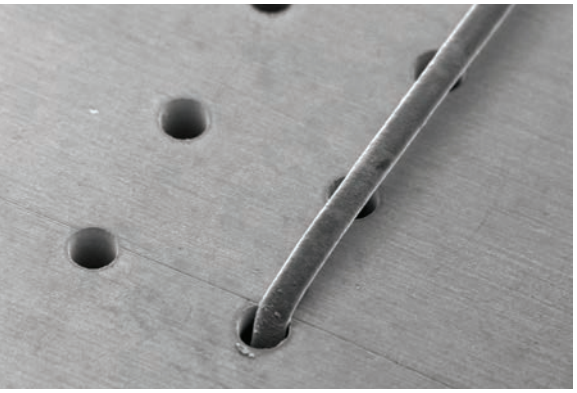
▶ **BIG INTERVIEW:** Chief Adviser, Champions for Societal Manufacturing (CSM), (Earlier VLFM), Prof Shoji Shiba 42



▶ **LASER DRILLING:** SEM pictures of 100 µm diameter bore holes (entry side, shown with a human hair) in steel of 200 µm thickness. 48

▶ **INDUSTRY PERSPECTIVE:** Various factors such as external demand, domestic demand, currency exchange rate, etc impact the growth of the Indian industry. 34

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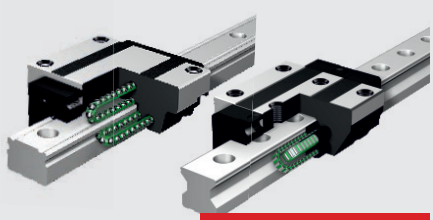
Linear Motion Guides



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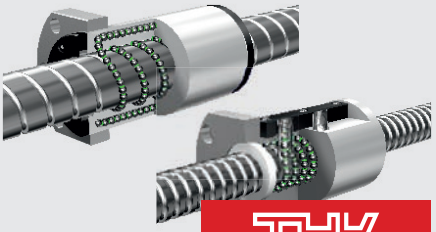
Precision Ball Screws



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Insights & Artistic Questioning—Key to Success

"Insights and artistic questioning are the keys to unlock value in the capital equipment business."

CEO,
Micromatic Machine Tools Pvt Ltd,
TK Ramesh

Successfully selling and continuously growing in the capital equipment business is a process and should not be misread as a series of events. Many machine tool companies stumble in their approach when they treat the sales process as an event. Mentally they look at it as a 'Yes' or 'No' choice for selling their product and unintentionally rush the customer. They hear without listening, ask the wrong questions and drive the customer to disengage when in actuality the customer is genuinely still undecided on his choice between you and the competition. It is necessary to listen to the customer in order to validate that you will be able to give him the best solution. Being attentive and not being in a hurry to list the benefits of choosing you does not imply that you are 'not being aggressive' in increasing your business or relationship with the customer, instead this behavior could be interpreted as being purposefully aggressive by asking the right questions and being comfortable with a yes or no final outcome; which will go into a repository for building insights for the future.

Effective communication

A company's success to connect with the decision maker and his team lies in its ability to show profound understanding of the customer's issues. This will come about when you talk about ideas and solutions that are relevant and real to the customer. A natural connect will be formed in the mind of the customer, and it is a known fact that customers appreciate and like to associate with companies that have deep insights.

It is important that companies and its sales team work towards focusing on building and continuously developing insights for the various segments that are key to the company. This pool of knowledge such as industry challenges in technology, cost and trends of practices in manufacturing, etc., will in turn become their armory to differentiate themselves and their offerings from competitors in the market place. A strong team that works on different ways to use your machines, reduce time, cost and complexity—a team looking at effective ways to fund your machine, etc., are as important as a design team, a manufacturing team and an assembly team.

Ask the right questions

Questioning is perhaps the most important aspect of the value unlocking process, by applying the 80/20 Rule. The Pareto Principle or '80/20 Rule' states that if you can identify the characteristics of the top 20 per cent of your customers (who represent 80 per cent of your sales), you can find more customers like them and dramatically grow your sales and profits. For this, the art lies in getting the customer to express themselves most of the time and for us to speak in the remaining time.

Our job is to understand the customers' need, situation and relating it to our offering. It is very common in our eagerness to impress that we end up talking more than the customer. Good questioning is possible with insights and it demonstrates our understanding about the customers issues and gives us credibility. It is important to understand that like us, the customer too wants to do the same—get information. This is an issue and needs judiciousness about how much to give and what to hold on both sides. This process has to happen intuitively and naturally with time. It is this culture of an insightful company that unlocks value and needs to be built incessantly. MMI

The views expressed by the author are personal and he can be contacted at rameshtkr@gmail.com

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Metal Forming Technology — An Enabler to Manufacturing Excellence

India has a huge potential to be unearthed when it comes to metal forming. The event, IMTEX Forming, is just around the corner and the machine tool industry of India is bracing up to meet the challenges revolving around technology and development.

The increased investments primarily in the auto and auto ancillary sectors have led to the establishment of manufacturing facilities in India by international firms. This has led to a spurt in demand for machine tools in India.

Source: IMTMA

Metal forming technology plays a pivotal role in the manufacturing industry. India's metal forming sector contributed about 15 per cent of the total machine tool demand in the country during 2014–15. The long-term prospects look good with the demand picking up in consumer durables, electronics and automobile industries. The metal forming industry serves as the core manufacturing machinery provider to these segments. Other sectors such as aerospace, power, construction, railways, heavy transportation, office furniture, instrumentation industry, steel industry, forging, structural engineering, and capital goods also propel the demand for metal forming.

DIGITAL VERSION

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Metal Forming

World class technology and knowledge sharing will be on display at IMTEX FORMING 2016. A concurrent event, Tooltech 2016 is scheduled to be held at the Bangalore International Exhibition Centre from January 21–26, 2016.

Source: IMTMA

Growth phase for the industry

India's metal forming industry is evolving. The development of new machines and applications is vital to keep pace with global developments. As customer requirements on product quality and quantity increase, companies are shifting to automated machines from conventional ones to increase productivity and reduce the chance of defects. The industry is expecting advancements on a rapid scale in terms of forming technology in the Indian market in the next few years. The automotive industry for example is already making use of high-level automation for presses, sheet metal forming and robotics for welding. These technological changes witnessed in the automotive industry will also play a major role in consumer durables and other high-precision manufacturing technologies. The metal forming sector will see technology shifts and high growth in the next few years

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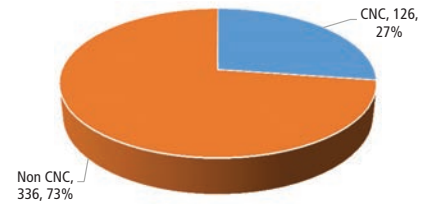
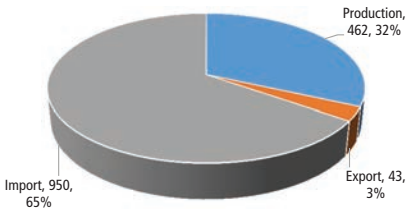
Metal Forming Production 2014–15 [Rs Crore]



Source: IMTMA

Metal Forming Consumption 2014–15 [Rs Crore]



Source: IMTMA

GROWTH FACT

India on the Global Map

India ranks 14th in production and 10th in consumption of machine tools, according to the World Machine-Tool Output & Consumption Survey by Gardner Research. The demand for machine tools is likely to grow by 15 per cent year-on-year and estimated to reach about $3 billion by the year 2020.

with small and unorganized sectors along with large original equipment manufacturers opting for new technologies such as near net shape forming, hydro forming, sheet metal forming, and three point bending and folding.

Production and consumption of metal forming machines

The production of metal forming machines touched ₹462 crore during 2014–15 while metal forming machine consumption in India during 2014–15 touched ₹1,369 crores.

Industry trends

Many manufacturing firms are introducing numerous innovations for the development of the metal forming segment. Companies in India are offering hydraulic and mechanical presses with servo drive options (hydraulic or electric). Presses for metal forming are available with a variety of features for applications such as deep drawing, stamping, trimming and cold extrusion. Manufacturers are also using hydroforming to open up new possibilities in manufacturing a variety of parts for different applications that are otherwise difficult to do. The industry is researching and developing the concept of hot forming to produce parts for the auto industry and other applications. All these developments can be construed as a harbinger of growth for the Indian machine tool industry. MMI

Building Manufacturing Leadership

Mumbai – Leaders of the Indian industry shared their thoughts and perspectives on leadership at a recent panel discussion on Building Manufacturing Leadership organized by the CII Naoroji Godrej Centre of Manufacturing Excellence in Mumbai. With specific reference to the CII Naoroji Centre of Manufacturing Excellence, Past President, CII and Chairman & Managing Director, Godrej & Boyce Manufacturing Company Ltd, Jamshyd N Godrej said that the Centre was set up after the centenary year of CII with the idea to build capacity and capability for the industry. CEO & Managing Director, Aptech Ltd, Ninad Karpe spoke of skills and people. He said, "Unless you have people, you cannot have leadership." Karpe ended on an optimistic note by saying that India will have the best skilled people in the world. Blended models of learning and virtual classrooms are being introduced in the country. Hence to achieve manufacturing leadership, the country will have a base of good people. Founder, Makers Asylum, Vaibhav Chhabra spoke from the point of creating access to communities and entrepreneurship.

Source: CII

(L to R): Director, Bharat Fritz Werner, Shailesh Sheth; Director, Cummins India, Pradeep Bhargava; Past President, CII & Chairman & Managing Director, Godrej & Boyce Manufacturing Company Ltd, Jamshyd N Godrej; CEO & Managing Director, Aptech Ltd, Ninand Karpe and Founder, Makers Asylum, Vaibhav Chhabra launched an Intensive Programme on Manufacturing Excellence to create world class manufacturing leaders in India on behalf of the CII Naoroji Godrej Centre of Excellence.

Talking from the experience of Makers Asylum, he said it is important to create a community of like-minded people, not necessarily engineers but also architects, sculptors, designers, etc., and in the process Makers Asylum created a community of unlike minded people which allowed collaborations to take place. According to him, if you do not use your hands to build something, it gives an unqualified experience. Therefore, there is a need for hands on experience that can create leadership and help the next generation fall in love with manufacturing.

Past Chairman, CII Western Region & Director, Cummins India, Pradeep Bhargava stated, "If we have to 'Make in India', we have to 'Make India.'" Currently, he said that not much is being talked about softwares in the manufacturing industry and that building skills and leadership is a fairly big task and one which has to be home-grown.

4th VDMA Mechanical Engineering Summit

New Delhi – The 4th VDMA Mechanical Engineering Summit was held on October 9, 2015, at Radisson Blu Plaza in New Delhi. Around 140 members attended this prestigious event. India is the second-largest sales market in Asia for the German engineering industry. Presently more than 525 VDMA member companies are engaged with their own business in the Indian market. The Summit began four years ago in Pune and continued in Bengaluru and Mumbai. This year as the event was held in the capital, it attracted both VDMA members and senior dignitaries from the Government. With the recent visit of the German Chancellor Angela Merkel, both Germany and India have stepped up their bilateral cooperation and agreed upon 18 MOU's. The 5th Anniversary issue of the VDMA India quarterly newsletter – German Machinery Industry was also released on this occasion.

Source: VDMA India

(L to R): Managing Director, VDMA India, Rajesh Nath; Former Member, Planning Commission, Arun Maira; Secretary, Department of Heavy Industry, Govt. of India, Dr. Rajan Katoch; Head Economic Section, Federal Republic of Germany in New Delhi, Dr. Corinna Fricke and MD, Foreign Trade Division within VDMA Frankfurt, Ulrich Ackermann launched the newsletter.

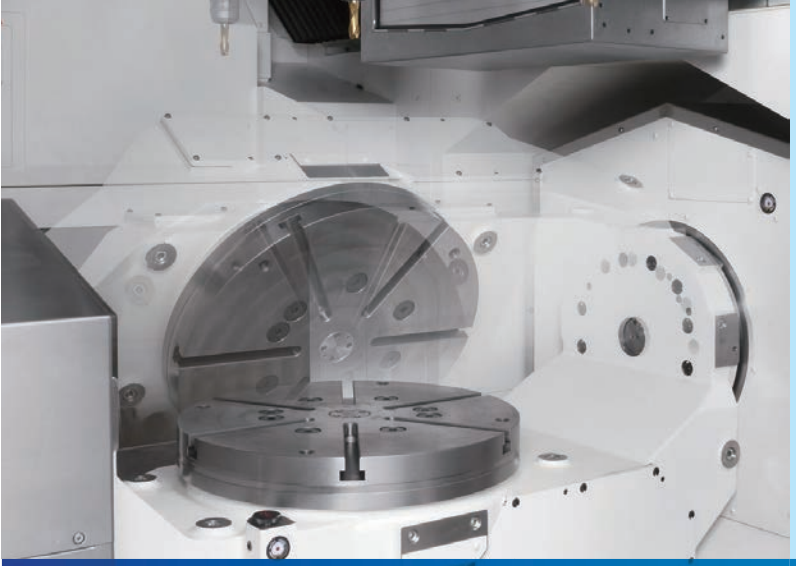
Siemens, TÜV Rheinland set up Global Skill Centre

Mumbai – Siemens India, in collaboration with TÜV Rheinland India, has together set up the Global Skill Centre for occupational safety in Mumbai. The training center has been specifically designed by Siemens and TÜV Rheinland to provide practical training on the latest safety equipment and techniques and, thus, taking the first step towards the 'Zero Harm Culture' that enables individuals to work responsibly and run projects without accidents.

The Centre will conduct certified training courses that develop 'Safety Leaders' in the project-based businesses and industries.

CEO & Managing Director, TÜV Rheinland South Asia, Thomas Fuhrmann said, "Siemens has a deep commitment to improving the safety of construction/project sites in India, and TÜV Rheinland is proud to be able to support Siemens in this venture."

Managing Director and Chief Executive Officer, Siemens Ltd, Sunil Mathur added, "The Global Skill Centre for occupational safety is a critical milestone in Siemens' journey of driving a culture of Zero Harm in the industry. The Training Centre is designed to meet the requirements of the industry for high-quality training on site safety measures. We hope to be the catalysts of a transformation in the approach toward safety and support the industry's efforts to maintain a Zero Harm Culture at project sites and manufacturing units."



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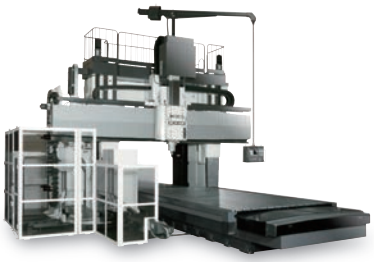

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Growth in Traditional Markets

Munich – Last year North America and Europe were the most dynamic construction machinery markets in the world. And according to market experts, this trend could continue in 2015. This is one of the reasons why the market in construction machinery and building materials machinery is in an upbeat mood in this 'pre-bauma year', despite all the political uncertainties. The next edition of bauma takes place from April 11-17, 2016, at the Messe München exhibition center.

According to industry associations, China—the world's biggest market for construction machinery—will stabilize in the current year, although initially at a low level. The statistics company, Statista has forecasted that the market for construction machinery in China will reach a value of almost $44 bn in 2015. Also picking up, alongside the traditional markets, are the markets of the Middle East and closer regions. The building sector in Saudi Arabia, for example, is currently one of the fastest growing sectors of the country's economy, according to Germany Trade and Invest (GTAI).

The market in India, too, according to sector insiders, should move forward again.

Source: Bauma

Participants at Bauma are keeping an optimistic view for growth.

Spearheading Productivity in Metal Working

Gurgaon – To champion the cause of productivity in metal working, Indian Machine Tool Manufacturers' Association (IMTMA) had organized the Productivity Summit recently (9th in the series) in Gurgaon. The event showcased the best productivity improvement projects in metal working.

This year, the highlights of the National Productivity Summit 2015 included four inspiring keynote presentations by distinguished industry leaders—Managing Director, Sartorius India Group, Amit Chatterjee; Executive Advisor, Maruti Suzuki India Ltd, MM Singh; Chief Operating Officer, Transmission & Engine Component Business, Hitech Gears, Rajesh Magoo and Senior Vice President - Manufacturing, Honda Cars India Ltd, Rajeev Wasan.

Four plant visits were also organized to help provide a platform for participants to witness productivity improvements first-hand. The plants were of renowned companies such as Hero Motocorp, Sona BLW Precision Forgings, Hitech Gears, and Honda Motorcycles & Scooters India.

Twelve interesting case studies from renowned companies contested for the IMTMA-ACE Micromatic Productivity Championship Awards 2015 that gave away cash awards worth ₹10 lakhs.

Source: IMTMA

IMTMA had organized the Productivity Summit to showcase the best productivity improvement projects in metal working.

Hot Forming for Lightweight Vehicles

Göppingen, Germany – As an alternative lightweight material, aluminum becomes increasingly attractive to the automotive industry due to its high strength at low specific weight. High-strength aluminum alloys offer great weight-saving potential for car bodies. The newly developed technology of hot forming of aluminum sheet by Schuler enables the forming of complex part shapes.

High-strength aluminum alloys present special challenges for the forming process with regard to formability. By cold forming, only geometrically simple parts can be produced from these alloys. A wide variety of aluminum alloys are already processed using Schuler's equipment. As a systems supplier, Schuler also provides the necessary dies and process expertise.

With the aid of specially designed forming dies, Schuler has now succeeded in demonstrating the potential of hot forming technology by producing a range of reference parts. The combination of temperature control and forming technology to achieve the desired part characteristics is of crucial importance here.

Source: Schuler AG

The newly developed technology of hot forming of aluminum sheet enables the forming of complex part shapes.

BFW Launches Tech-center

Kolhapur – Bharat Fritz Werner Ltd (BFW) has launched a tech-center in Kolhapur. Being a major machine tool builder in India, the establishment of a technology center in Kolhapur comes in line with the company's plan of launching tech-centers in all major industrial cities pan India.

Speaking on why BFW chose Kolhapur, CEO, BFW, Ravi Raghavan avers, "Kolhapur is a major casting hub for auto and form equipment, it has major foundry based industries. With the 'Make in India' concept, this region is forecasted for good growth. Additionally, BFW has seen increased sales machines in this region. Hence, to strategically position itself, BFW selected the Kolhapur region."

The tech center will stand as a common point to deliver the best solutions to the company's customers. Furthermore, the center will feature advanced products so that next-gen requirements can be addressed.

Apart from customized and comprehensive training programs for production processes, engineering applications, maintenance, etc., the company has employed application engineers to help provide solutions to challenging problems faced by customers.

Source: BFW India

CEO, BFW, Ravi Raghavan.

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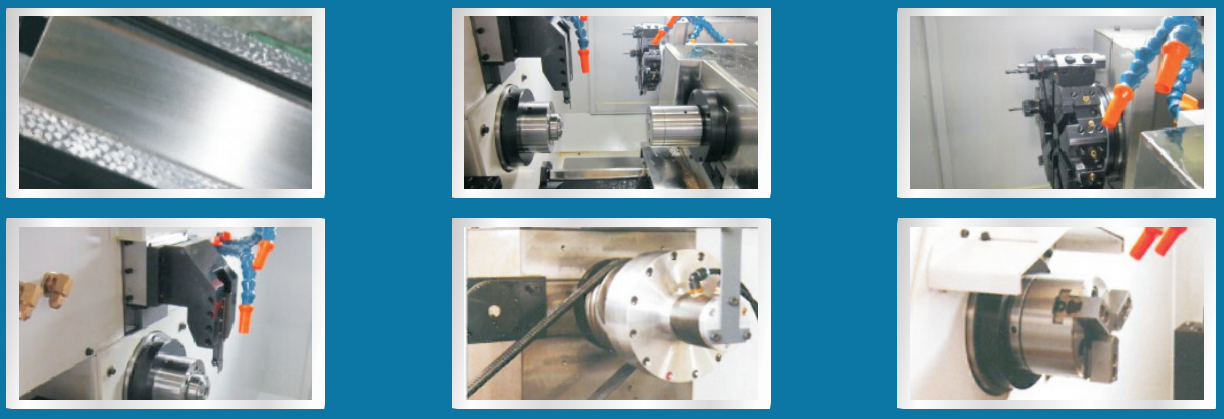

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http://www.mitsubishielectric.in/fa/fa-cnc.php

Source: Mitsubishi CNC

Operational Features of M80

M80 is one of the advanced technologies that Mitsubishi CNC offers in India. Here is a look at the opeational features of the same.

Source: Mitsubishi CNC

Performance

Fine segment processing capacity

High capability in program processing enables a shorter cycle time.

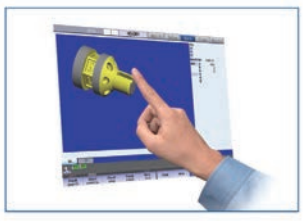
PLC process capability (PCMIX value)

High processing capability of the PLC enables large-scale ladder logic to be processed at high speed.

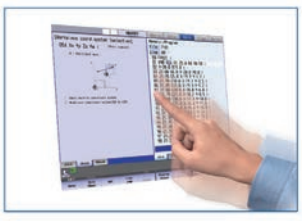
CNC-to-drive communication capability

Optical communication speed between CNC and drive has been increased. This improves the system responsiveness, leading to more accurate machining.

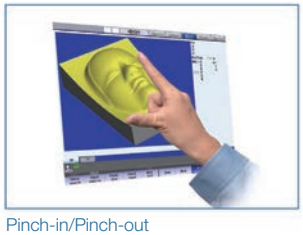
Touch Operation



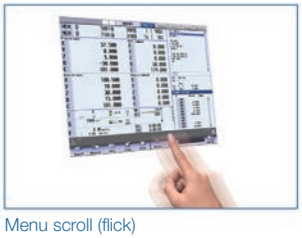
Drag



Program edit (flick)



Pinch-in/Pinch-out



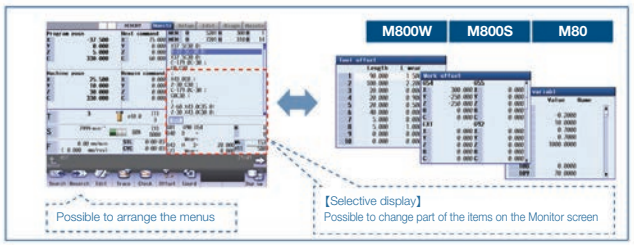
Menu scroll (flick)

Smartphone-like intuitive touch operation

The display features a capacitive touchscreen that is commonly used in smartphones and tablets, allowing for intuitive and easy operation. With a simple flick of the finger, for instance, you can monitor the desired part of program, or view and select a menu key on the next page without the need for tedious key operation.

In 3D graphic check, you can view a 3D model at any desired size, in any desired position.

Customization of Standard Screen



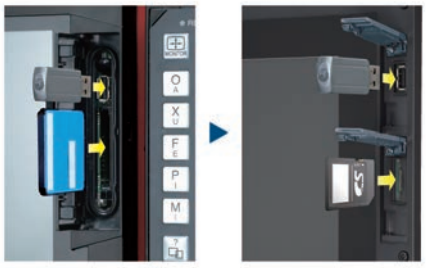
Standard screens can be customized using the selective display and rearranging menus. Screens matching operators' preferences and needs enable even greater ease of use.

Customize the standard screens as per the preference of operators

Each operator has their own set of frequently used menus. This CNC allows operators to rearrange their menu and hide any unused ones so they can easily navigate to their desired screen.

This CNC has a function called Selective Display, which enables partial customization of the Monitor screen. Operators can constantly view and monitor Tool offset , Work offset Common variable or other commonly used functions.

SD Card

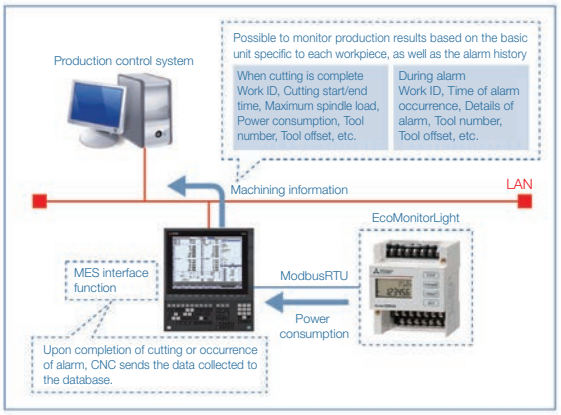


M700V/M70V M800/M80

The M800/M80 Series accomodates an SD card, a relatively easy-to-source device. The SD card can be inserted or removed independently of USB memory. The flip-up door provides greater durability.

Possible to be mounted not only from the front side of machine tools but also from the inner side of cabinets.

Eco & Robot Interface



Needs for automation are increasing, which can be realized more easily and with lower cost.

Improved traceability helps to visualize factory-wide operation

M800/M80 Series CNCs are equipped with the MES interface function, through which the CNC automatically sends SQL statements to the production control system database upon completion of cutting or occurrence of an alarm. This can significantly increase traceability throughout the factory. This transparency helps optimize production planning and management.

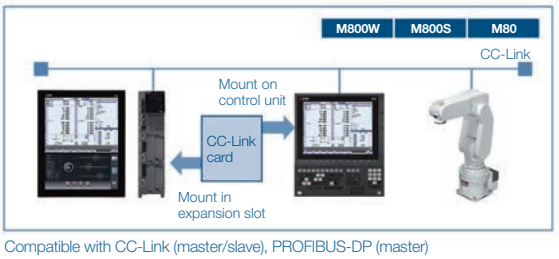
Quality control can also be easier through visualization of alarm history and the production results based on the basic unit specific to each workpiece.

In addition, when control is combined with the EcoMonitorLight power consumption monitor, operators can monitor not only CNG status, but also the energy consumed by the machines.

Compatible with a range of field networks that facilitate connection to peripheral equipment

With the aim of configuring factory automation systems, compatibility with a range of field networks has been implemented, enabling connection to peripheral equipment and devices.

Insert the option card into the standard expansion slot of the M800W Series CNC or on the back side of the display for the M800S/M80 Series.



Compatible with CC-Link (master/slave), PROFIBUS-DP (master) and EtherNet/IP (scanner). Possible to connect to peripheral equipment and devices conforming to a range of field networks.

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Turn-around of the **Indian Industry?**

The Indian industry started slowing down in 2011–12 and was under the grip of slowdown till 2013–14. But, it started showing signs of recovery in 2014–15. The domestic and international business environment adversely impacted the performance of the Indian industry in terms of its growth during 2011–12 to 2013–14. However, betterment of the environment afterwards led to improvement in performance of the Indian industry during 2014–15.

Weak international demand caused by global economic slowdown and recession in Euro area, sluggish domestic demand, high financing cost, subdued investment, depreciating currency (Indian Rupee), infrastructural constraints, regulatory and procedural impediments slackened Indian industry's growth performance during 2011-12 to 2013-14. However, some of those factors started showing reversal afterwards leading to improvement in performance of the Indian industry during 2014-15.

The industrial output as measured by the Index of Industrial Production (IIP) decelerated during 2011–12 to 2013–14 (figure 1). According to a report by the global analytical company CRISIL Ltd, the IIP growth rate in 2012–13 was the lowest in the span of 20 years ending 2012–13. However, industrial output accelerated in 2014–15 relative to 2013–14 (figure 1).

The manufacturing sector, which is the largest contributor to the IIP slowed down during 2011–12 to 2012–13 followed by contraction in 2013–14 and acceleration in 2014–15. The mining sector showed negative growth during 2011–12 to 2013–14 but showed positive growth in 2014–15. The electricity sector accelerated in 2011–12, but slowed down in 2012–13. Thereafter, it accelerated in two successive years (figure 1).

Within the manufacturing sector, basic goods and capital goods showed significant recovery in 2014–15, but consumer goods worsened further showing negative growth in 2014–15. Intermediate goods slowed down in 2014–15 after recovering in 2013–14 (figure 2). A decline in the production of capital goods during 2011–12 to 2013–14 was indicative of investment weakness in those years.

Satyendra Kumar Singh
General Manager &
Head of Department-Process
Simon India Ltd
sty_singh@yahoo.com

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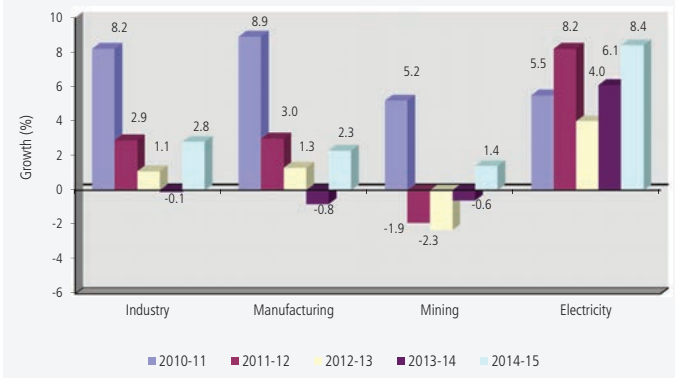
Indian Industry?

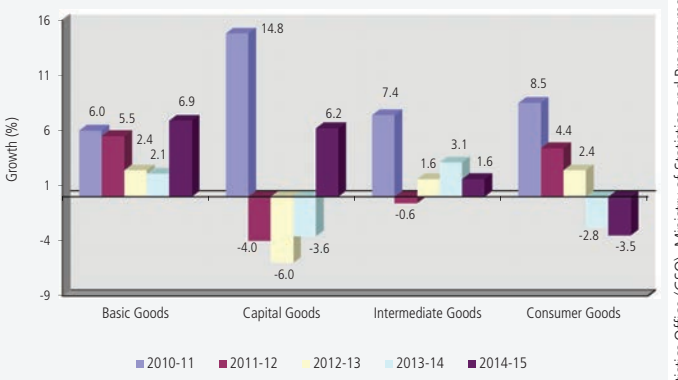
Source: depositphotos.com/ Vladru

Various factors such as external demand, domestic demand, currency exchange rate, etc impact the growth of the Indian industry.



Source: Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation, Government of India

Figure 1: Growth trend of the Indian industry and its components.



Source: Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation, Government of India

Figure 2: Growth trend of basic goods, capital goods, intermediate goods and consumer goods.

Factors impacting growth of the Indian industry

Some of the factors impacting the growth of the Indian industry are described here.

▶ External demand

Weak global demand was reflected in the performance of India's exports. India's exports slowed down in 2011–12 and showed negative growth in 2012–13. However, exports grew moderately in 2013–14 in line with weaker-than-expected global economic recovery, but declined in 2014–15 (figure 3).

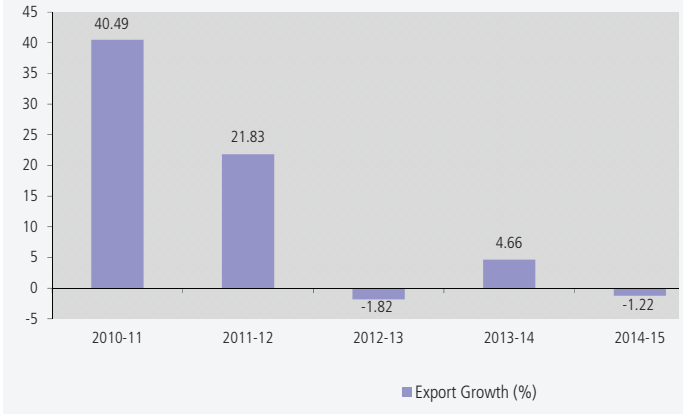
▶ Domestic demand

Private final consumption expenditure (PFCE) witnessed deceleration during 2011–12 to 2013–14 vis-à-vis the previous year, whereas government final consumption expenditure (GFCE) accelerated in 2011–12 but decelerated during 2012–13 to 2013–14 (figure 5). Persistent high consumer price inflation contributed to deceleration in PFCE whereas fiscal consolidation efforts by the government led to deceleration in GFCE. The consumer goods IIP, in line with the domestic consumption trend, fell 2.8 per cent in 2013–14 as against a growth of 2.4 per cent in 2012–13 and 4.4 per cent in 2011–12 (figure 2). However, PFCE accelerated marginally in 2014–15 as compared to 2013–14 whereas GFCE continued decelerating trend in 2014–15 (figure 5). Domestic demand comprising of PFCE and GFCE with former weighing heavily picked up in 2014–15 in line with consumer price inflation which fell to below 6 per cent in the second half of 2014–15 after hovering around 10 per cent during 2012–13 and moving in the range of 8.0–11.2 per cent during 2013–14.

▶ Currency exchange rate

The Index of Nominal Effective Exchange Rate of Indian Rupee (INR) fell by 10.3 per cent in 2012–13 and 10.4 per cent in 2013–14 over the previous year, and rose by 1.3 per cent in 2014–15. The index declined sharply during April–September 2013, registering a fall of 16.2 per cent, but recovered somewhat in the following months and was almost stable during a larger part of 2014–15 (figure 6). Relative to the US dollar ($), INR depreciated by 7.6 per cent during 2012-13 and 10.6 per cent during 2013–14, and just 4.9 per cent during 2014-15. Weakening of the INR made the imports costlier with adverse impacts on the operating profit of the companies. This also led to higher interest payment in Rupee terms on foreign loan with adverse impact on the net profit.

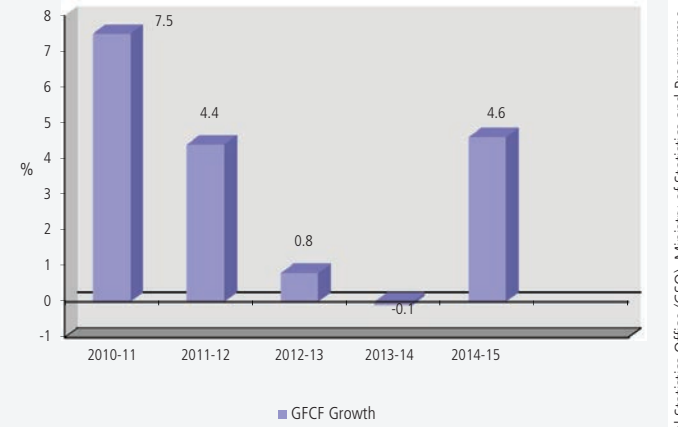
The hedging cost also increased due to volatility in the Indian currency. So, Indian companies had to suffer both ways, with or without hedging the currency risk. Erosion in net profit meant erosion of ability of a company to finance the investments



Source: Department of Commerce, Ministry of Commerce and Industry, Government of India

Figure 3: Trend of India's export growth.

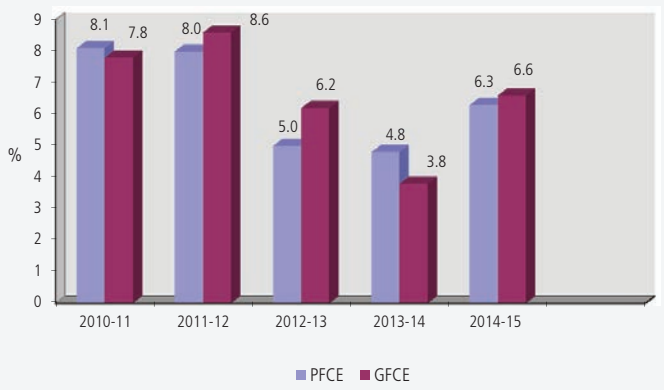
Note: Above data are based on value of exports in US $.



Source: Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation, Government of India.

Figure 4: Trend of India's GFCF growth.

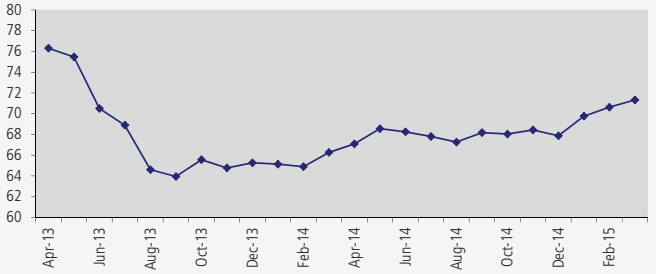
Note: In the figure, 2014-15 value of GFCF growth is based on 2011-12 prices whereas the values for 2010-11, 2011-12, 2012-13 and 2013-14 are based on 2004-05 prices. The value for 2013-14 at 2011-12 prices is 3.0%.



Source: Central Statistics Office (CSO), Ministry of Statistics and Programme Implementation, Government of India

Figure 5: Trend of growth of PFCE and GFCE.

Note: Data for 2014–15 are based on 2011–12 prices whereas those for 2010–11, 2011–12, 2012–13 and 2013–14 are based on 2004–05 prices. The growth rate of PFCE and GFCE for 2013–14 at 2011–12 prices is 6.2 per cent and 8.2 per cent respectively.



Source: Reserve Bank of India

Figure 6: Index of Nominal Effective Exchange Rate of Indian Rupee (Apr 2013–March 2015).

through internal resources, thus, acting as disincentive for new investments. Hence, currency depreciation might have also contributed to slowdown due to fall in new investments. However, stability in the exchange rate during a later period tends to have a positive impact on industrial performance.

Table 1: Key Policy Rate – India and Other Economies

Country/Region	Key Policy Rate % per annum (As on November 6, 2015)
Advanced Economies	
Australia	2.00
Canada	0.50
Euro area	0.05
Israel	0.10
Japan	0.00 to 0.10
Korea	1.50
UK	0.50
US	0.00 to 0.25
Emerging and Developing	
Economies	
Brazil	14.25
China	4.35
India	6.75
Indonesia	7.50
Philippines	6.00
Russia	11.00
South Africa	6.00
Thailand	1.50

Source: Websites of respective central banks

▶ Financing cost

High financing cost in India has remained a major constraining factor for investment. The policy repo rate, which governs the market interest rate, was changed by the RBI several times in the past with an objective to strike a balance between inflation and growth. It was quite high at 8.5 per cent since October 2011, until April 2012, when RBI cut it to 8.0 per cent. Since then, it was at that level until January 2013, when it was reduced to 7.75 per cent. RBI further reduced the repo rate to 7.5 per cent in March 2013, and to 7.25 per cent in May 2013. It then increased the rate to 7.5 per cent in September 2013, 7.75 per cent in October 2013 and 8.0 per cent in January 2014. This was followed by four successive reductions to 7.75 per cent in January 2015; 7.5 per cent in March 2015, 7.25 per cent in June 2015 and 6.75 per cent in September 2015. The current policy rate of 6.75 per cent is still higher than the policy rate in major advanced economies and several other developing economies such as China, South Africa, Thailand and Philippines (table 1).

▶ Pace of investment

India's Gross Fixed Capital Formation (GFCF) decelerated in 2011–12 and 2012–13, and declined in 2013–14 (figure 4). Production of capital goods, too, declined during 2011–12 to 2013–14 (figure 2). These trends of capital goods production as well as GFCF were indicative of sluggish investments during 2011–12 to 2013–14. However, capital goods output grew in 2014–15 in line with GFCF acceleration indicating recovery in investments (figure 2, 4).

Concluding remarks

The industry as well as its component manufacturing, mining and electricity sectors showed recovery in 2014–15. Within the manufacturing sector, basic goods and capital goods turned around whereas consumer goods continued its poor performance and even declined in 2014–15. Intermediate goods, too, slowed down. This means that industrial recovery was not a broad-based one, which raises a question mark over its sustainability. Whether the industrial recovery witnessed in 2014–15 can lead to a sustainable turn-around depends on several factors. A key factor is whether the recent cuts in repo rate by the RBI can translate into similar reduction in interest rates by the banks. Reduction in interest rates is key to provide capital to the industry and spur demand from the consumers. Moreover, whether and to what extent the RBI can cut the repo rate in the future is an important determinant of sustainability of industrial recovery given its cautious approach towards meeting growth objectives without risking the inflation.

The government's measures to rein the fiscal situation can nullify the demand growth. The future trend of international crude prices can greatly influence inflation and thereby demand growth. Another key factor is to what extent the government can improve the ease of doing the business. Then, infrastructure growth is a major requirement for the sustenance of industrial recovery. External demand scenario as guided by pace of economic recovery in the Euro area and China's economic slow-down is another factor to determine the sustainability of India's industrial recovery. MMI

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Uptrend in **Metal Forming** Sector

The production of metal forming machines touched ₹462 crore during 2014–15 while metal forming machine consumption in India during 2014–15 touched ₹1,369 crore, according to a report by IMTMA. These figures illustrate that the metal forming sector is steadily evolving and poised for growth.

In the current market scenario, the metal forming industry is on an upward trend.

Source: Snehal Pillai

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Metal Forming

Source: depositphotos.com

The adoption of the latest machines and technologies in the metal forming industry is vital to increase productivity and keep pace with global standards.

The popular 'Make in India' initiative by the Government has given a boost to the manufacturing industry in the country. It is in this vast industry that the metal forming sector plays an important role. Numerous sectors such as aerospace, automobiles, power, construction, railways, heavy transportation, instrumentation, steel, forging, structural engineering and capital goods are dependent on the metal forming industry to manufacture their desired products and components.

Market scenario

The Indian Machine Tool Manufacturers' Association (IMTMA) states that India's metal forming sector contributed about 15 per cent of the total machine tool demand in the country during 2014–15. Executive Vice President, Amada (India) Pvt Ltd, Niraj Seth says, "The demand for metal forming is on an upward trend and will continue, as the country's infrastructure is developing." Apart from infrastructure, the automobile and auto component sector is also progressing. Executive Director, Sahajanand Laser Technology Ltd (SLTL), Maulik Patel opines, "India is going to become the 4th largest automobile manufacturer by the year 2020. Alongside the automobile sector is also rising exponentially by contributing a 7.1 per cent to the GDP."

Unlimited opportunities

Adding to these plus points, the government's vision to make India a manufacturing hub has also attracted foreign companies in the automobile industry to invest in the country and manufacture products for domestic and global markets. For instance, General Motors plans to invest $1 billion in India by 2020, mainly to increase the capacity at the Talegaon plant in Maharashtra from 130,000 units a year to 220,000 by 2025. Mercedes Benz too has decided to manufacture the GLA entry SUV in India and has doubled its India assembly capacity to 20,000 units per annum. Sales Leader, Hypertherm India, Abhinav Sood says, "We expect to see more international manufacturers setting up base in India, in view of the lower cost of manufacturing and the 'Make in India' campaign initiated by the government. This will potentially fuel the growth of the metal forming industry." In agreement with this, Country Manager – India and SEA, FARO, Harkiran Sandhu opines, "As India is expected to be a hub for the auto and metal industry, SMEs and OEMs will be benefited."

Sood further states that India's automotive industry is one of the world's largest, and this sector has the potential to capitalize on the 'Make in India' initiative to shift towards global exports. Concepts of productivity and sustainability, which are two key pillars to business success, are likely to gain momentum. This will eventually lead to a greater awareness for, and more investments in new technologies and solutions. Other possible growth sectors include the infrastructure, transportation and construction industries,

Ahlam Rais
Senior Sub Editor
Vogel Business Media India
ahlam.rais@vogel.de

"After many decades of rise and fall, the metal forming industry is slowly but steadily marching forward towards consistent momentum. This signifies that the metal forming segment in India is about to witness a bright future."

Executive Director, Sahajanand Laser Technology Ltd (SLTL), Maulik Patel

"As India is expected to be a hub for the auto and metal industry, SMEs and OEMs will be benefited."

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"The demand for metal forming is on an upward trend and will continue, as the country's infrastructure is developing."

Executive Vice President, Amada (India) Pvt Ltd, Niraj Seth

as India will probably see a substantial increase in the number of projects and opportunities. With these come a greater demand for tooling and maintenance expertise, and this is where industry leaders anticipate growth for the metalworking industry.

Agreeing with him, Patel adds, "The government has announced the construction of five industrial corridors across various vital cities of the country. This project will require various forms of metal in enormous quantity; it is here that the metal forming industry will be required in order to provide them with all the necessary processed metals. This will stream the flow of opportunities for the metal forming sector." Also, in the railway segment, the government has plans to increase the national track length by 20 per cent to 138,000 km over the next five years. This move is expected to bring in huge business prospects for the metal forming industry.

Emphasizing on the importance of this vital industry, Seth opines, "Almost every industry will require sheet metal fabrication as a sub-part. As the industry is moving towards flexibility, quick changes in design, shorter delivery periods, smaller batches and quality fabrication, there will be a greater involvement of the metal forming industry." Hence, there are immense opportunities in the country to be explored by the industry in order to boost their business profits.

Latest trends

The adoption of the latest machines and technologies in the metal forming industry is vital to increase productivity and keep pace with global standards. Sood explains, "Along with the 'Make in India' campaign, we anticipate a more robust manufacturing industry. In turn, this will lead to increased investment in new equipment and greater technological adoption." IMTMA states that the metal forming sector will witness technology shifts and high growth in the next few years with small and unorganized sectors along with large original equipment manufacturers opting for new technologies such as near net shape forming, hydro forming, sheet metal forming, and three point bending and folding.

Recently, a few Indian steelmakers have tied up with leading automotive steel producers to create metals with different grades. For instance, Tata Steel formed a technology and equity alliance with Nippon Steel & Sumitomo Metal and started producing for the first time in India automotive-grade continuous-annealed cold rolled sheets. Also, JSW with the assistance of Japan-based JFE's technology has built a 2.3 million-tpy cold rolling mill in Karnataka for producing high-grade automotive steels.

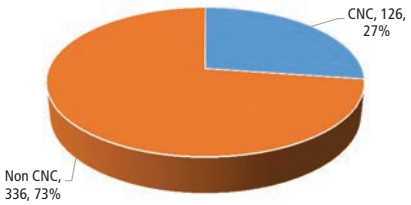
Hurdle points

There are also a few challenges faced by industry leaders, depreciation of the Rupee being one of the most crucial one. Seth mentions, "One of the biggest challenge is

"We expect to see more international manufacturers setting up base in India, in view of the lower cost of manufacturing and the 'Make in India' campaign initiated by the government. This will potentially fuel the growth of the metal forming industry."

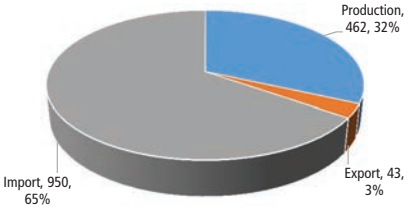
Sales Leader, Hypertherm India, Abhinav Sood

Metal Forming Production 2014–15 [Rs Crore]



Source: IMTMA

Metal Forming Consumption 2014–15 [Rs Crore]



Source: IMTMA

the Rupee depreciation and I believe nothing much can be done by any segment. Also, machines are imported and are of high value, it is here that exchange rate plays a vital role. Hence, in order to boost this segment and manufacture quality products, bank interest rates have to be rationalized and some kind of incentive or balanced import duty also has to be provided." Against this background, it has become essential for the government to create mechanisms that prove beneficial for industry players. Patel adds, "The micro financing scheme should also be made available at a competitive rate of interest to encourage the small to medium scale businesses to rise."

Apart from this, educating and making industry players aware of the latest technologies is also vital. As Seth says, "Quality sheet metal fabrication and high precision fabrication is still at a nascent stage in India. Hence, awareness and education in this direction will greatly help the industry to grow multifold." Industry players state that once these mechanisms are in place, the metal forming industry will rapidly progress.

In conclusion

The government's vision to make India a manufacturing hub has attracted foreign companies to invest in the country and manufacture products for domestic and global markets. Also, the need to manufacture quality products at par with international standards has become one of the top priorities for industry players. Hence, they are adopting the latest machines and technologies in the metal forming industry to increase productivity.

Also, with diverse opportunities awaiting the metal forming industry, the future surely seems bright for the sector as Patel says, "After many decades of rise and fall, the metal forming industry is slowly but steadily marching forward towards consistent momentum. This signifies that the metal forming segment in India is about to witness a bright future." We hope that from here on the metal forming industry only surges for growth! MMI

Building a **Stronger India!**

Chief Adviser, Champions for Societal Manufacturing (CSM), (Earlier VLFM), national program between India and Japan(JICA), Prof Shoji Shiba discuses the evolving Indian manufacturing sector and the steps being taken to ensure its sustainability.

After your meeting with the late Dr APJ Abdul Kalam in 2004, you decided to stay in India and help improve the Indian manufacturing sector. Please give us a brief on the initiatives you believed needed to be taken in India?

Prof Shoji Shiba: Post meeting the late Dr APJ Abdul Kalam, I believed it was necessary to create 'locomotive companies'—symbolically pulling the Indian manufacturing industry towards future breakthroughs—similar to how Japanese companies such as Honda, Sony, etc., carried out their operations during the 1960–70s.

During 2004–2006, we launched a pilot program for a 'learning community' where 12 companies were brought together to create visible success stories and demonstrate encouraging results in a short span of time. The success of this program made it possible to initiate the national program after 2006.

In my view, India has many innovative owners and CEOs, but the weakness lies in not possessing immediate subordinates that support these leaders. A leader alone cannot make a transformation; they need people who can drive the transformation. Hence, I created the 'Real Change Leaders' program; it is meant for those who will support and help implement the innovative ideas by their CEOs/founders. Today, we have 1,885 'Real Change Leaders' from more than 300 companies in India.

Furthermore, the sustainable development of industry comes from collaboration between industry and academia. Industry provides wisdom of industrial practices and academia can analyze these for extracting the success factor and create a general tool/concept that can be commonly used. In this way, the industry can enjoy the fruits of such intellectual assets. Today, we have more than 200 documented success stories and 31 publications comprising of text books, manuals, trainers manuals and case studies in CSM.

Source: CII

"The sustainable development of industry comes from collaboration between industry and academia."

Chief Adviser, Champions for Societal Manufacturing (CSM), (Earlier VLFM), Prof Shoji Shiba

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Stronger India!

Based on your experience, how do you view the Indian mindset in manufacturing? What needs to be changed?

Prof Shiba: There are three types of mindsets that need to evolve to make Indian managers globally competitive. The first one is changing the 'small manufacturing mindset' to the 'big manufacturing mindset'. Earlier, Indian managers in manufacturing primarily focused on production. In addition, popular tools that were used in the industry were incremental improvement tools, which had been mainly introduced by CII since 1982. Manufacturing companies were mostly working to create a product that was designed by someone else or given by a customer. This is called the small 'm' mindset.

What Indian managers required were tools of breakthrough management—to lead their organizations through drastic changes. They need to transform themselves to cater to the larger picture in the manufacturing sector by embracing concepts such as total value chain and many aspects of technical and societal changes. This concept is the big 'M' mindset—to create a new future perspective.

The second one is the weak execution mindset. I also observed that personal behavior mindsets such as the 'Me First Attitude' (MFA), 'Talk, Talk, Talk' (TTT) and 'Pass the Buck' (PTB) were prevalent in the market.

I felt that the introduction of breakthrough management, new concepts and tools, supported by a behavior change can help companies contribute in a bigger way to the growth of the manufacturing sector. With the help of CII and noble minded companies, I created unique learning classrooms, which became the temple of learning for 1,885 visionary leaders from more than 300 manufacturing companies in India. These visionary leaders are practicing these concepts and tools to help their respective companies grow. Today, seven such classrooms have been established. The first one being set up by Godrej in Mumbai followed by Tata Motors in Pune, Lucknow and Jamshedpur, TVS and Gabriel in Bengaluru and Sona Koyo in Gurgaon.

The last one is the weak 'Jump into Fishbowl' mindset. As the Indian society is changing drastically, customer behavior and preference is also changing rapidly. In this scenario, it is necessary to always 'Jump into fishbowl' in order to understand the changing fishes. Hence, I always push Indian managers to jump into fishbowl by themselves. These seven classrooms provide us the opportunity to instill this practice in the minds of our participants every day.

The VLFM program (now known as CSM) is divided into four parts. Kindly elaborate.

Prof Shiba: The VLFM program is rooted from the need to transform the Indian industry, which has many interrelated elements, as a part of a system. It is necessary to understand the hierarchy and power structure of an organization to enable transformation. And where does the transformation start? It is definitely a top to down process. Therefore, the CEO and senior managers' course was set up.

After this, it is important for leaders to have people below them who will support change. Hence, the second course was aimed to generate a cohort of real change leaders. This is the junior manager course run by academic institutes of repute, i.e., IIT Madras, IIM Calcutta and IIT Kanpur.

Next, effective management of the supply chain has become a crucial factor in remaining competitive in the industry. To make information and material flow seamless, the VSME course was introduced. This flow creates a win-win relation between all the elements—OEM, T1, T2, and T3.

Lastly, as the Indian society is drastically changing, especially at the village level, it is not apt to think that the industry and villages are separate. Both must join hands and work together. Hence, the 'Village Buddha' was introduced to develop a win-win partnership between business and society to create a mutually beneficial platform that sustains not only businesses but also villages. This fourth element has the potential to create future breakthroughs in the Indian industry.

PERSONAL

"A change in mindset for the new era is the only effective solution for survival and growth."

Prof Shoji Shiba

Do you see the Village Buddha becoming a norm throughout the industry?

Prof Shiba: I do not see any reason for the 'Village Buddha' program becoming a norm in the industry. The program aims to realize win-win relationships between businesses and society. In the past two years, 25 companies have worked hard to form the Village Buddha community, and it has also received the support from Past President, CII, Venu Srinivasan and JICA. Through this, we will be able to create many examples of model villages having such win-win relationships.

What do you aim to achieve with the CSM program?

Prof Shiba: Through the CSM program, we want to enable industry players to recognize the potential emerging trends in the market. Firstly, the aim is to offer a wider diffusion of qualitative methodology to Indian managers, which gives an insight for exploring the unknown future. Fortunately, our program has developed many useful qualitative tools such as the five step discovery process, observation for perceiving invisible, sensing commonality by grouping, etc., to solve challenges or make decisions.

Secondly, to transform supplier relations in order to leverage on the competitive advantage of Indian manufacturing sector, CSM has created an innovative and effective system to enhance win-win relationships amongst the tier structure. Once incorporated, it will help the effectiveness of their current business as well as contribute towards self-learning and mutual learning practices that will make SMEs more innovative.

Thirdly, the 'Village Buddha' concept and tools must encompass a wider circle of the Indian manufacturing society. This concept needs to be a norm throughout the industry.

According to you, how will the Indian manufacturing sector change in the coming years?

Prof Shiba: There are two major change drivers that will impact the Indian manufacturing sector in the years to come. One of them being technology change in terms of innovative new technology, wider penetration and in depth usage of IT, mobile connectivity across India, etc. The other is societal change such as no disparity of information throughout the country, diffusion of education, drastic expansion of a new middle class, better quality of life, wider experience of foreign visits, etc.

It is very obvious that societal change in India will have a much bigger impact on Indian manufacturing than technology change. For example, the current tendency for no disparity in information in rural areas directly creates a new class of customers. The skill and tools to comprehend new customers from their life style by 'jumping into a new fishbowl' will become a key factor for survival. Again, a change in mindset for the new era is the only effective solution for survival and growth. MMI

The interview was conducted by:
Nedra Pereira, Deputy Editor,
Vogel Business Media India
nedra.pereira@vogel.de

No Respite from Declining Exports

The continuing contraction of engineering exports is becoming a major cause of concern that requires urgent intervention by the government in order to ease the situation. Here is a gist of the analysis done by EEPC India. **To read the full version of the study, please visit www.modernmanufacturing.in or scan the QR code.**

India's merchandise exports fell for the eleventh consecutive month in October 2015, dipping by 17.53 per cent to $21.3 billion from $25.9 billion during October, 2014. The cumulative value of exports for the period April–October 2015-16 was $154.3 billion as against $187.3 billion registering a negative growth of 17.62 per cent in dollar terms over the same period last year.

India's total merchandise imports during October 2015 were valued at $ 31.1 billion which was over 21 per cent lower in dollar terms over the level of imports in October, 2014 valued at $39.5 billion. The cumulative value of imports for the period April–October 2015-16 was $ 232.1 billion as against $273.6 billion registering a negative growth of 15.2 per cent in dollar terms over the same period last year.

The trade deficit for April–October 2015-16 was estimated at $77.76 billion which was lower than the deficit of $86.269 billion during April–October, 2014-15.

Engineering exports

India's engineering exports which accounts for over 21 per cent of India's total exports in October 2015 fell by 11.6 per cent to $4425.8 million from $5007.9 million during October 2014. What is alarming is that despite exports in July 2015 being marginally positive, the fall in exports in the rest of the two months has been so heavy that the second quarter of the current fiscal ended with a decline of over 18 per cent as opposed to a fall of over 5 per cent in the first quarter. In fact the fall in October 2015 was slightly moderated compared to the fall in the previous two months of August and September 2015 by 27 and 26 per cent respectively. Consequently, the cumulative value of engineering exports during April–October 2015-16 recorded a dip by over 12 per cent to $35.3 billion from $40.1 billion the same period last year. The monthly and cumulative engineering figures for 2015-2016 vis-à-vis 2014-2015 is depicted in table 1.

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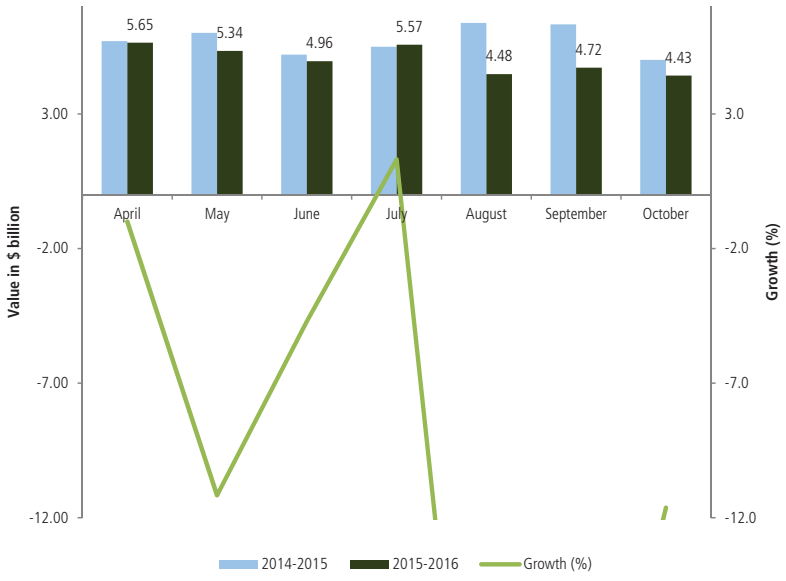
No Respite

World exports

How has the world exports trend been in the current annual year vis-à-vis 2014? Table 2 shows the decline that has been witnessed

Figure 1: Trends in Monthly Engineering Exports ($ Billion)



(Source: EEPC India analysis)

Table 1: Engineering Exports ($ Million)

Months	2014-15	2015-16	Growth (%)
April	5,708.04	5,673.49	-0.61
May	6,013.33	5,345.49	-11.11
June	5,205.21	4,949.24	-4.92
Quarter 1	16,926.58	15,968.22	-5.66
July	5,499.76	5,576.56	1.40
August	6,380.66	4,636.34	-27.34
September	6,329.07	4,703.67	-25.68
Quarter 2	18,209.49	14,916.57	-18.08
October	5,007.85	4,425.75	-11.62
April-October	40,143.92	35,310.54	-12.04

(Source: Department of Commerce, Government of India)

Table 2: World Exports 2015 Vs 2014 (Values in $ Million)

Months	2014	2015	Growth (%)
January	1,395,000	1,250,000	-10.39
February	1,289,000	1,190,000	-7.68
March	1,471,000	1,295,000	-11.96
April	1,444,000	1,257,000	-12.95
May	1,454,000	1,260,000	-13.34
June	1,436,000	1,331,000	-7.31
July	1,489,000	1,304,000	-12.42
August	1,356,000	1,189,000	-12.32
January- August	11,334,000	10,076,000	-11.10
April-October	40,143.92	35,310.54	-12.04

(Source: WTO)

Table 3: Engineering Exports Growth vis-a-vis Manufacturing Growth (2014-15)

Months/ Year	Engg. Exports Growth (%)	Manufacturing Growth (%)
April 2015	-0.6	3.9
May 2015	-11.1	2.0
June 2015	-4.9	5.2
Quarter 1	-5.7	3.8
July 2015	1.4	4.6
August 2015	-27.3	6.7
September 2015	-25.7	2.6
Quarter 2	18.1	4.6
October 2015	11.6	N A
April-October	40,143.92	-12.04

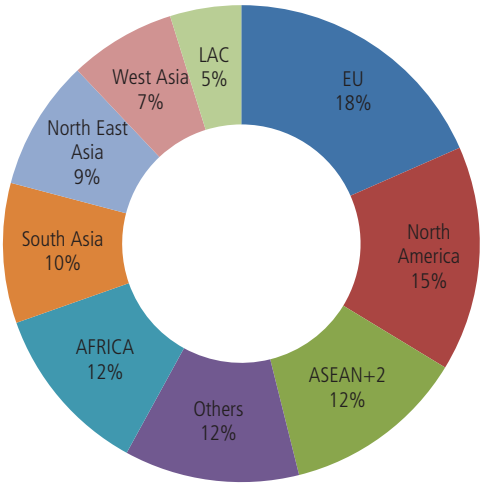
(Source: Department of Commerce and CSO)

Table 4: Revised Engineering Exports (2014-15) ($ Million)

Quarter	Month	2013-14	2014-15	Growth Rate in Percent
Quarter 1	April	4,529.32	5,708.04*	26.02*
	May	4,819.47	6,013.33*	24.77*
	June	4,229.72	5,205.21*	23.06*
Quarter 2	July	4,473.34	5,499.76*	22.95*
	August	5,264.51	6,380.66*	21.20*
	September	5,216.94	6,329.07*	21.32*
Quarter 3	October	5,552.78	5007.85*	-9.81*
	November	4,874.85	6,410.04	31.49
	December	5,531.18	6,697.8	21.09
Quarter 4	January	6,122.54	6,716.26	9.70
	February	4,971.59	4,907.37	-1.29
	March	6,040.14	5,884.54	-2.58
	Total Exports	**61,626.38**	**70,759.93***	**14.82***

(*Revised figures as per latest estimates by DGCI&S)

Figure 2: India's region wise exports during April-October 2015–16



(Source: EEPC India analysis)
Note: Others also include the rest of Europe and CIS

- Engineering exports to EU ranks first in region wise exports, irrespective of negative growth faced cumulatively for the current fiscal of 2015-16. But there is a positive monthly growth after some time for the month of October 2015.
- North America ranks second registering negative growth both during the cumulative period of April–October 2015–16 over April–October 2014–15 as well as during October 2015 vis-à-vis October 2014. Sectors such as electrical machinery, iron & steel, products of iron & steel, non-ferrous metals and products recorded a significant dip in exports in countries such as Canada and Mexico.
- Exports to Africa recorded a significant drop during October 2015 vis-à-vis October 2014.
- Exports to North East Asia also recorded negative growth during October 2015 vis-à-vis October 2014.

Table 5: Average Exchange Rate

October	Average Exchange Rate 1 $ to ₹
2014	61.48
2015	64.97

(Source: Calculated from RBI archive)

in the first seven months of 2015.

Figure 1 depicts the monthly trend in engineering exports for both 2014 and 2015.

The engineering sector has a sizeable share in manufacturing and therefore, the trend of manufacturing production somewhat reflects the trend of engineering production in India. A correlation between manufacturing production growth and merchandise export growth can be found as the manufacturing sector contributes significantly to India's engineering production as well as exports. Hence, a broad analysis of industrial production, especially of manufacturing is effective in the context of engineering export analysis as manufacturing has around 75 per cent weightage in India's industrial production. Industrial output in August 2015 jumped to its three-year high but again dropped to a four-month low of 2.6 per cent in September 2015 as per the latest government data. However, industrial growth in August 2015 was revised upward to 6.7 per cent from 6.4 per cent of the preliminary estimate while during July 2015; manufacturing growth was recorded at 4.6 per cent. Overall the IIP Index, the standard measure for industrial output, stood at 178 in September 2015 as against 176.6 in August 2015 (downwardly revised from 176.8) and 180.1 in the previous month. Cumulative industrial growth during April–September 2015 accelerated to 4.0 per cent from 3.6 per cent during the same period last fiscal.

The country's growth rates in manufacturing and engineering exports in the current fiscal is mentioned in Table 3:

Analysis of the export and manufacturing data for the ongoing fiscal also established some correlation between the two. India's engineering exports conceded a bigger decline during May 2015 in comparison to the previous month while manufacturing growth also decelerated. The fall in export growth decreased in June and manufacturing growth also strengthened. Exports registered a marginal growth during July 2015 but the growth of manufacturing production decelerated. However, export growth and growth of the manufacturing sector moved in opposite directions in August and September 2015. In August, exports recorded a massive decline but manufacturing growth was recorded at a three-year high probably due to the festive season in India while in September, the decline in exports was lower but manufacturing growth slowed down. The month wise engineering exports for 2014–15 as opposed to 2013–14 is given in table 4.

Impact of exchange rate

How has the exchange rate been in October 2015 vis-a-vis October 2014? Table 5 looks at the average exchange rate for October 2015 vis-a-vis October 2014. The official exchange rate of rupee vis-à-vis the dollar during

Table 6: Trends in Engineering panel Exports (October 2015 and April- October 2015-16) ($ Million)

Sl No.	Panel	October 2014	October 2015	Growth %	April 2014-Oct 2014	April 2015-Oct 2015	Growth %
1.	**Iron and Steel and Products made of Iron and Steel**						
A	Iron and Steel	705.5	373.4	-47.1	5,223.5	3,534.7	-32.3
B	Products of Iron and Steel	610.2	466.8	-23.5	4,296.2	3,720.2	-13.4
	Sub Total	**1,315.7**	**840.2**	**-36.1**	**9,519.7**	**7,254.8**	**-23.8**
2.	**Non-Ferrous Metals and Products made of Non-Ferrous Metals**						
A	Copper and products	330.4	169.6	-48.7	1,969.8	1,604.2	-18.6
B	Aluminium and products	223.9	203.2	-9.3	1,474.2	1,504.7	2.1
C	Zinc and products	60.6	43.0	-29.1	205.5	354.7	72.6
D	Nickel and products	94.7	24.3	-74.3	361.6	346.4	-4.2
E	Lead and products	16.8	18.6	10.9	100.1	115.4	15.3
F	Tin and products	2.1	33.0	1507.8	30.5	39.9	31.0
G	Other Non Ferrous Metals	38.9	34.8	-10.4	264.0	253.1	-4.1
	Sub Total	**767.3**	**526.4**	**-31.4**	**4,405.7**	**4,218.4**	**-4.3**
3.	**Industrial Machinery**						
A	Industrial Machinery like Boilers, parts, etc	62.2	64.0	2.9	342.8	357.6	4.3
B	IC Engines and Parts	169.6	132.1	-22.1	1,443.4	1,110.5	-23.1
C	Pumps of all types	53.5	53.6	0.2	433.4	421.2	-2.8
D	Air condition and Refrigerators	77.5	92.6	19.5	680.8	627.2	-7.9
E	Industrial Machinery for dairy, food processing, textiles etc	351.9	373.4	6.1	2,721.7	2,665.9	-2.0
F	Machine Tools	29.9	28.9	-3.4	212.4	219.6	3.4
G	Machinery for Injecting moulding, valves and ATMs	109.8	114.2	4.0	757.2	750.5	-0.9
	Sub Total	**854.3**	**858.7**	**0.5**	**6,591.7**	**6,152.5**	**-6.7**
4.	**Electrical Machinery**	**331.9**	**327.0**	**-1.5**	**2,317.6**	**2,185.8**	**-5.7**
5.	**Auto and Auto Components**						
A	Motor Vehicle/cars	547.3	573.9	4.8	3,845.0	3,920.8	2.0
B	Two and Three Wheelers	150.9	138.6	-8.2	1,122.4	1,076.7	-4.1
C	Auto Components/Part	350.9	343.7	-2.1	2,603.9	2,426.6	-6.8
	Sub Total	**1,049.2**	**1,056.2**	**0.7**	**7,571.2**	**7,424.1**	**-1.9**
6.	**Aircrafts and Spacecraft parts and products**	**173.8**	**149.7**	**-13.9**	**2,979.1**	**2,474.2**	**-16.9**
7.	**Ships Boats and Floating products and parts**	**31.0**	**167.9**	**441.1**	**3,190.8**	**2,105.7**	**-34.0**
8.	**Miscellaneous Items**						
A	Medical and Scientific instruments	100.8	103.0	2.1	732.8	682.8	-6.8
B	Railway Transport	6.0	7.0	16.8	82.5	46.7	-43.3
C	Hand Tools & Cutting Tools	61.3	53.9	-12.2	444.2	379.7	-14.5
D	Electrodes Accumulators	3.1	3.4	7.0	21.8	25.5	16.8
E	Accumulator and Batteries	18.7	12.7	-32.0	123.1	113.1	-8.1
F	Bicycle & Parts	26.6	24.9	-6.1	204.9	167.5	-18.2
G	Cranes Lifts & Winches	25.3	42.8	69.3	171.8	220.4	28.3
H	Office Equipments	4.3	6.7	54.0	30.0	52.5	74.9
I	Other Construction Machinery	101.1	69.0	-31.8	713.4	642.2	-10.0
J	Prime Mica & Mica Products	1.0	1.4	31.1	11.2	10.4	-7.7
K	OTHER MISC. ITEMS	136.5	175.3	28.4	1,032.4	1,154.2	11.8
	Sub Total	**484.7**	**499.9**	**3.1**	**3,568.1**	**3,495.1**	**-2.0**
	Grand Total	**5,007.9**	**4,425.8**	**-11.6**	**40,143.9**	**35,310.5**	**-12.0**

(Source: Department of Commerce, Government of India)

October 2015 has depreciated by 5.7 per cent to that of the same period last year.

Trends in engineering panel exports

Table 6 looks at the Engineering Panel wise exports for the month of October 2015 vis-a–vis October 2014 and the cumulative exports for April–October 201516 vis-a–vis April–October 2014–15.

Some factors that need to be noted are:

Out of 33 engineering panels, 17 panels (51 per cent) of the engineering panels recorded a negative growth and the remaining 16 panels fared a positive growth in the month of October 2015.

India's primary iron and steel exports have fallen by more than 47 per cent in October 2015 vis-à-vis October 2014, which is more than the cumulative fall by 32 per cent during April–October 2015 vis-à-vis April–October 2014. Products of iron and steel have also dropped by almost 23 per cent in October 2015 vis-à-vis October 2014.

Unlike in the month of September 2015, aircraft and spacecrafts regained slightly by (-) 13.9 per cent during October 2015, from the drastic fall in the previous month by almost 68 per cent. But on the other hand ship, boats and floating bodies showed massive recovery in exports during October 2015 growing by more than five times compared to the same period last year.

All non ferrous metals and products barring tin and lead products witnessed deterioration in exports during October 2015 over October 2014. The highest decline is seen in the exports of nickel and products falling by more than 73 per cent during October 2015 over October 2014, followed by copper and zinc products falling by 49 per cent and 29 per cent respectively during October 2015.

Among the industrial machinery panel, products such as IC engines, pumps and machine tools witnessed decline in growth rates by 22.1 and 3.4 per cent respectively during October 2015 v/s October 2014. On the other hand products such as other construction machinery, accumulators and battery witnessed a decline by 32 per cent respectively during the said period.

Other panels such as cranes lifts & winches, office equipment, motor vehicles and cars and other miscellaneous products registered positive growth in October 2015 vis-à-vis October 2014.

Top 25 destinations for Indian Engineering Exports in Absolute Value
(even though the growth rate may be negative)

The export scenario of the top 25 nations

that have the highest demand for Indian engineering products during October 2015 over October 2014 in absolute value, even though the growth rate may be negative is shown in Table 7. Country wise cumulative figures for April–October 2015 has also been taken into account to show the trend of India's engineering exports in the current fiscal.

The country wise figures for October 2015 show interesting trends. These are:

- Out of the top 25 countries, 13 countries recorded negative growth in the month of October 2015. Thus, 12 countries namely recorded positive growth in the month of October 2015 which is an improvement in comparison with October 2015.
- South Korea recorded the highest growth in exports by 41.6 per cent in October 2015 as compared to October 2014, even though it registered a fall in cumulative growth.
- Among the European export destinations for Indian engineering exports, Belgium registered positive growths both monthly and cumulatively during October 2015 as well as during April–October 2015–16.
- Like before Indian engineering exports to USA, continued to be the highest in the reporting month, even though it recorded negative growth both in October 2015 as well as in April–October 2015–16.
- Out of the 221 destinations for export of Indian engineering goods, the top 25 nations accounts for 72.8 per cent of the total during April–October 2015–16.
- The growth rate in the top 25 countries during April–October 2015–16, taken together recorded a fall in exports by 12.3 per cent which is higher than the fall in India's total engineering exports by 12.1 per cent.

Regional distribution of engineering exports

Table 8 looks at the regional distribution of engineering exports for April–October 2015–16 as opposed to April–October 2014–15. It also looks at the trend in October 2015 vis-à-vis October 2014.

Table 7: Engineering Exports Country wise (2015-2016) ($ Million)

Country	October 2014	October 2015	Growth %	April- October 2014-2015	April-October 2015-2016	Growth %
USA	594.20	559.07	-5.91	4,332.19	4,139.78	-4.44
UAE	322.81	232.29	-28.04	3,236.31	2,586.57	-20.08
SRI LANKA	153.07	137.16	-10.39	2,197.57	1,604.51	-26.99
SINGAPORE	183.35	218.68	19.27	1,494.66	1,347.68	-9.83
UK	167.96	172.74	2.85	1,570.18	1,336.48	-14.88
CHINA	310.79	168.31	-45.85	1,750.69	1,227.38	-29.89
GERMANY	162.74	175.42	7.79	1,250.56	1,222.81	-2.22
MEXICO	183.05	145.21	-20.67	1,028.83	979.72	-4.77
MALAYSIA	61.99	69.30	11.79	409.43	923.24	125.49
SOUTH AFRICA	111.68	91.95	-17.67	1,435.70	877.08	-38.91
ITALY	126.70	110.85	-12.51	991.16	865.90	-12.64
BANGLADESH	108.11	119.61	10.63	864.61	806.81	-6.69
SAUDI ARAB	139.84	109.14	-21.96	983.04	765.63	-22.12
JAPAN	59.55	66.62	11.89	490.78	750.02	52.82
NEPAL	93.50	33.51	-64.16	825.07	742.17	-10.05
KOREA RP	85.37	120.89	41.62	755.85	741.79	-1.86
TURKEY	111.75	128.32	14.83	981.10	737.77	-24.80
FRANCE	70.27	91.54	30.27	587.34	622.24	5.94
NIGERIA	128.35	75.64	-41.07	771.12	596.79	-22.61
NETHERLAND	57.98	78.90	36.08	483.45	514.90	6.51
THAILAND	71.76	54.32	-24.29	604.27	513.55	-15.01
IRAN	121.45	53.51	-55.94	752.78	473.03	-37.16
INDONESIA	94.04	63.01	-32.99	714.79	472.36	-33.92
SPAIN	55.84	62.10	11.21	390.38	423.12	8.39
BELGIUM	46.56	50.07	7.53	391.83	421.02	7.45
Total of top 25	3,622.71	3,188.17	-11.99	29,293.70	25,692.33	-12.29
Total Engineering Exports	5,007.81	4,425.49	-11.63	40,143.81	35,310.33	-12.04
Share of Top 25 in Total (%)	72.34	72.04		72.97	72.76	

Table 9 analyzes the performance of some of the important products during October 2015. It showcases the major panels and seeks the heavy growth and heavy declines in these panels in the current fiscal of 2015–2016 to give an idea about the trend that is about to emerge.

Conclusion and way forward

The current fiscal is proving to be one of the worst for exporters that are hit by a demand slowdown. Many of the small and medium enterprise exporters in the engineering sector are finding it difficult to survive, given the kind of squeeze in global trade. The dip in engineering exports in October 2015 by 11.6 per cent was mainly driven by sectors such as iron and steel and products, nickel and copper products from the non-ferrous sector, accumulator and batteries, and other construction machinery, etc.

Out of the top 25 countries, 12 countries recorded positive growth in the month of October 2015 showing moderate improvement as compared to September 2015. The cumulative exports to all the regions during April-October 2015-16 have registered a negative growth. Africa and North East Asia are the top two regions recording a significant decline in exports clearly indicating the demand slowdown. Exports to China fell by more than 45 per cent in October 2015 especially in sectors such as products of iron & steel, industrial machinery, non ferrous metals and products and auto components & parts which is noteworthy.

Over the past few months, EEPC India has taken several initiatives and is working closely with the Government of India to improve the export performance of the Indian engineering sector. One such initiative is the 'India Engineering Sourcing Show', the largest engineering sourcing show that is being organised under the aegis of Ministry of Commerce and Industry in Mumbai from November 24–26, 2015. The show is attended by more than 450 foreign delegates (buyers) from 55 countries, and about 350 Indian companies. Further, the show is expected to have footprints of more than 10,000 visitors. This might help the Indian engineering sector to reverse the declining trend that is continuing for the last eleven months.

Source: EEPC India

Five Axes Do It Better — Laser Drilling in the µm Range

Numerous industries require processing in the micrometer region: Applications range from ultra-fine bore holes for fine mechanics or automotive-industry injection nozzles all the way to electronics-industry micro-structuring and fabrication of textile-industry spinning nozzles. Now a 5-axis micro-machining system delivers a true technological leap with maximum flexibility and entirely new possibilities to develop and execute processes superior to typical percussion drilling, spiral drilling and trepanning.

Laser drilling increasingly outshines traditional methods such as electric discharge machining (EDM), electrochemical machining (ECM) or mechanical drilling. As laser drilling is contact-free, wear-free, highly precise, and extremely fast, it requires minimal heat input and no process medium. And last but not the least, extremely tiny diameters and high aspect ratios are achievable.

Dr Ing Patricia Weber
Project Manager
SCANLAB AG
info@scanlab.de

Lasers can remove nearly any kind of solid material, including hardened steel, cemented carbides, ceramics and composites—regardless of material properties such as electrical conductivity or hardness. And with this removal method, even sensitive materials such as glass and polymer film can be processed with negligibly low defects.

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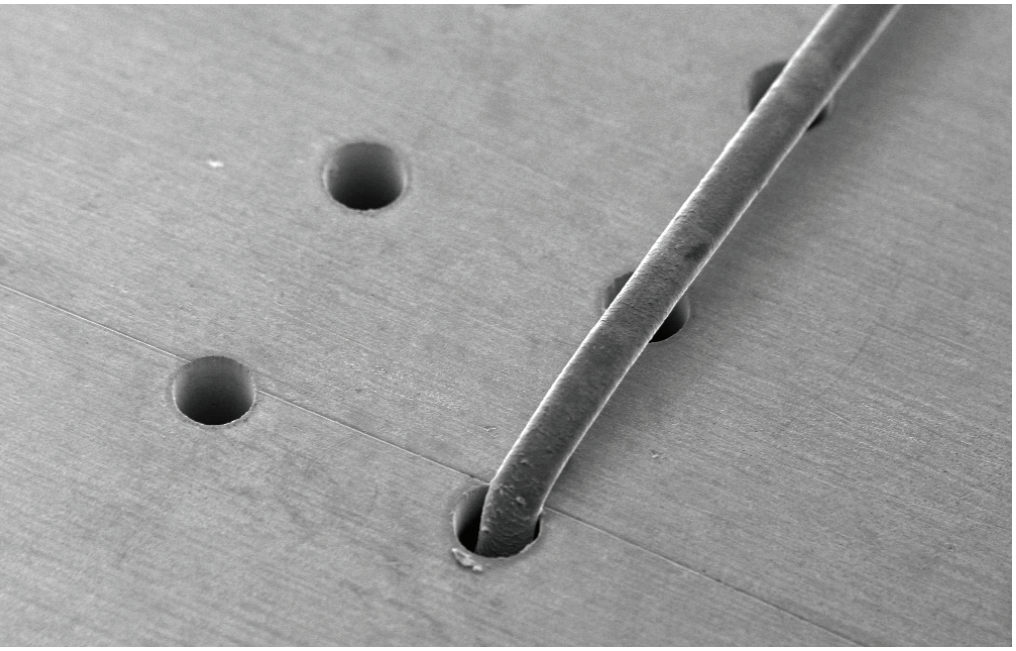
Five Axes

When implemented as scan solutions, laser drilling offers outstanding flexibility and automation capabilities, as well as phenomenal miniaturization potential via spot sizes adjustable down to mere micrometers. Ultra-fine bore holes are achievable in the sub-millimeter range (e.g., trepanning for diameters ≥ 40 µm with high aspect ratios, or percussion drilling for diameters ≥ 20 µm, always limited in miniaturization by the minimal adjustable focus spot size) with sharp edges at bore entrance/exit holes, and short process times.



Source: SCANLAB AG

SEM pictures of 100 µm diameter bore holes (entry side, shown with a human hair) in steel of 200 µm thickness.

New scanner-based micro-machining system

Many industries—from automotive, electronics and photovoltaics to watchmakers and textile-industry toolmakers—require processing in the micrometer region: In conjunction with USP lasers, diverse materials such as glass, hardened metals, ceramics and plastics can be processed burr-free and molten-free.

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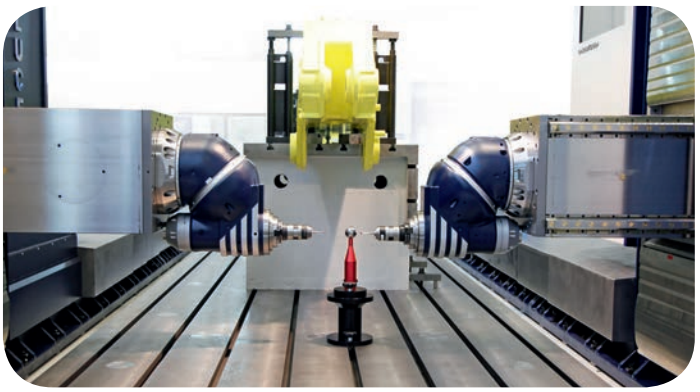
for simultaneous machining from two opposite columns

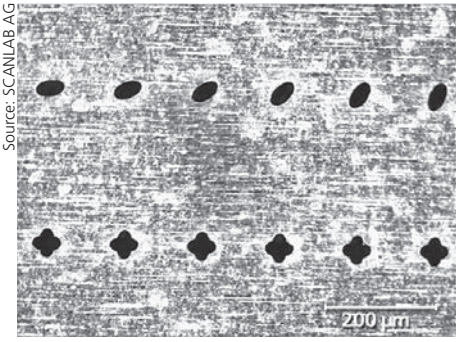


DANOBATGROUP

DANOBATGROUP India
Office No. 7, Business Avenue, 2nd floor
Niyoshi Park Road, Sanghvi Nagar, Aundh
411007 PUNE (India)

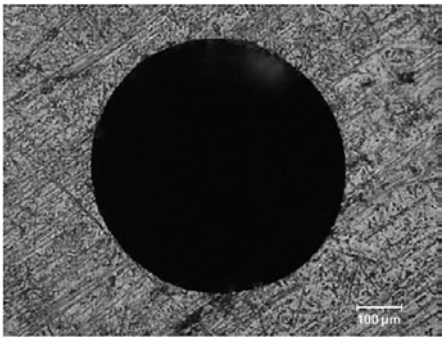
Tel.: +91 20 66094531
Fax: +91 20 66094531
danobatgroupindia@danobatgroup.com
www.danobatgroup.com

Source: SCANLAB AG



Flexible geometries in steel: ellipse x = 190 µm, y = 110 µm.

Source: SCANLAB AG



Zoom of bore holemachined in steel of 600 µm thickness.

There are no longer limits to creativity, as a new micro-machining system newly defines the prior limits. Laser-scan-system OEM manufacturer SCANLAB AG is introducing a 5-axis micro-machining subsystem. Designed for ultra-short-pulse (USP) lasers, precSYS enables highly dynamic and precise fabrication of flexibly definable geometries.

The system can, for example, create bore holes with positively/negatively conical or cylindrical walls, as well as round or elliptical entries/exits accompanied by high aspect ratios (small bore diameter with simultaneously large depth). Bore-hole creation is both precise and long-term stable. The possibility of rotary motion, coupled with flexibly adjustable angles of laser incidence, enables fabrication of free geometries for bore holes far finer than 80 µm. Stringing together ellipses or circles, allows more complex geometries to be achieved using a modular approach. On the software side, direct movement along the contours of complex geometries is currently implemented.

"Initial feedback from customers who have tested precSYS has been consistently positive," says CEO, SCANLAB AG, Georg Hofner. "All users particularly praised the wide-ranging freedom in fabrication strategies, as well as the high-quality processing results and quick installation thanks to stable system construction."

5-axis system's principle of operation

precSYS positions the focal spot in 3D onto workpieces with precise AOI tracking (angle of incidence). Progression of focal motion as angles of incidence and laser beam intensities can be varied. High-end scan technology and low moving masses ensure highly dynamic processing with trepanning or precession frequencies up to 500 Hz (30,000 rpm).

Advanced digital encoders, control algorithms and optimized servo control enable contour-true, speed-independent processing with maximum precision. Due to the ability to position the laser beam in 5 axes, the system offers the highest flexibility for process development, beyond typical percussion drilling, spiral drilling and trepanning.

Processing results – put under the microscope

The precSYS is laid out to rapidly machine fine hole diameters in the sub-millimeter range with high aspect ratios. In combination with ultra short pulsed laser beams and adaptive process management, perfectly sharp edges can be achieved at cylindrical hole entries and exits, with smooth wall surfaces.

User friendly control software with 3D visualization

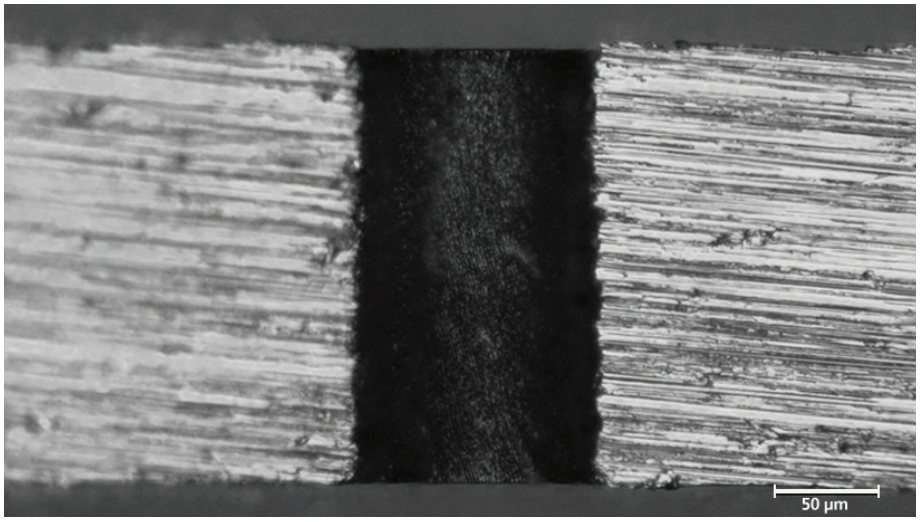
A graphical user interface (GUI) facilitates straightforward creation and testing of micro-machining jobs. The intuitive software interface with 3D job visualization helps to generate, select and simulate processing jobs. The job designer additionally allows varying the diverse process parameters and compensating workpiece tolerances. Drill sequences can be easily defined. The software facilitates the management of one or several systems for series production. Factory calibration enables description of laser motion directly in metric units within precSYS's cartesian image field coordinate system. Control and remote communication are via Ethernet.

Designed for automated series manufacturing

The system has full industrial suitability. It features modular construction, water cooling and a sealed, gas-purged beam path. This contributes to the high precision results of USP-laser processing and ensures a long life of the optical components. This makes precSYS a low-maintenance product with resilience against fluctuating temperatures, ablation particles, dust, etc. It is precisely factory-pre-calibrated and can be equipped with optional automatic fine alignment. The system offers two observation ports for process-monitoring add-ons.

It contains integrated sensor control and an embedded PC. The standardized interface for XML data exchange allows straightforward remote connectivity to PLCs, and thus integration into modern automated manufacturing environments. Hence, it is fully open to all the requirements of factory automation and modern IOT architectures (internet of things, industry 4.0). Test systems are available upon request. precSYS series production is scheduled for early 2016. MMI

Source: SCANLAB AG



Cross-section of a 230 µm bore hole in steel of 200 µm thickness.

KEB

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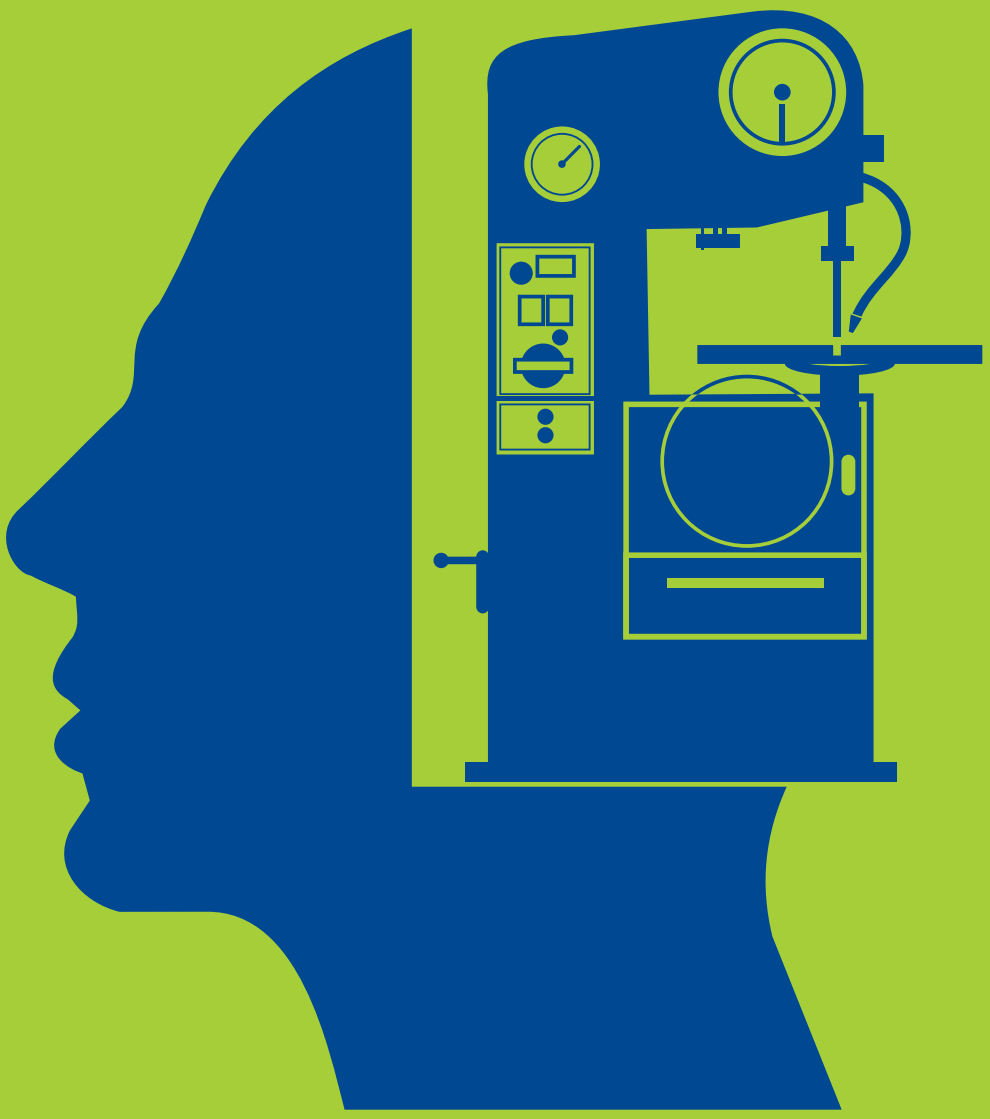

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Status-quo of the International Tooling Industry

The article provides an overview of the most important international markets for tools and molds. It is based on a recently published study by the WBA Aachener Werkzeugbau Akademie, entitled 'World of Tooling'.

The production of injection molds, sheet metal and massive forming tools (Fig 1) is globally dominated by six tooling markets. Followed by the US and Japan, China produces the highest value of tools and molds. The US is the only net importer within the leading tooling markets, while the exports of the other five markets exceed their imports. The proportion between injection molds, sheet metal and massive forming tools in this group is comparable. In Europe, France, Portugal and Spain follow Germany and Italy, with each producing a value of tools of less than €1 billion. The German trade of tools with foreign markets is illustrated in Figure 2. The largest trade partners for importing injection molds are China, Italy and Switzerland, with injection molds being mostly exported to the US and Czech Republic. The largest trade partners for

Source: ETMM

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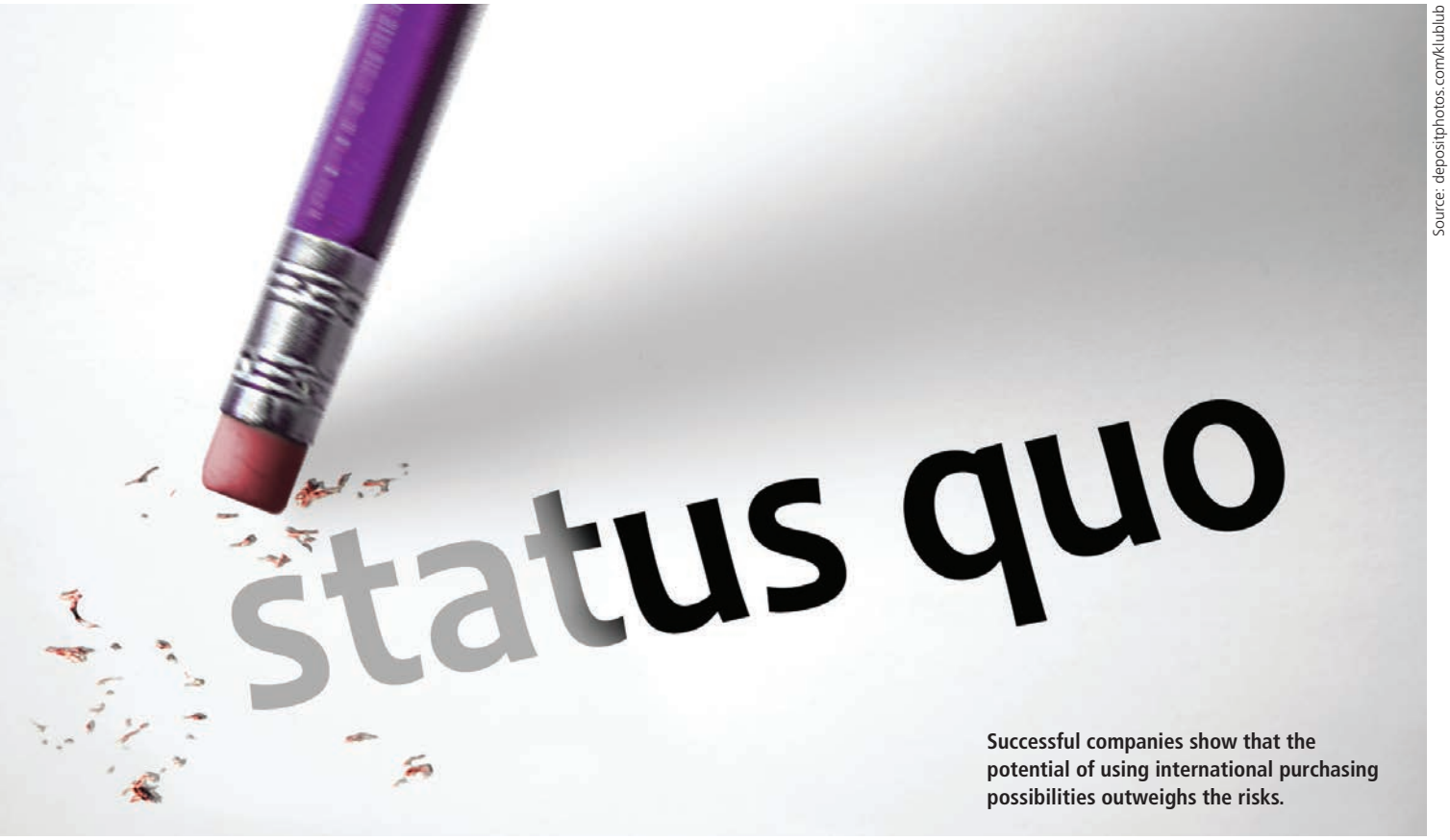

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importing sheet metal and massive forming tools are Italy and Switzerland, while these are exported mainly to Great Britain, Spain and the US.

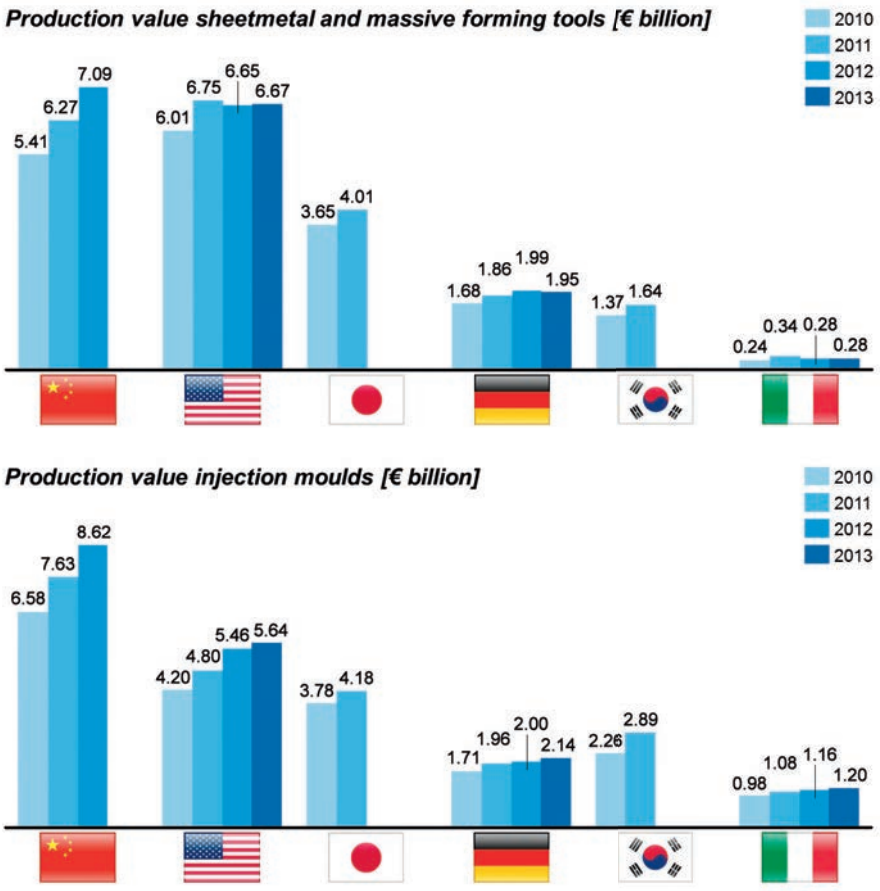
The World of Tooling Radar (WOT-Radar) shows the relevance of the twenty most important tooling markets of the present and future. The relevance is measured by the size of the tooling market and existing tooling competence. In addition to this, the future development potential of the tooling markets is also assessed. Four market groups may be identified based on the characteristics of each tooling market. The names of the groups are derived from the related associations and are entitled as 'Allstars', 'Established', 'Rookies' and 'Rising Stars'.

Allstars market

This category describes tooling markets that designate both a large market size as well as a high tooling competence. These markets include Germany, Japan, South Korea, the US and China. China features by far the largest tooling market. However, on market average, China is not comparable to the other Allstar markets with respect to their tooling competence. The level of development of the Chinese tooling industry with its estimated 40,000 tool rooms is diverse, ranging from low-tech workshops to high-end industrialized production facilities. Other markets are far more homogeneous with regard to existing tooling competences. Nevertheless, the few tool rooms with high competences along the entire toolmaking process chain justify the classification as an Allstar.

The US – the world's second largest tooling industry

The US has the world's second largest tooling industry, which is growing again after many years of deindustrialization. Their tooling competence cannot compete with the top three, but increasing investments suggest positive development in the future. Germany, Japan and South Korea have, with the exception of Switzerland, the highest tooling competence. The worldwide range of organizational and technological innovations of the tooling industry has its origins in one of these markets. Their development is supported by a highly developed manufacturing industry and a strong local automotive industry. The importance of these three markets for both the local industry and global sourcing of highly complex tools will not decrease in the foreseeable future. Because of the high tooling competence and the large market size, all 'Allstar' markets may be used for sourcing tools and molds with a high degree of complexity as well as in large volumes.



Source: ISTMA 2014, Prodcom 2015

Figure 1: Overview of the largest mould and tool producers.

Established markets

Established markets are those with a high or very high tooling competence, but lower market size than the Allstars. These include Italy, Canada, Spain, Austria and Switzerland. They are suitable, with the exception of Italy, for the sourcing of tools and molds. The development potential of Italy is considered to be low. The consolidation of the tooling industry in Italy has led to a considerable decrease in tooling competence in recent years. For many years, Italy was a valued partner of the German automotive industry, in particular for the procurement of sheet metal and massive forming tools. Due to insolvencies and lack of investment, this is no longer possible without restrictions. The rebuilding of these competences is not yet in sight. Switzerland's development potential is also classified as low, due to the difficult overall economic situation caused by the decoupling of the Swiss franc and euro.

Number of Canadian tool rooms shrunk in recent years

In the coming years, a possible decline of the Swiss market will have no effect on the very high tooling competences. The number of Canadian tool rooms, meanwhile, shrunk considerably in recent years. The Canadian tooling industry depends greatly on the North American automotive industry, which used to source Canadian tools as a high-quality alternative to US tools. The Spanish tooling industry has, like the entire southern European area, suffered considerably from the economic and financial crisis of 2008–09. However, internationally competitive tool rooms still exist. Owing to missing tooling networks and a largely insignificant manufacturing industry, the development potential is low. Austria's geographical location—at the border of Germany—gives it an easy access to eastern European markets. The established markets' overall tooling competence and ability to manufacture tools and molds with a high degree of

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Source: DESTATIS 2015

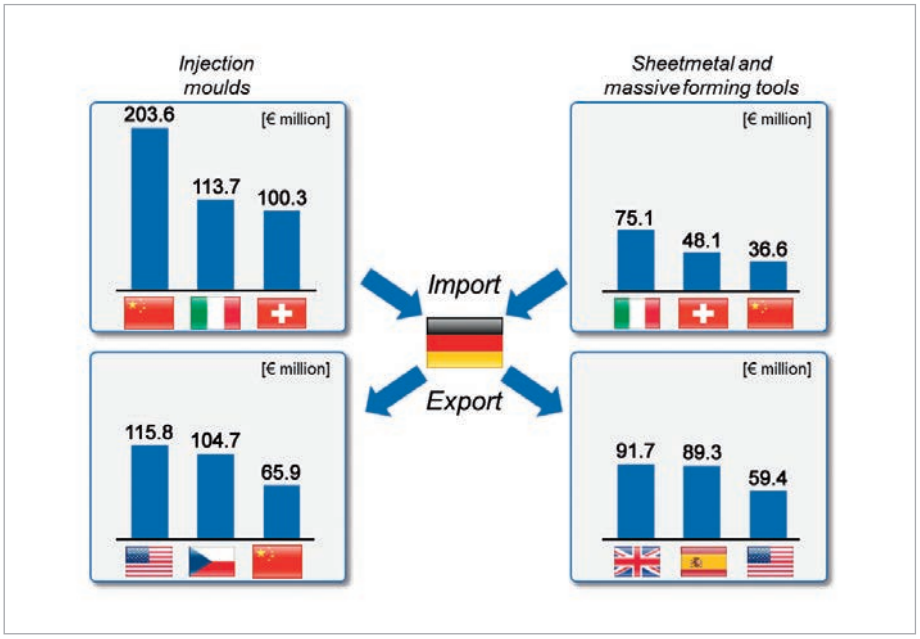

Figure 2: German trade flows of moulds and tools.

complexity are almost comparable to the Allstars. Based on the market size, the volumes for sourcing tools and molds are limited and the markets are more specialized in their offered competences.

Rookies markets

Rookies are characterized by an average to high tooling competence, but cannot reach the market size and/or tooling competence of the Established or Allstar markets. The Rookie group includes Poland, Portugal, the Czech Republic and Turkey. Portugal has been an internationally respected partner for injection molds with an average to high complexity for several years. Three government-funded regional networks combine most of the country's 400–600 tool rooms. These networks ensure high reliability and fast execution of projects.

Czech Republic, Poland experience long-term boom

The Czech Republic and Poland are experiencing a long-term, continuous boom on a macroeconomic scale, which includes the tooling industry. The Czech Republic in particular is profiting from the excellent quality of technical education, which is above the international average. The local automotive industry and the immediate proximity to Germany have enabled many interesting suppliers to evolve, particularly for an outsourcing of machining tasks. Various interesting tool rooms also exist in Turkey. This applies to both the sourcing of sheet metal and massive forming tools, driven by the local automotive industry, and for injection molds, driven by numerous OEMs for producing white goods. Turkish tool rooms are able to offer complete tools with a low complexity or to support as extended workbenches. Still, the development of the Turkish tooling industry is progressing slower than expected a few years ago. Although the market size has picked up steadily, the tooling competences have not developed at the same speed. The Rookies are characterized by medium tooling competence and small market size. These countries may therefore be utilized as a global sourcing option. Additionally, the future potential of the dimension market size qualifies these countries for the provision of local production sites.

Source: WZL

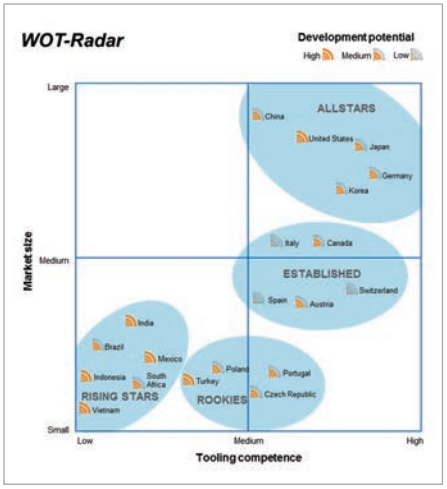

Figure 3: The tooling radar.

Rising stars

Rising Stars have neither a high tooling competence nor a large tooling market. But these countries have the potential to quickly progress in terms of market size and tooling competence. The markets of Mexico, Brazil, South Africa, India, Indonesia and Vietnam are classified as Rising Stars. Indonesia and Vietnam, having rapidly growing economies and being located in the operating range of China, have good premises in terms of industrial and social progression to develop a local tooling industry. The manufacturing industries of these countries are growing, thanks in great part to a large amount of foreign investments. Additionally, well-known tool rooms that are able to face international competition already exist. Professional association structures are currently being developed around these companies, which will support the development of the industry as a whole. Mexico is the trend market of 2015. The enormous amount of investments of the automotive OEMs has led to a high level of activity within the Mexican tooling market. Currently, the local structures are unable to satisfy the growing tooling demand of the local enterprises.

Lack of skilled employees and higher wages for qualified personnel are the two major reasons why these countries are listed in the Rising Star category. With interesting local tooling networks, Brazil could take advantage of this situation, but because of the restrictive custom regulations they mostly produce tools for the local market. For several years now, India has not been able to fulfill the high expectations of its tooling industry. This situation is likely to change as the new government has announced favorable subsidies.

The development of South Africa's national economy is not satisfying, and the tooling industry is the only positive exception within a generally shrinking industry environment. Functioning association structures and governmental subsidies have been able to preserve the current level of the tooling industry so far. Although the Rising Stars have huge potential, they are currently only partially suitable for the sourcing of complete tools with a low complexity. Their development has to be observed and, if necessary, existing tool rooms have to be supported as a sourcing option. MMI

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Building the Best!

Local CNC experts in China help Tianjin Betek, a Chinese company, to develop a radically improved gear cutting machine. Through the collaboration with these experts, the company has achieved a machine that can outpace other gear hobbers.

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Building the Best!

Based in Tianjin, China, Tianjin Betek Machinery Manufacturing Co Ltd (Betek) specializes in the production and processing of mechanical parts for industrial applications. The company's experience of using machine tools in its manufacturing operations, combined with market research, highlighted major opportunities in the domestic gear production market.

China has a growing need for CNC gear cutting machines that combine precision, high-processing efficiency and ease of use, to replace inefficient mechanical designs. In 2013, the company took the strategic decision to diversify into the production of gear cutting machines by investing 80 million yuan (approximately $13 million) in a 25,000 m^2 purpose-built manufacturing plant and office.

NUM China helped Betek to accelerate the development of a groundbreaking 6-axis precision gear hobbing machine. By utilizing a direct-drive spindle, NUM's ultra-precise electronic gearbox and the renowned CNC gear hobbing technology, together with a unique HMI developed by a local specialist machine designer, the new Betek YK3132Z gear hobber offers unprecedented cutting speed and processing efficiency. It is up to 10 times faster than conventional mechanical gear hobbers and more than twice as fast as competitive 6-axis CNC gear hobbing machines—and looks set to establish a new performance standard for gear production automation.

Continuous efforts

Betek's latest CNC machine tool, the 6-axis YK3132Z gear hobber, is now available. At the beginning of the project, the company was looking for CNC systems from a number of manufacturers, and quickly decided to base the machine on NUM's Flexium+ CNC platform.

According to President & General Manager, Betek, Jin Guolin, "Our main reason for choosing NUM's CNC systems for our new gear hobber is that, unlike many competitive control products in the market, they have an open architecture. This provides an unrestricted foundation for development and customization work, helping us to reduce costs and shortens the time-to-market significantly. We intend to standardize by using the NUM CNC for future machines whenever possible—for example, we are currently developing a new gear grinder that will also be based on NUM's CNC technology."

Taking gear hobbing to a different level

Betek's new YK3132Z 6-axis gear hobbing machine is based entirely on the NUM CNC equipment. It uses the latest Flexium+ CNC kernel and high-end NUMDrive X servo drives in conjunction with compact BHX and SHX servomotors; high resolution encoders and closed-loop controls to maximize the accuracy of speed and position. Both the hob spindle motors—a built-in model—and the table (C axis) torque motor are powerful direct drive units that are also controlled by a NUMDrive X servo drive. These motors completely eliminate the need for mechanical power transmission components such as worm and helical bevel gears, resulting in precision and backlash-free movement. The entire gear is cut as part of a single process, without interim removal/reinsertion of the gear blank or manual tool changeover.

The hob spindle can handle speeds up to 1,200 RPM, while the table can rotate up to 280 RPM; this allows the usage of the latest high-speed cutting tools. Accuracy and reliability are further enhanced by the machine's use of high rigidity servomotor-driven precision ball screws for its linear axes.

The NUMgear suite of gear production software includes dedicated hobbing functions and a precision electronic gearbox that allows all master axes and the turret

Source: NUM AG

The Betek six-axis YK3132Z gear hobber accommodates gear blanks up to 320 mm in diameter.

Source: NUM AG

spindle to be fully synchronized. The electronic gearbox minimizes synchronization time by predicting the acceleration rate as well as the speed of the axes.

All human interactions with the gear hobbing machine is via a NUM FS152i operator panel with a custom HMI. The operator panel features a 15-inch high resolution backlit LCD screen with 22 large function keys and contains a powerful industrial PC. The HMI makes extensive use of graphics and is inherently intuitive; users can operate the machine after a few hours of simple training. Gear manufacturing data can either be input using a simple 'fill in the blanks' method or derived from the previously processed parts—the software includes database management functions.

The custom HMI software was developed specifically for the machine by Changzhou Mactool Precision Machine Tools Co Ltd. This company specializes in the design of gear cutting machines and user interface software. It has also invested heavily in building the development and technical support infrastructure to serve China's nascent precision gear machine tool industry. Mactool's owner, Wang Haiyu, has more than 15 years of experience in gear processing applications, with a particular expertise in gear hobbing and grinding machines.

Source: NUM AG

The advanced CNC system can handle 5-axis interpolation, enabling complex gear tooth profiles to be created smoothly and efficiently.

Product Manager, NUM, Florian Schmidt points out that Mactool and NUM China have collaborated on several high value CNC machine projects in the recent years, he added, "To provide our customers with their ideal solution we combine the best of all worlds."

Haiyu agrees on the benefits of collaboration, "I believe that partnerships provide customers with an enormous competitive advantage. By working closely together, NUM, Mactool and Betek have jointly created a highly advanced precision gear hobbing machine that will enjoy significant market success. The excellent production management and quality control systems that Betek has put in place will help to ensure that its customers benefit from a world-class precision machine that costs significantly lower than its comparable products."

Virtually any type of gear can be cut, including unusual types such as parallel shaft, herringbone, taper and non-circular gears. For maximum machining accuracy the machine uses dry cutting techniques, capable of achieving level 6 precision on interim cut gears and level 3 precision on finished products. Dry cutting also obviates the need for cutting fluid, which is a common form of pollutant in machining industries that require special treatment and disposal. MMI

Taiwan's Technology Packed Performance

The Taiwan Machine tool industry is booming with innovative technologies. We take you through the works of a few companies that have launched effective solutions for the machine tool market.

Taiwan's machine tool production amounted to $3.55 billion in 2013, trailing behind that of Japan, Germany, China, South Korea, United States and Italy; thus, making it the world's seventh largest machine tool production market. In terms of business, the country's major machine tool business comes from exports and currently is the fourth largest exporter of machine tools, according to industry experts. It is expected to increase its exports to $4.5 billion by the end of 2015 and if this happens Taiwan will be the world's third largest machine tool exporter!

Against this background, there is no doubt that the Taiwanese machine tool market is rapidly growing. To showcase high quality machines and interact with leading machine tool makers in the region, Taiwan External Trade Development Council (TAITRA) organized a week long industrial tour for journalists across the globe. During this visit, I was introduced to various factories in the industrial city of Taichung in Taiwan, where I witnessed many interesting technologies from diverse companies. Below is a technology packed update on these companies.

Ahlam Rais
Senior Sub Editor
Vogel Business Media India
ahlam.rais@vogel.de

Source: Vogel Business Media India

An aerial view of one of the shopfloors in Taiwan.

Fair Friend Group

Fair Friend Group (FFG) consists of four major divisions of businesses: machine tool division, PCB division, industry equipment division and green energy division. Its product range includes CNC machine tools, power tools and equipment, forklifts, construction machinery, etc. The Group has become the world's largest manufacturing group for machining centres and the largest machine tool group in Greater China. It also undertook the development of CNC machine tools and the brand name FEELER was established for overseas marketing. In 1986, the first moving column vertical machining center in Taiwan was built and the development of CNC lathes was launched in order to complete the FEELER product line. With 60,000 units of CNC machine tools installed across the globe, it is the No 1 brand in Greater China and the No 1 manufacturer of Vertical Machining Center (VMC) in the world.

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Taiwan

Johnford – Roundtop Machinery Industries Co. Ltd

Established in 1979, Roundtop Machinery Industries Co. has grown steadily in scale and scope of business. With over 20 years of experience in the design and manufacturing of precision machine tools, the company has maintained the leading position in Taiwan through innovation, quality, and flexibility. Roundtop Machinery Industries Co. is dedicated to offer the best machine tools to its customers. The company's main products include vertical machining centers, double column multi-axis, 5-face machining centers, turning centers, boring and milling centers, flat-bed CNC lathes, CNC screw cutting machines, etc. With experienced designers and advanced facilities of the company's R&D department, it constantly tries to develop and produce high performance models. R&D engineers employ the latest finite element analysis software to ensure maximum design performance.

Accuway Machinery Co. Ltd

The organization is a well established producer of accurate vertical machining centers and CNC lathes for various divisions

of the industry. It began its journey by building molding tools and trimming/ forming machines of LED, transistors, and DRAM for the semi-conductor packaging industry in Taiwan. From there on, the company has accumulated great precision machining technology and then transformed into an OEM supplier of CNC lathes to local machine tool companies. Furthermore, it began offering its unique vertical machining centers and CNC lathes to the Taiwanese market in 2003. Since then, the company has huge popularity from a broad range of customers, especially within Taiwan, China, Southeast Asia and Europe. The company constantly works towards offering innovating technologies to its customers.

Source: Vogel Business Media India

At work: Workers testing the manufactured parts.

AutoCam Technology Co. Ltd

AutoCam Technology Co. is a leader in the production of CNC rotary tables, high speeded indexing units and machine tools charger units. The company's core product is the CNC rotary table that offers high speed, rigidity, durability and accuracy. AutoCam Technology's latest technology is the Roller Cam Driver rolling 4th axis and 4-5 axis — there are only two manufacturers that have this technology in the global market. The biggest feature of this technology is that it is maintenance free and there isn't a need to adjust its backlash. Apart from this, the company introduced the 'Tilting rotary table' at TIMTOS (Taipei International Machine Tools Show) for the first time in 2007, and exhibited the whole series of the 'Rotary table' and 'Tilting rotary table' at TIMTOS in 2009.

TJR Precision Technology Co. Ltd

The company is a professional manufacturer of CNC rotary tables (4th and 5th axis) and is the first Taiwanese rotary table maker to launch a super-high-speed tilting rotary table. It also manufactures CNC index tables and other accessories with high precision and stability. The company offers all kinds of transmission mechanism for rotary tables. These include the worm and worm gear (25–44 rpm). In this mechanism, it is easy to adjust the backlash after wearing out slowly. Next in line is the roller gear cam (70–80 rpm) that offers less backlash during clockwise and anti–clockwise rotation. In addition to this, DDM (Direct Drive Motor: 70–150 rpm) provides truly zero backlash during clockwise and anti-clockwise rotation. And lastly, if the moving column vertical machining canter or drilling and tapping center is equipped with the super high speed DDM (2000–2500 rpm) table, it can make the machine work on a horizontal or vertical lathe concurrently.

Yinsh Precision Industrial Co. Ltd

This company has become the main supplier of precision locknuts for the machine tools, machinery and machining industries. Although precision spindle locknuts are a small component, they deliver great value. Yinsh Precision Industrial Co. produces all types of precision locknuts and has achieved an 80 per cent market share in Taiwan. The company also has a precision inspection laboratory and an automatic ultrasonic cleaning machine to maintain the quality of its products. In 2014, the company launched the new axial force sensor which has been developed by their precision locknuts R&D and inspection lab. This device can closely measure the axial force generated by a locknut and therefore be used to inspect locknuts during the spindle assembly process to ensure stable quality. This device can also compare and analyze the axial force and be used to test the accuracy of spindle assembly for multiple batches of spindles.

EXCETEK Technologies Co. Ltd

Specializing in the manufacture of Wire Cut EDM technologies, the company's main products include CNC wire cutting machines, CNC electric discharge machines, and drilling machines. Its products are sold in about 30 countries across the globe. Wire cutting machines are used in the precise machine industry and have been widely used in Japan, Europe and America. The company has continuously invested in various new products along with research and development since its establishment. Although it has been only six years since the company's establishment, it can continuously challenge the industry, and use several new wire cutting technologies and new inventions to become a leader in Taiwan. The company's recent development is utilizing the discharge energy density detection technology and the discharge spectral analysis technology to successfully develop the first wire-cutting workpiece thickness estimate technology and step processing technology. The company exhibited this machine at the Taipei Machine Tool Show in March, 2011.

TBI Motion Technology Co. Ltd

TBI Motion Technology Co. is a specialist in linear and motion products for more than 30 years. The company possesses critical core technology and concentrates on product research along with innovative design. Their products are ISO 9001:2008 certified and are well recognized in the market for its outstanding quality and high capacity. Its main products are ball screws, linear guides, ball splines, precision ball screws/splines, single axis robot, linear ball bearings, couplings, support units, etc and can be used for a number of industries and applications such as the robot industry, semi-conductor industry, general industrial machinery, medical equipment, solar energy equipment, machine tool, etc. TBI Motion Technology Co. also provides technical support and analysis of the industry to meet the demands of its customers.

Bright future

With so much happening in the Taiwanese machine tool industry, the future of this region looks bright. Quality and innovative technologies are the core factors for these industries and there is no doubt that with the vigor and determination of these small and medium scale industries, they will excel in the global machine tool market.

All what we can say to the machine tool market is — Watch out for Taiwan! MMI

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SIMTOS 2016	T: +91 (22) 34532721 E: simtos2016@simtos.org www.simtos.org	April 13–17, 2016 Korea International Exhibition Center (KINTEX), South Korea
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To suggest an event, please send details to swati.deshpande@vogel.de

Bringing the Industry Together!

The first ever Ahmedabad Machine Tool Expo 2015 held from September 24–27, 2015 at Mahatma Mandir, Gandhinagar, concluded on a positive note. This expo brought together industry players on a common platform to witness the latest technologies and solutions available in the market.

Organized by the Indian Machine Tool Manufacturers' Association (IMTMA), the first edition of the Ahmedabad Machine Tool Expo 2015 was inaugurated in the presence of Guest of Honor, Chairman & Managing Director, Bhagwati Spherocast Pvt Ltd & Bhagwati Auto Cast Ltd, Dr PN Bhagwati. A light lamping ceremony was followed by a ribbon cutting ceremony, after which the show was announced to be officially opened.

Dr Bhagwati addressed the audience and stressed on the importance taking charge with the 'Make in India' initiative for strengthening the manufacturing sector. He asserted, "Increasing awareness to SMEs through these regional shows will help increase competitiveness within the market as these shows display the latest technologies and know-how."

Nedra Pereira
Deputy Editor
Vogel Business Media India
nedra.pereira@vogel.de

Beneficial platform

IMTMA's aim behind organizing regional shows is to help the local community, which in turn will further strengthen the manufacturing industry as a whole. Elaborating on the importance of the show from a regional perspective, Krishnan voiced, "The show gave an opportunity for visitors to meet the small and medium enterprises who are the original equipment manufacturers and their sub suppliers. The expo opened avenues to penetrate niche industry sectors as well as the untapped regional market."

Concurring with IMTMA President's opinion, Anbu said, "There is a sizeable demand emerging in west India as a result of the foreseen growth in the manufacturing industry. The current expo has shaped up to be an ideal platform to initiate business in the region." He further went on to say that shows such as these bring about a win-win situation, as the machine tool industry will have access to an increased number of potential customers and customers from the Tier 2, 3, 4 customer sectors will be able to access the technology that will help them increase their overall efficiency.

Vice President, Indian Machine Tool Manufacturers' Association (IMTMA) and Chairman & Managing Director, Jyoti CNC Automation Ltd, PG Jadeja too added, "Regions in Gujarat have a large number of SMEs. Placing a show in Ahmedabad allows those SMEs and entrepreneurs from all over the state that cannot leave their businesses, owing to time and work constraints to attend larger shows in other parts of the country or world, to gauge the latest happenings in the industry through a local platform."

Contemprorary solutions

The expo displayed state-of-the-art technologies primarily focusing on manufacturing solutions from the industries located in the western region. Fervent business activities transpired at the expo post-inauguration. Trade leads were generated amidst a lot of learning and information sharing in a business environment and thus culminating into a heightened euphoria for the industry.

The show had the presence of industry delegations representing various sectors such as textile machinery, pharmaceutical machinery, petrochemical engineering, agriculture implements, auto engineering, mining equipments, and many more.

Many of the delegations saw various displays that were potential purchases for

Source: Vogel Business Media India

Inaugurating the Ahmedabad Machine Tool Expo 2015 via a ribbon cutting ceremony by the delegates.

"The Ahmedabad Machine Tool Expo will open avenues for penetrating the regional market and help them open up to niche industry sectors."

President, IMTMA and Managing Director, TaeguTec India Pvt Ltd, L Krishnan

"The expo will play a vital role in providing a platform for companies to meet their existing and potential customers, distributors, etc."

Vice President, IMTMA and Chairman & Managing Director, Jyoti CNC Automation Ltd, PG Jadeja

"The show is an opportunity for indigenous manufacturers to leverage their technologies and network with decision makers."

Director General, IMTMA, V Anbu

"Increasing awareness to SMEs through these regional shows will help increase competitiveness within the market."

Chairman & Managing Director, Bhagwati Spherocast Pvt Ltd & Bhagwati Auto Cast Ltd, Dr PN Bhagwati

their respective companies. An example of this instance can be highlighted by the delegates who visited the show from Apollo India Pvt Ltd. Assistant Manager – Material, Purchase Department, Ammann Apollo India Pvt Ltd, Amit Shah opined, "We are impressed with the way this show has been organized and is serving as a platform for us to witness new technologies and machines. We have around 600 vendors and will surely recommend them as well as our contemporaries to visit this show. The scanning system, in particular, from APM Technologies caught our attention as we found it very useful for reverse engineering."

Feedback received

Exhibitors were enthralled by the responses solicited from their customers. Many of them felt that participating in such a show was vital not just for sales but also for services. The show enabled them to meet the different regional customers and thereby better understand the requirements of the regional markets. The understanding generated at the show will serve as the basis for solid industrial development in India and simultaneously strengthen the companies' business while expanding their network to a larger scale.

Visitors also spoke in glowing terms about the first edition of the expo. They were quite happy to see and interact with the machine tool manufacturers. Many of them felt that the exhibitors had impressive and innovative displays and they were able to come across good innovations at various stalls. The expo was ideal to locate new technologies and quality suppliers.Exhibitors expressed that visitors were ready for investing on high-end technology which is a positive indicator.

Future forward

The first edition of the Ahmedabad Machine Tool Expo has been a runaway success. The strong presence of visitors from the region made it a truly grand event. The expectations will now grow higher from all sides since the responses have been positive. IMTMA will organize many more regional shows and with the support of the industry expects to build on the success achieved in Ahmedabad in the days to come. The industry's overwhelming response in making the regional machine tool show that witnessed a footfall of about 9,000 visitors has heightened expectations. MMI

INDUSTRY DELEGATES

Source: Vogel Business Media India

Industry delegates from APM Technologies and Elecon Engineering Co Ltd at AMTX 2015.

Source: CII

(L to R): Senior Partner & Managing Director, BCG India, Dr Arindam Bhattacharya; Co Chair, CII National Committee on Industrial Relations and Director Cummins India, Pradeep Bhargava; President Designate, CII and Director, Forbes Marshall, Dr Naushad Forbes; Chairman, Expert Committee on Regulatory Affairs, Department of Industrial Policy & Promotion, Government of India, Ajay Shankar; Chairman, CII Manufacturing Summit, Jamshyd N Godrej; Deputy Chairman, CII Western Region, Sudhir Mehta and Regional Director, CII, Kaushlendra Sinha release the CII-BCG report.

CII Manufacturing Summit 2015

The Summit comprised power packed sessions that focused on diverse industry topics and acted as a roadmap for the Indian manufacturing industry. In addition to this, the report by CII-BCG was also launched at the event.

Confederation of Indian Industry (CII) recently held its 14th CII Manufacturing Summit in Mumbai. On this occasion, prominent people from the sector made their presence felt by sharing their views and ideas on the Indian manufacturing industry with the audience. One of the core ideas that were emphasized at the event was that India's strength comes from competitiveness and not protection. Hence, the Summit urged the players in the industry to go the extra mile in the background of growing competition in order to gain profits. .

The highlight of the event was the launch of the report titled 'Future of Indian Manufacturing: Bridging the Gap' published by CII-BCG (Boston Consulting Group). In this report, BCG assessed the progress of the 'Make-In-India' thrust. Chairman, Expert Committee on Regulatory Affairs, Department of Industrial Policy & Promotion, Government of India, Ajay Shankar; Senior Partner & Managing Director, BCG India, Dr Arindam Bhattacharya; Co Chair, CII National Committee on Industrial Relations and Director Cummins India, Pradeep Bhargava; President Designate, CII and Director, Forbes Marshall, Dr Naushad Forbes; Chairman, CII Manufacturing Summit, Jamshyd N Godrej; Deputy Chairman, CII Western Region, Sudhir Mehta and Regional Director, CII, Kaushlendra Sinha released the report at the event while Senior Partner & Managing Director, BCG, Dr Arindam Bhattacharya presented an overview of the same.

Ahlam Rais
Senior Sub Editor
Vogel Business Media India
ahlam.rais@vogel.de

In detail...

The report compares states on their quality of manufacturing ecosystem, looks at global shifts, and lays down imperatives for the industry. CII-BCG also conducted a survey among the leaders of the manufacturing industry, for developing key themes in this report. The CII-BCG report focuses on the declining attractiveness of China as a manufacturing base due to labor and yuan challenges, and emergence of new destinations such as Ethiopia and Vietnam which are becoming competitive. According to an analysis by CII-BCG, the cost of industrial robots will decrease by an estimated 20 per cent by 2022, while their performance has been increasing at 5 per cent per year. These

developments point to a clear imperative for the Indian industry to focus on innovation. In a positive development, several states are upping their game to attract manufacturing investments. The report calls for continuing action by the state and the central government on reforms, simplification and infrastructure build-out.

Speaking at the backdrop of the event, Bhattacharya said, "The 'Make in India' initiative could not have been launched at a better time. The global manufacturing scenario is in turmoil with the low cost model coming under pressure. China's competitiveness is eroding. Brazil, seen as one of the most competitive country 10 years ago is becoming a high cost one. In contrast, the world's largest economy, the US whose competitiveness had eroded has become one of the most competitive and is bringing back the manufacturing capacity from offshore low cost countries. In contrast India's relative competitiveness has remained constant. This turmoil provides a unique opportunity for India to become one among the top three manufacturing players in the world. Make in India has changed mindsets – both inside and outside the country. Accelerated implementation of reforms that are being implemented in the fundamental build blocks of 'Ease of doing business,' power/coal, infrastructure build-out, labor laws, taxation could ensure that this is not another missed window of opportunity for India." Apart from this, various other measures at the government and industry level were discussed to improve the manufacturing industry in India.

Power sessions

The Summit also included power packed sessions that focused on diverse topics such as Indian Manufacturing: Bridging the gap between aspiration and reality, opportunities and challenges for the local market, a special session on 'China correction and implications for India,' a discussion session on 'Envisioning the factory of tomorrow' along with panel discussions on 'Innovation in Indian manufacturing' and the 'Changing culture and mindsets on the shop floor.' These sessions were addressed by eminent people from the industry.

At the event, Chairman CII Manufacturing Summit and Past President CII & Chairman & Managing Director, Godrej & Boyce Mfg Co Ltd, Jamshyd N Godrej said, "The strength of the service sector combined with the strength of the manufacturing sector is the future. To reach our full potential, we need close co-operation among a vast number of agencies especially between people involved in the complex system of manufacturing. We have to understand all the connections and complexities of its working."

Godrej further stated, "We have some of the finest manufacturing companies based in India doing exemplary quality production. We have strength but the question is how do we build on those strengths and improve upon areas that need improvement. We have to realize that the industry cannot ask for protection. Because the more protective we become, the world will react in the same way. Our strength comes from competitiveness and not from protection. India benefits from essentially being more competitive."

In conclusion

The urgent need for innovation was also highlighted at the event. Partner, BCG, Arun Bruce elaborated, "India is losing the battle for low-cost manufacturing. Other than China, many emerging countries such as Bangladesh, Vietnam and Eastern Africa will continue to be more low-cost than us thanks to lower factor costs and better tax treaties. It is time to focus on innovation—better products, reliable supply, newer and faster products to market—to win the next phase of the war." Towards the end of the event, various interesting insights were shared by the speakers that left players in the manufacturing space enthralled. MMI

EMO Milano!

Exhibiting over 6,600 machines across 12 halls, the mammoth event attracted about 1,600 enterprises from 42 countries. Read on to know more about the latest technologies showcased and potential business opportunities created at the expo.

EMO can rightly be called the heart of the machine tool industry as it is the most prominent show for this sector. Dedicated to the metal industry, the travelling trade show is held once every six years in Italy and once every four years in Germany. Organized by CECIMO, the European Association of the Machine Tool Industries, this year, EMO Milano was held from October 5–10, 2015 at the fieramilano exhibition complex in Rho, Italy.

The mega event witnessed the presence of 1,600 enterprises from 42 countries (12 per cent more as compared to the previous edition in 2009) and was organized on an exhibition area of 120,000 m^2. Exhibiting over 6,600 machines across 12 halls, EMO Milano offered the whole production spectrum right from metal forming to cutting machines, robotics to automation systems, tooling to auxiliary products and mechatronics to additive technologies. All the technologies illustrated innovations that will determine the future of manufacturing production and work methods within the factories. The show proved beneficial for operators belonging to various fields such as automotive, aerospace, energy, biomedical, electric household appliances and the food industry.

India @EMO!

As India ranks 14th in production and 10th in consumption of machine tools according to the World Machine Tool Output & Consumption Survey by Gardner Research, a show such as EMO Milano is a 'must attend' event for India's machine tool industry as it helps them to stay updated on the latest production technologies and also exhibit their innovative technologies on a global platform. Managing Director, UCAM Pvt Ltd, Indradev Babu, one of the exhibitors at the event says, "At the show, UCAM offered a mix of its standard range of rotary table products, hi-tech custom built products for machine tool manufacturers and new technology products. The highlight of the show was the Dia. 600 Direct Drive Tilting Rotary Table, Model: UDDR-600-TN-S 850. Dynamic in performance, this table has individual torque motors for the tilting axis on both sides driven by a single drive. The table is compact in size with a swing diameter of 850 mm." Another technology product that was displayed at EMO was the i-series rotary tables. This rotary table comes with an intelligent i-box which can sense ten different parameters through various sensors and provide feedback to the machine. This makes the rotary table highly productive and reliable.

Jyoti CNC Automation Ltd also exhibited numerous machines including MX 8 M, a high performance 5 axis machining center with turning option; KX 50, a high performance 5 axis double column machining center; K3X8 Five, a high performance 5 axis vertical machining center; K Mill 10, a bridge type machining center; VX 18—3 axis vertical machining center—large; AX 300, a twin spindle turn mill center and TS 120, a twin spindle

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EMO Milano!

Source: UCIMO

Prominent dignitaries inaugurate EMO Milano 2015.

Ahlam Rais
Senior Sub Editor
Vogel Business Media India
ahlam.rais@vogel.de

"Some of the newly launched model from Jyoti such as AX 300 (CNC Turn Mill Center with Y Axis) and VMC 1880 (VX 18) got an overwhelming response amongst the interested clientele."

President (Global Sales), Jyoti CNC Automation Ltd, Mihir Baxi

"One of the trends that was observed in recent time is that there is a strong emphasis to manufacture or produce products in Europe."

Managing Director, Ace Manufacturing System Ltd, P Ramadas

"At the show, UCAM offered a mix of its standard range of rotary table products, hi-tech custom built products for machine tool manufacturers and new technology products."

Managing Director, UCAM Pvt Ltd, Indradev Babu

chucker with gantry robot. President (Global Sales), Jyoti CNC Automation Ltd, Mihir Baxi shares his views, "The overall response to the booth Jyoti-Huron was fantastic. Some of the newly launched model from Jyoti such as the AX 300 (CNC Turn Mill Center with Y Axis) and VMC 1880 (VX 18) got an overwhelming response amongst the interested clientele." Another leading player from the machine tool industry, Managing Director, Ace Manufacturing System Ltd, P Ramadas mentions, "Our cost effective high speed drill tap machining center, Super Dart is most suitable for high volume components with short machining times. They are preferred for applications demanding frequent tool changes with multiple drills and taps to be machined on the components. Such machines are widely required in the auto component industry, the electronics manufacturing industry, etc."

In addition to this, the company also exhibited the twin spindle vertical machining center Gemini XL. This machine offers nearly double the productivity with a small increase in cost as compared to single spindle machines. The machine is loaded with Roller type LM guideways for all three axes and has a higher rapid rate of 50/50/40 m/min.

Aurangabad-based Grind Master Machines also launched the SMP500E model with size control technology, the latest model in their NanoFinish range of machines. Executive Director, Grind Master Machines Pvt Ltd, Sameer Kelkar opines, "The machine is an innovative design with superior processing performance. It achieves Geometry, Size and Finish in the same process (called as GSF process). Such cutting edge technology developments were appreciated by the discerning visitors." Shilpin Machines Pvt Ltd also showcased its latest Micro-milling cum Engraving Machine at EMO Milano 2015. Director, Shilpin Machines Pvt Ltd, Abhay C Deshmukh says, "This machine is a 3 / 4 axes double column machine that offers high precision ground ball screws and linear guide ways. It comprises servo drives and motors for axes with absolute encoders along with a high precision integrated spindle and can be used for various applications such as 3D sculpting, engraving, dies and molds, etc." The Indian contingent comprised about 15 companies that displayed both entry level and high-end machines such as turning centres, grinding machines, cutting tools along with a host of machine tool accessories.

Source: Vogel Business Media India

(L to R): Managing Director and Chairman of the Board, Fred Gaegauf Firtz Studer AG and COO, United Grinding Group AG, Michael Horn address the press conference at EMO.

International zone

This year, DanobatGroup exhibited the latest and most outstanding products of DANOBAT and SORALUCE for cutting-edge industries. "We launched a new generation of machines in the market that have a more ergonomic working environment and offers maximum protection for the operator. We presented two examples of this new concept of integral design in a travelling column milling-boring machine, the SORALUCE FXR, and in a multitasking SORALUCE FMT machine that combines the best of milling and turning capabilities," mentions CEO, DanobatGroup, Iñigo Ucin Azcue. Apart from the new design concept on milling-boring machines, the Innovative DAS (Dynamic Active Stabilizer) system was also presented. The system is a device that is able to increase not only the mechanical stability of the machine but also, machining performance by up to 300 per cent.

Schuler also presented the first linear hammer with Servo. The company's new development features a linear motor – as used, for example, by the Transrapid

"The Cool Flash system can be optionally applied to HAIMER Shrink Fit Chucks and ensures that even at a high rpm the coolant is transported directly to the cutting edge."

Managing Director, Haimer India Pvt Ltd, Makarand C Dande

"We presented two examples of integral design in a travelling column milling-boring machine, the SORALUCE FXR, and in a multitasking SORALUCE FMT machine that combines the best of milling and turning capabilities."

CEO, DanobatGroup, Iñigo Ucin Azcue

"We are quite optimistic to generate business and leads as most of the visitors at the show came from the forging industry in Italy and Germany."

Managing Director Division Industry, Schuler, Jochen Früh

IMPRESSIVE

Leaders' Speak

Director General, IMTMA, V Anbu shares his views on how EMO helped Indian exhibitors at the fair to increase their business.

"EMO Milano is one exhibition that is considered as strategic for the Indian manufacturing industry including India's ambitious 'Make in India' initiative. The exhibition offered excellent networking opportunities to the Indian exhibitors. It was the perfect platform to know the latest happenings in the world of engineering. Indian exhibitors gained enough knowledge to equip their production facilities, in order to make them efficient, compatible and sustainable. Participation at EMO helped Indian exhibitors to follow and understand the requirements of foreign markets and gear itself for exporting its products. This edition of EMO Milano witnessed an increased participation in terms of exhibitors and visitors – 12 per cent and 25 per cent respectively. The Indian machine tool fraternity interacted with global manufacturers and we believe that the conversations may result in fruitful business in the future."

President, UCIMU, Luigi Galdabini gives a message to the global machine tool fraternity

"The global economy means new outlet markets for those who have always worked in this sector, but it also means new competitors. In order to keep up with the times, it is necessary to understand what is happening worldwide, which markets are emerging or saturated and the requirements of a country in comparison with others. It is a complex and expensive business for a company, but it is essential to experience globalization as an opportunity and not as a risk. In this connection, the work of the reference association is fundamental: UCIMU-SISTEMI PER PRODURRE, the association of which I am honored to be the President, represents a very important information source for Italian manufacturers, with regard to the study of demand in the various markets, the interpretation of financial and technological regulations in the different countries and the communication of the sector – 'Made in Italy' identity. The field of machine tools, robots and automation systems, even if it is a mature sector, still offers space for everyone, because its technology is constantly developing; it does not only improve industrial production processes, but also provides welfare for the whole community."

maglev train. Thanks to the new drive system, the hammer is not only regulated absolutely accurately, but also used in controlled operation more precisely than ever before. The ability to precisely position and flexibly control the slide opens up completely new possibilities – not only for precision forging, but also in terms of energy efficiency. Managing Director, Division Industry, Schuler, Jochen Früh says, "A drive system which Schuler recently developed for hydraulic presses can reduce energy consumption by up to 60 per cent as compared to conventional lines. The new technology is called 'Efficient Hydraulic Forming' and offers energy savings and optimizations in all operating phases – fully automatically, without the need for any action by the machine operator. The system also has a modular design and can be retrofitted to existing lines."

Apart from this, BLÚ – the first integrated control system based on a single-cable–connection was introduced by Marposs at the show. BLÚ is more than just a simple product; it represents a new approach to the concept of a localized network on a machine tool. The BLÚ system enables real time communication between various internal and external machine function nodes (known as WET and DRY areas respectively in the industry jargon). BLÚ has been designed to allow the maximum level of integrability within the machine tool.

In addition to this, United Grinding Group introduced the MFP 50 that uniquely combines design, flexibility and performance. MÄGERLE presented the productivity and versatility of the MFP 50 for a wide variety of applications at EMO 2015. Drilling and milling operations were demonstrated in a single clamping, in addition to various 5-axis simultaneous grinding operations. The MFP

"Comau presented the PTWA thermal spray solution, as well as the automated dimensional control of body parts, a technology that is increasingly used to ensure quality and safety standards."

Head of Marketing, Comau, Cremonini Maurizio

50 grinding and machining center was developed for multiple-sides and completes machining of complex workpieces in a single clamping. The integrated tool changer of the MFP 50 equips a high-performance spindle with the necessary tool for the respective machining task.

The KOMET GROUP showcased more than 1,000 new products for efficient machining at the event. In addition to the familiar tool portfolio for high-precision drilling, reaming and threading, the company presented an extensive new range of high-performance milling cutters, thereby emphasizing once again its leading position in the area of technology and innovation. Apart from the already successful KOMET Quatron hi.feed, KOMET hi.aeQ and KOMET hi.apQ range of milling cutters, six further indexable insert milling cutter systems were also included in their ex-stock range.

The European market leader in the area of tool holding technology, Haimer India Pvt Ltd presented its already established and wide-ranged product portfolio, consisting of highly precise tool holders and practical special machines. This includes the high-end-version, Tool Dynamic Automatic that is automatically loaded and unloaded by a Kuka LBR iiwa robot as well as TD 800, a machine suited for balancing big rotors and grinding wheels. Managing Director, Haimer India Pvt Ltd, Makarand C Dande mentions, "The Cool Flash system was one of the booth's highlights. It can be optionally applied to HAIMER Shrink Fit Chucks and ensures that even at a high rpm the coolant is transported directly to the cutting edge." Apart from this, the HAIMER Safe-Lock system was also exhibited at the event.

Schaeffler is pursuing a digitalization strategy across all product groups with the aim of providing data from the most diverse of processes via sensors, networking and analysis to offer customers clear-cut added value. One tangible example of Schaeffler India's digitalization strategy was the 'Machine tools 4.0' innovation project, a joint project with Deckel Maho Pfronten and other partners that was showcased at the event. The prototype based on the DMC 80 FD duoBLOCK mill-turn universal machining center has additional sensors integrated into nearly all the bearing positions relevant to the machining process in order to measure vibration, forces, temperatures, pressures and obtain the best possible information on the condition of the machine. In order to make all data accessible, the machine is provided with an internal network to which all additional sensors, actuators and evaluation units are connected.

Head of Marketing, Comau, Cremonini Maurizio opined, "Comau presented the PTWA (Plasma Transferred Wire Arc) thermal spray solution, as well as the automated dimensional control of body parts, a technology that is increasingly used to ensure quality and safety standards. Moreover, the innovative design concept of SmartDriveComau 800L and SmartRobComau was unveiled for the first time at EMO 2015. Comau demonstrated its SAFE technology together with the Racer999 robot (7 kg payload and a reach of 999 m)." The company also presented its dual arm robot concept, AMICO, utilizing the newest

Source: Vogel Business Media India

Numerous companies showcased their innovative technologies and products at the show.

IMPRESSIVE

Delegates Speak

The AIEMA delegation to EMO consisted of 20 entrepreneurs from Ambattur Industrial Estate, Chennai. They are engaged in diverse manufacturing fields from auto components to hydraulics/pneumatics, molds, machinery plants and machinery, etc.

Director, Entvent Tools and Chairman, ACMEE 2016, R Ramchander was the leader of the AIEMA Delegation. He is also an Executive Committee Member of AIEMA. Ramchander shares his experience, "With more than 1,500 companies from all over the world participating at the event, EMO Milano was an eye opener in many ways. The advancements in technology and the display of energy and time saving solutions on a wide range of manufacturing applications were stunning. It was also noticed that many of the leaders who have their operations in India are yet to bring their latest technologies to India. For instance, Mitsubishi Minerals' latest turning products together with precision milling and drilling solutions for the automotive and general machining industry; Schunk's new PGN + P Grippers and Mazak's Smooth technology CNC."

Director, Workstudy Hydraulics Pvt Ltd, MV Robert adds, "EMO was a fabulous show and it opened a new world for us to know more about manufacturing technology as well as new sources from where we can source our requirements."

"EMO 2015 helped us to benchmark our product against the competition. We also received an opportunity to associate with new and good vendors."

Director, Shilpin Machines Pvt Ltd, Abhay C Deshmukh

"EMO 2015 helped us to predict the future of the Machine Tool industry. The show also provided us with a lot of strategic and technology inputs for our business."

Executive Director, Grind Master Machines Pvt Ltd, Sameer Kelkar

compact robot in the Racer family, Racer3. The show witnessed numerous innovative technologies and was largely dominated by foreign players.

Making business sense

EMO is always a good place to find new partners, to start new projects and to measure the status of the machine tool industry. In terms of business, Indian companies got an opportunity to interact with potential customers, tap the growing business potential in India and also identify significant business leads. As Baxi opines, "Many business leads as well as dealership/distributorship inquiries were recorded for our truly 'Make in India' machines. We witnessed global acceptability and even accolades for our machines at the show. Indian visitors were few but were truly genuine in accordance with their business potentiality." In addition to this, Deshmukh says, "Prospective customers from across Europe, Central and Far East Asia as well as North-America visited our booth. There were many enquiries from parties interested in being our distributors. A few prospects also wished to enter into a joint venture with us for creating special machines as per their design or requirements. The exhibition helped us benchmark our product against the competition. We also received an opportunity to associate with new and good vendors."

EMO is known for brand building, awareness, networking and promoting Indian products in the European market. Babu mentions, "We focused mainly on brand building and the same was visible in our booth design and construction. We were located in one of the main halls of the show and this helped us to get many new customers. About 40 per cent of our visitors were machine tool manufacturers and another 40 per cent were distributors and dealers of machines tools." This is not all! The magnitude of the show also enables players in the industry to understand foreign markets for their future business expansion plans. Kelkar shares, "As Grind Master is looking to expand into European markets with its Automotive Powertrain solutions; leads in this direction will pave way for the future. The show also helped us to predict the future of the Machine Tool industry and also provided us with a lot of strategic and technology inputs for our business." Through the show, it was also observed that the market in certain specific regions of Europe is growing and investments in capital equipment are also being planned.

In line with this, Ramadas adds, "One of the trends that was observed in recent time is that there is a strong emphasis to manufacture or produce products in Europe. About 50 per cent of our export business comes from Europe. There is huge potential for us to expand this business in unknown shores through our cost effective products and solutions."

On the international front too, the event proved advantageous to the exhibitors, Früh mentioned, "About half the visitors at our booth contacted Schuler for the first time, so we are quite optimistic to generate business and leads. Most of them came from the forging industry in Italy and Germany, but also from the rest of Europe and all over the world." Maurizio adds, "According to Comau's vision, to present its technology and products is the best way to generate business and leads. Following this approach, the tradeshow was also an excellent opportunity to strengthen Comau's brand and image, to share with visitors and customers our 40 plus years of experience in the automotive sector, and our leading culture of automation. Moreover, the exhibition allowed Comau to meet other companies (both competitors and partners), media, public visitors and institutions. Finally, it was a good opportunity to introduce Comau in new markets and to face new challenges." Business was at an all time high at the venue that was buzzing with numerous visitors from across the globe.

Source: Vogel Business Media India

The event witnessed the presence of 1,600 enterprises from 42 countries and was organized on an exhibition area of 120,000 m².

Conclusion

Apart from the exhibition, diverse new aspects were included in the show such as the seminar on additive manufacturing, the Robofood 2015 – Robotics in the food industry event, the ceremony for the UCIMU awards and the Machine Tool Scale Models show that was dedicated to metal crafts.

With diverse aspects included in the most prominent show for the machine tool industry along with the latest launches and business generated at the show, EMO Milano 2015 proved to be a successful event! MMI

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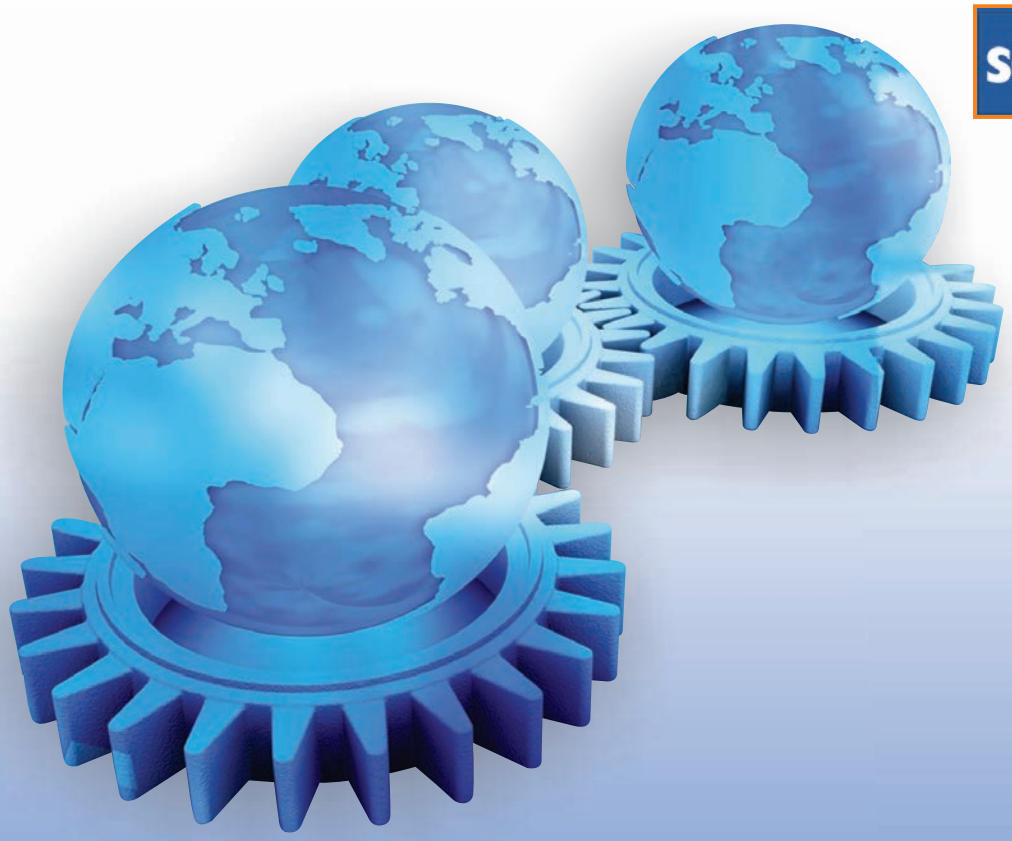

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ELECRAMA 2016

One of the most renowned events in the power industry—will be held from February 13–17, 2016, at the Bangalore International Exhibition Centre in Bengaluru.

ELECRAMA, the world electricity forum, has now turned into a movement, beyond just an exhibition. It is a premier show of the Indian electrical sector and is the world's largest confluence for the power transmission and distribution community. Held biennially since 1990 in India, the 11th edition of ELECRAMA–2014 hosted 970 exhibitors from India and across the world. The event also attracted 100,000 plus footfalls into the exhibition.

The visitors at ELECRAMA consist of a wide spectrum of industry stakeholders, offering them an international framework for display, discussions and deliberations. It brings together manufacturers and suppliers to interface with key customer segments such as private and public transmission & distribution utilities, EPCs, consultants, etc. It also brings together global thought leaders in the electrical transmission and distribution sector consisting of industry leaders, engineering professionals, professionals and academia, et al through high power panel discussions, premier conferences, technical workshops, tutorials and seminars that are held concurrently with the exhibition.

Compiled by:
Ahlam Rais
Senior Sub Editor
Vogel Business Media India
ahlam.rais@vogel.de

What's new!

For the first time in ELECRAMA, a two-day 'power round table' is being organized by the Ministry of Power, of Energy Secretaries of State Governments and CMDs of State Utilities & Central PSUs. This will be followed by the participants visit to the exhibition stands. Furthermore, a separate power pavillion is conceptualized, featuring the achievements, strengths and future plans of public sector enterprises.

"The 12th edition of ELECRAMA is a global platform where global leaders of the power fraternity will come together to find answers to the rapidly evolving scenario of sustainable electricity transmission, distribution, etc."

Chairman, ELECRAMA–2016, Aaditya R Dhoot

DIGITAL VERSION

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ELECRAMA 2016

ELECRAMA is a platform that offers a global perspective on technology, best practices and new systems. It will also forecast the future trends in electricity, both from the technology and socio-economic point of view.

A high quality platform called the 'World Utility Summit' has been envisaged to bring together top utility leaders from around the world in order to share their experiences, deliberate and explore solutions on pressing issues in the realm of transmission and distribution. Technically aligned participants can enrich themselves with a plethora of seminars and conferences. 'Network to Networth' (N to N) is another new and interesting addition to ELECRAMA 2016. 'N to N' is planned for creating awareness about the huge investment and joint venture opportunities in the Indian electrical sector for both global and domestic investors.

The Railway, Nuclear & Defense (RND) pavilion is being planned for the first time at ELECRAMA to enable interaction between the industry and these critical sectors. Renewable Energy is another pavilion that is being considered for displaying the strengths of the Indian industry in the renewable sector. The third edition of the 'Reverse buyer Seller Meet,' supported by the Ministry of Commerce, Government of India continues to generate large scale business opportunities. About 8,000 plus meetings with 600 overseas buyers from 42 countries is also being planned over two and half days of this event. MMI

Source: Vogel Business Media India

Overview of the stalls and technologies exhibited at the last edition of ELECRAMA.

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CONTACT:

Vogel Business Media India Pvt Ltd
32, New Unique Industrial Estate,
Dr RP Road, Opp Jawahar Talkies,
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T: 022-25644469

DINESH MISHRA
General Manager
Call: +91 9833076669
dinesh.mishra@vogel.de

PREETI MISHRA
Deputy General Manager
Mobile: +91 9820488203
preeti.mishra@vogel.de

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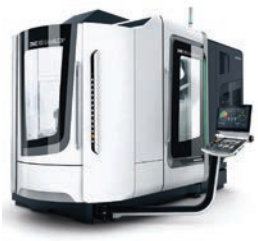

DMG MORI presented three duoBLOCK-based at EMO 2015. The DMC 100 H duoBLOCK and DMC 125 H duoBLOCK complete the portfolio for heavy-duty horizontal machining, while the DMC 100 U duoBLOCK strengthens the line-up in automated 5-axis universal machining. With an increase in precision, performance and efficiency of up to 30 per cent the duoBLOCK-series has continued its success story through to the fourth generation. Since its launch, DMG MORI has successively extended the program of the highly stable machining centre series in order to establish itself as the absolute full-line supplier.

▸ **DMG MORI Europe Holding AG**
E: info@dmgmori.com
www.dmgmori.com

CNC Systems

Lubi Electronics offers Advantech LNC CNC System, CNC system that is equipped with EtherCAT Open portal communication base. EtherCAT is capable of communicating with third party Servo Systems. Additionally, the Advantech LNC CNC System can control up to 32 axis with 6 channel path operations.

▸ **Lubi Electronics**
T: +91 (079) 39845354, E: arpatel@lubielectronics.com
www.lubielectronics.com

Indexable Gundrill

TaeguTec's new indexable gundrill and deep drilling heads with its unique trigonal insert evacuates chips without damaging surface finish and delivers coolant directly onto the material. Furthermore, it also offers accuracy, repeatability, an excellent surface finish and reduced cycle times. The new addition to the T-Deep line covers single and double tube systems and is designed with a direct mounting system that reduces down time. With a diameter range from 16–28 mm, the new T-Deep indexable gundrill is a versatile tool that can be applied to several industries such as mold and die, power generation, windpower, automotive, shipbuilding, machine tool, railways and oil & gas.

▸ **TaeguTec India Pvt Ltd**
T: +91 (080) 27839111, E: sales@taegutec-india.com
www.taegutec-india.com

Grinding and Machining Center

United Grinding has developed MFP 50 grinding and machining center for multiple-side and complete machining of complex workpieces in a single clamping. High axis speeds and quick tool change guarantee minimal auxiliary times and high productivity and make the MFP 50 one of the most productive machines of its kind. The integrated tool changer of the MFP 50 equips the high-performance spindle with the necessary tool for the respective machining task.

▸ **United Grinding Group AG**
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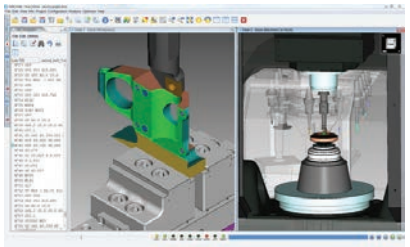
www.grinding.ch

Software Update



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

▸ **CGTech India Software Solutions Pvt Ltd**
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Laser Cutting Machine

SLTL' s Brahmastra Future X is a fast, smart and robust fiber laser cutting machine. The system is capable of cutting with 3 KW fiber laser. The machine turns to be cost effective as it reduces operating costs up to 50 per cent vis-à-vis CO_2 laser system. The machine is well equipped with dynamic edge control and linear motor drive with rigid gantry structure enabling >3G acceleration. Pioneering features include Butter Cut, rapid warm up time, low operating cost, less maintenance, high-cutting speed and safety interlocks. The machine is capable of cutting mild steel, stainless steel, aluminum, brass, copper, titanium, coated and textured metal sheets.

▸ **Sahajanand Laser Technology Ltd**
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Register your particpation NOW !

National Productivity Summit 2015

"Spearheading productivity in metal working"

20 - 21 November 2015

Hotel Crowne Plaza, Gurgaon

To champion the cause of productivity in the metal working industry, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing the National Productivity Summit (9th in the series) on 20 – 21 November 2015 at Gurgaon. The event showcases best productivity practices in metalworking through live case study presentations, Plant visits and Keynote sessions.

Leaders Speak

Renowned industry experts will deliver Keynote addresses on various facets of productivity.

- 'Ascent : A Practising Manager's Growth Mantra'
  Mr. Amit Chatterjee, Managing Director, Sartorius India Group

- 'Hitech's Journey in achieving productivity excellence'
  Mr. Rajesh Magoo, Chief Operating Officer,
  Transmission & Engine Component Business, Hitech Gears

- 'Quality Route to Productivity'
  Mr. Rajeev Wasan, Sr. Vice President - Manufacturing,
  Honda Cars India Ltd.

Live Case Study Presentations !

Contesting Companies

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Mahindra (Rise.) · MARUTI SUZUKI (Way of Life!)
TVS · TATA MOTORS
SKF · WABCO

Plant Visits (19 November 2015)

The plant visits scheduled a day prior to this summit, on 19 November 2015, provides an excellent opportunity to witness productivity improvements on the shop floor.

TOUR A : Hero Motocorp and Sona BLW Precision Forgings

or

TOUR B : Hitech Gears and Honda Motorcycle & Scooters India

Registration for Participation must be made online only. To register online, log on to **www.productivity.imtma.in**

For event details or any queries / clarifications during 'Online Registration' process, please contact IMTMA's Bangalore office :

Abhishek, tel : (080) 66246829; (abhishek@imtma.in)
Laxmikant M Duge, tel : (080) 66246665; (laxmikant@imtma.in)

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PUBLISHER
Managing Director/Publisher: **Paresh I Navani**
paresh.navani@vogel.de

EDITORIAL STAFF
Editor-in-Chief: **Soumi Mitra**
soumi.mitra@vogel.de
Associate Editor: **Swati Deshpande**
swati.deshpande@vogel.de
Deputy Editor: **Nedra Pereira**
nedra.pereira@vogel.de
Senior Sub Editor: **Ahlam Rais**
ahlam.rais@vogel.de
Manager, Creative & Production: **Shanmugam Pillai**
shanmugum.pillai@vogel.de
Web and Graphic Artist: **Snehal Pillai**
snehal.pillai@vogel.de

SALES & MARKETING
General Manager: **Dinesh Mishra**
Tel.+91(0)22 25644469, Mob.+91 9833076669, dinesh.mishra@vogel.de
Deputy General Manager: **Preeti Mishra**
Tel.+91(0)22 25644469, Mob.+91 9820488203, preeti.mishra@vogel.de

Advertising Services, Technical: **Shanmugam Pillai**
Tel. +91 (0)22 25644469, shanmugum.pillai@vogel.de

ADMINISTRATION
Office Manager: **Kruti Bharadva**
kruti.bharadva@vogel.de
Admin Officer: **Ekta Jagasia**
ekta.jagasia@vogel.de
Database Services: **Deepali Sachdeva**
deepali.sachdeva@vogel.de

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HEADQUARTERS GERMANY

EDITORIAL STAFF
Group Publisher: **Hans-Jürgen Kuntze**
hans-juergen.kuntze@vogel.de
Editor-in-Chief: **Frank Jablonski (MM)**
frank.jablonski@vogel.de
Editor-in-Chief: **Barbara Schulz (ETMM)**
barbara.schulz@vogel.de

SALES & MARKETING
Head of Sales: **Winfried Burkard**
winfried.burkard@vogel.de
Sales Manager: **Karin Grimm**
karin.grimm@vogel.de

CO-OPERATION PARTNERS:
INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION (IMTMA), BENGALURU
Director General: **V Anbu**
Senior Director: **Balasubramanian** bala@imtma.in

GARDNER BUSINESS MEDIA, CINCINNATI, USA
President: **Rick Kline, Sr.**
Publisher: **Travis J. Egan**
Chief Editor: **Mark Albert** malbert@mmsonline.com

PUBLISHER
Proprietorship and Personally liable partner: Vogel Business Medien Verwaltungs-GmbH, interests held: Max-Planck-Str 7/9, 97082 Wuerzburg, Germany limited partner: Vogel Medien GmbH & Co. KG, Max-Planck-Str 7/9, 97082 Wuerzburg, Germany
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HYUNDAI WIA India Office

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