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The official magazine of Indian Machine Tool Manufacturers' Association

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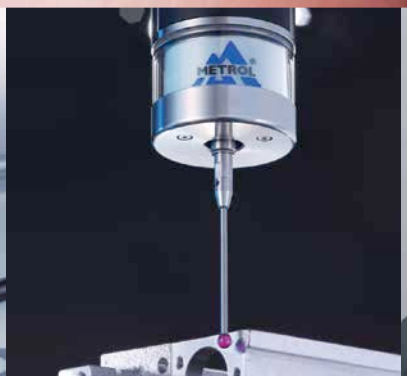

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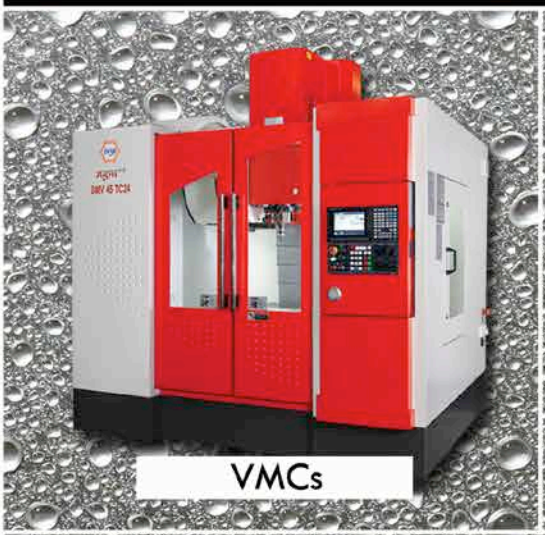

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President, Indian Machine Tool Manufacturers' Association (IMTMA) and
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A Big Push for Productivity and Manufacturing

Greetings!

In a short span of time, the mood in the manufacturing industry has turned optimistic. The Prime Minister's speech on Independence Day and subsequent interactions in Japan have demonstrated the government's clear intention to push the manufacturing industry. India's agreement with China to set up manufacturing parks in the country, and the clarion call urging global companies to invest in India has sent out the right signals and a more than welcome push for reforms. Combined with the positive mood and structural changes in motion, the government is attempting to hasten decision-making. It will certainly go a long way in attracting more investment in the manufacturing sector.

Our government's open invitation to international companies to set up manufacturing plants here would present immense opportunities in the country. But as a country, the entire manufacturing sector would have to put in renewed focus and efforts to improve productivity and output. Capital productivity and labor productivity would be key aspects to sustain and attract investment in the sector.

Elsewhere, to cope with ever increasing competition, machine tool builders have turned to innovation and productivity growth. In Europe, internationalization efforts have allowed companies to boost their presence in global markets and tap into growth opportunities in emerging economies. IMTMA has set upon itself Vision 2020 to catapult, the Indian machine tool industry as a leading global player with strong fundamentals in various business processes and to ensure a sustainable superior all round performance. To meet this vision, IMTMA believes that companies have to be equipped with a mindset to challenge everything and embark on a journey that strengthens the industry across all its business processes and extended supply chain.

To guide and facilitate this journey, IMTMA plans to offer a 'Business Excellence Framework' and 'Roadmap' that provides a common platform for the industry. The first step of this Business Excellence program for small, medium and large companies has already been taken by carrying out introductory road shows at various cities recently. Envisioned at the 'Vision Conclave' and being introduced at 'Machine Tool Summit' at Goa, this 'Business Excellence' initiative by IMTMA will help participating units to take the next steps to higher performance and productivity.

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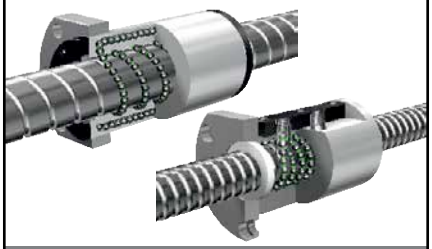

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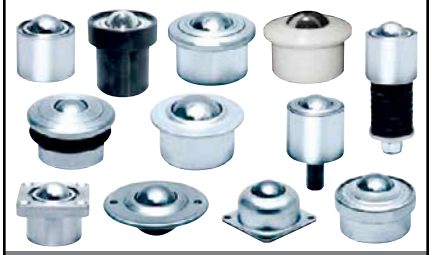

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Soumi Mitra
Editor
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Reaching for the Stars and Landing on Mars!

A few months ago, I joyously penned about India's unmatched financial accomplishment and technical milestone after the Indian Space Research Organization (ISRO) successfully launched the Mars orbit mission or 'Mangalyaan' in my editorial space. Where India marvelled the world by achieving this feat at just ₹450 crore and in approximately 15 months, NASA's similar MAVEN Mars project costed 10 times more taking three times longer.

Recently when ISRO's Mars Orbiter Mission (MOM) successfully entered the orbit of the red planet at the first attempt, making India the first nation in the globe to have achieved this commendable feat, it reasserted the need to think out-of-the-box.

"Continued growth is much more than a strategy. It is a complex process that involves changing mindsets and processes, experimentation and an enabling environment."

Comparing to its counterparts, India again proved its mettle by achieving this mammoth task with a shoestring budget of a mere $74 million. While NASA accomplished the same spending approximately $671 million on its MAVEN spacecraft.

This is a perfect example to showcase India's capability and resilient attitude in the world of science and technology. India's strength in the field of aerospace, defence, transportation, etc., has been validated 10 times over, reemphasizing Prime Minister Narendra Modi's focus on the theme 'Made in India' and 'Make in India'.

Furthermore, it is encouraging to learn that Japan is slated to invest ¥3.5 trillion ($33.6 billion) in India over the next five years. Other countries too are following suit, realizing the advantages of manufacturing in India.

In this context, we present you this issue packed with articles that may just make you see India in a different light!

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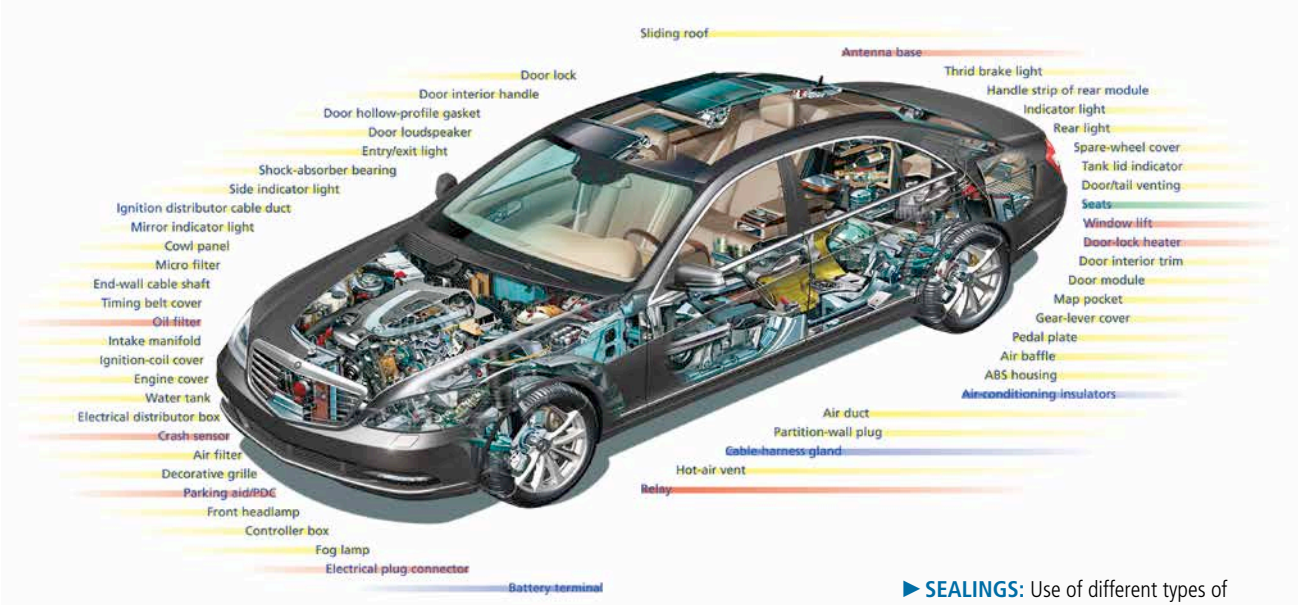

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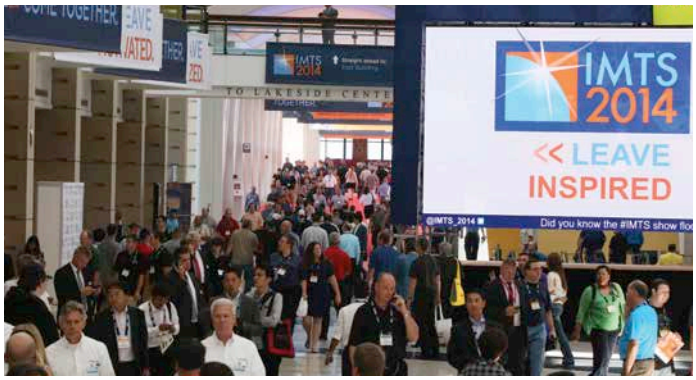

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Turning a Conflicting Situation Around

"The ability to manage conflict is a critical skill at the workplace and has been identified as a core competency for managers and leaders at all levels."

CEO, Micromatic Machine Tools Pvt Ltd, TK Ramesh

Conflict is a time consuming and costly problem that can have a severe impact on companies including the bottom line if not paid attention to. This is especially true in outward inward communications that are vital, like in marketing to manufacturing departments in true engineering environments where value, time and needs are interpreted very differently.

Workplace relationship problems normally arise because of clashing personalities, miscommunication, perceived backbiting or a perception of hidden agendas. However, one of the toughest aspects of leadership is the ability to deal with people issues. Tensions and misunderstandings are normal and inevitable; if left unresolved, they result in hostility, stress and wasted resources.

Pointers for finding a workable solution:

- Once you are aware of a relationship problem, call a meeting with the people concerned, and define the situation as factually and simple as possible. Ensure that there is no judgment or emotion on your part. Also, ideally you should avoid defining the situation as a 'bad relationship' between the people concerned. Furthermore, avoid the 'this is absolute nonsense' approach.
- Confront the possible negative issues in the relationship. Find out the problems and constraints the two people involved are dealing with. Let them list their problems, all the time emphasizing that you are talking about 'possible' negatives. For instance, one party may feel that the other does not greet him each morning, but this may be merely a perception. Remember that people are scared of conflict in general and do not know how to handle it.
- Encourage both people to look at the possible positive sides to their relationship. People have a tendency to treat perceptions as reality. Try to persuade both of them to identify the constructive aspects of their daily dealings with one another. By discussing the positives, you now move a few steps closer to finding out what they are looking for from the relationship.
- Once you have looked at various options, you can start looking at generating and then integrating positive aspirations in order to begin creating motivation on their part. Ask them what they are ideally looking for in the relationship. Once they have articulated this, ask them why. In this way, it becomes clear what both parties want from the relationship.
- Now you can generate directions (strategies) in order to achieve the listed aspirations. List your combined plans, actions, objectives and supporting goals. Go back and address the negatives now that you know what the two people want. Encourage them to distinguish between real and perceived negatives. Move them from the attitude of 'you never listen to me' to 'I know you do listen to me sometimes'. Put directions in place to address those attitudes. Help them to focus on the positives and commit to them.
- Set up a supporting structure (resources, system) to accomplish the aspirations and selected directions. Without this structure, no idea can move forward. This may simply be a regular scheduled meeting to follow up on actions and a mutual trusted neutral friend to intervene communications.
- Measure the cost of non-compliance (adherence). This means ensuring that they are aware of the cost of not following the solution/s (direction and structure) to the problem, and consequently doing whatever is necessary to get the ship back on course. Ask them what course of action would be necessary should these cost factors arise. What would be the impact on the company if the current discussion does not solve any of the issues? Talk about negativity, loss of productivity, and the possible impact on the company, if they do not resolve their dispute. They must own the possible positive outcome as well as the possible negative outcome, so let them do most of the talking.
- Decide when and how you are going to evaluate and re-evaluate the decisions taken and the progress that may or may not have been made. Hold them accountable!
- Summarize your discussions up to this point. Reiterate the positive aspirations. Remind both parties what it is that they want, and what the company is expecting from them. In other words ensure that you end off on a positive note.

The ability to manage conflict is a critical skill at the workplace and has been identified as a core competency for managers and leaders at all levels. MMI

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

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MAKING THE RIGHT MOVE?

Choosing the right integrated application development software or the ability to monitor machines remotely can get to be a daunting task. Here are a few pointers to help make that decision a little easier.

Be it an OEM or a system integrator, today each one wants to develop application programs for their automation solutions using components like PLC/HMI/SCADA/DRIVE. Faster time-to-market, reduced development costs and time are the key and common requirements. How should they choose the right engineering software platform?

A Chaudhary, Pune, Maharashtra

While there are many suppliers who offer somewhat integrated application development software for automation solutions, one must opt for vendors who really offer a totally integrated platform. For such a requirement, the points to check are as follows:

- If the platform offers capabilities to engineer applications for entire range of controllers right from Micro PLC to higher end PLCs
- Whether the same platform offers capabilities to develop visualization applications, be it HMI panel based or SCADA based
- Whether engineering of variable speed drive applications too are possible with the same platform
- Whether the said platform supports easy definition and settings for complete plant networks that are used in required automation solution.

It is important to also check if such engineering software offers a full symbolic approach for the configuration, programming, testing, and diagnosis for simple to complex range of applications with common data base for all automation components used and powerful and intelligent editors. Such a software platform helps in saving costs by way of drastic reduction in engineering efforts and time, thus enabling faster time-to-market for the machines/plant to be automated.

I am looking for a solution which can help me to monitor the status of my machine whilst I am away from my plant. How can I have this at an affordable price?

VK Singh, Gurgaon, Haryana

Monitoring the status of machines 'remotely' is offered by many PLC brands available in the market. This is normally realized via a web-server functionality, which is often offered with an additional module; this means additional costs. There are brands which also offer this web-server as an inbuilt functionality of their PLC and this is what one has to look for. By enabling the web-server functionality of the CPU, one can monitor variable status, simulate the values, change the mode of the CPU, or even download data logs remotely. In addition to this, it also allows one to design web pages via HTML and help monitor the machine KPIs, production data or any other important parameter.

Being an OEM, I often come across cases where I need to travel to my end-users to reprogram machines owing to some errors/ replacements, etc. Can I cut down on my travel cost by simply sending a USB with a backup program which can be downloaded into the HMI without programming software?

Debdatta Roy, Bengaluru, Karnataka

Yes, this is possible with an HMI that offers this functionality. At the end user side, the USB stick can be connected to the HMI and through options on the screen, the entire program can be downloaded easily.

Some vendors further simplify your task by offering a possibility of mailing the program backup to the end-user. This is called as 'Pack&Go'. The end-user unpacks the 'Pack&Go' file on a PC. By connecting the PC to the operator panel, over an Ethernet network, one can transfer the project to the operator panel at the click of a mouse.

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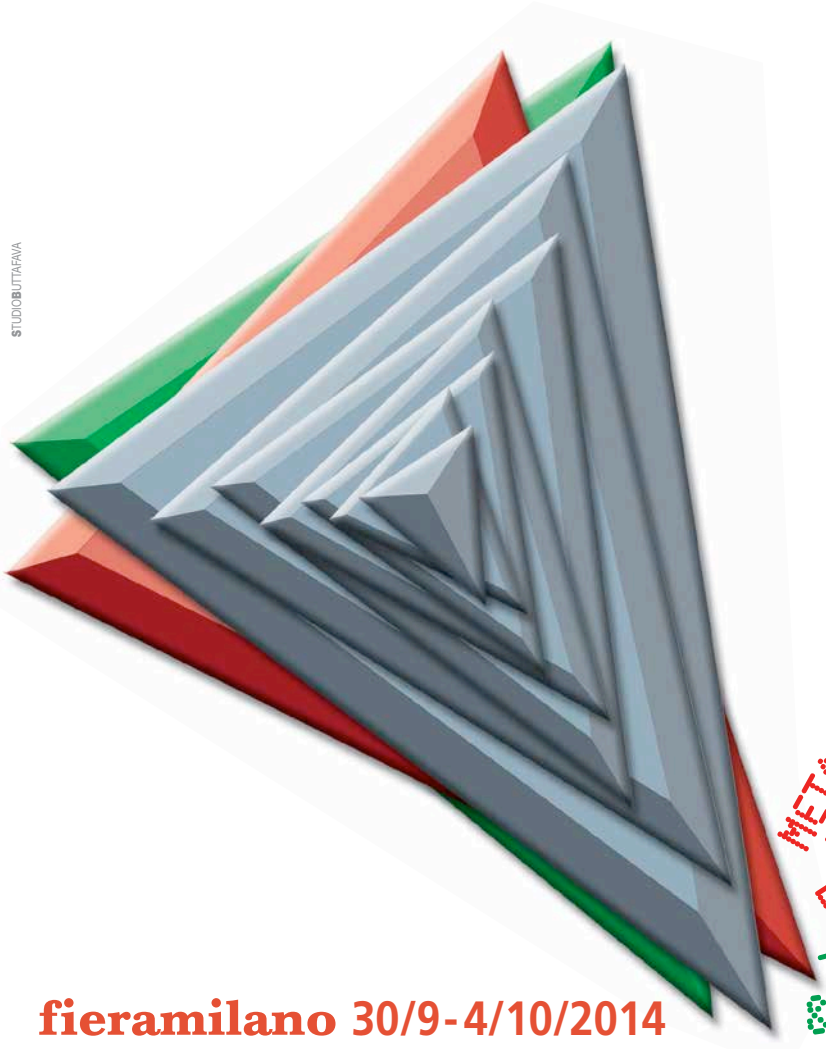

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Driving Business Excellence: Key to Sustainable Future

Indian Machine Tool Manufacturers' Association (IMTMA) helps its members grow in multiple ways. It is committed to support its members to increase competitiveness, enhance efficiency, improve productivity and ensure growth and prosperity. One such effort is the Business Excellence Framework Program. Read on to know more about it.

Looking back at the concept of Business Excellence per se, the term 'Business Excellence' appeared in the late 1980s. It has evolved from Total Quality Management, which was supported by the work of stalwarts such as W Edwards Demming and others. The term is used from pre-industrial revolution to the present day quality movements. The next step in the business excellence scenario was to reduce costs for the industrial production, increase consistency and reliability. However, as the mass production increased, it led to the need to ensure workers rights and occupational health and safety.

Business Excellence Framework

The Business Excellence Framework (BEF) is an integrated leadership and management system that describes elements essential to sustainable organizational excellence. The BEF has a proven relevance to organizations of all types and sizes across any industry and can be used to assess and improve various aspects of the organization including leadership, strategy and planning, people, information and knowledge, safety, service delivery, product quality and bottom line results.

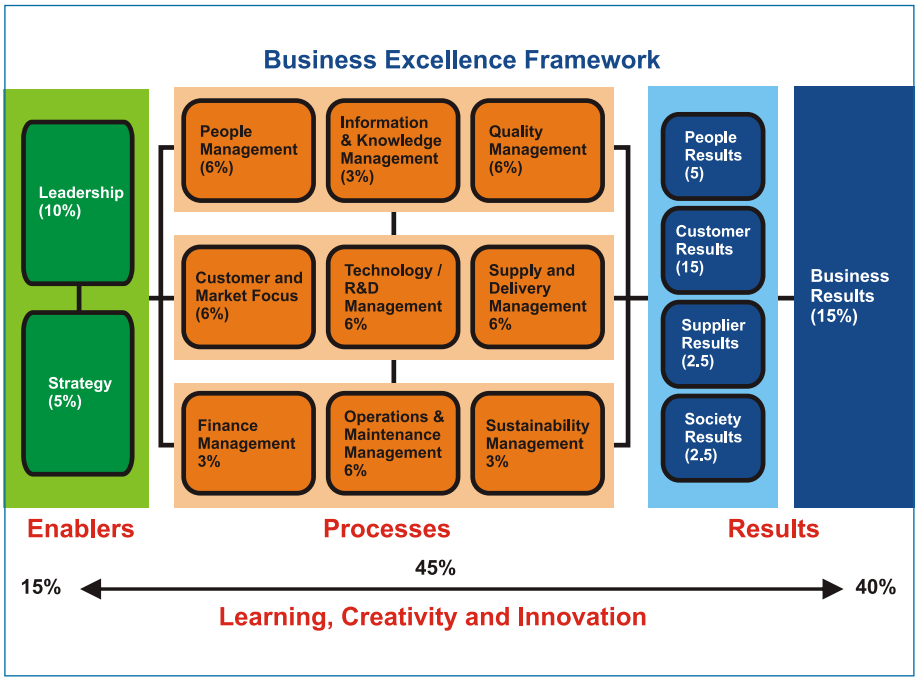
The objective of business excellence models, such as Malcolm Baldrige National Quality Award and the EFQM Excellence Model has been to provide a holistic framework that enables organizations to assess how well they can manage this complex and multi-stakeholder driven operating environment. When used as a basis for an organization's improvement culture, the business excellence criteria within the models channelized and encouraged the use of best practices into areas where their effect will be most beneficial to improve performance and productivity.

Measuring customer satisfaction to understand needs and expectations became important to achieve or maintain competitive advantage. As companies identified the link between customer satisfaction, product quality and the motivation of the workforce, employee satisfaction and later employee engagement became the focus.

IMTMA Business Excellence initiative

IMTMA has been engaged in developing the vision for the Indian machine tool industry for the next decade. The association is also focusing helping Indian companies take next steps towards growth and development. With the government giving priority and importance to manufacturing, Indian machine tool industry should seize this opportunity to make best use of it.

Source: IMTMA



Source: IMTMA

The Business Excellence Framework (BEF) has a proven relevance to organizations of all types and sizes across all industries

Way forward for IMTMA Business Excellence Programme

IMTMA has co-opted the services of experts with deep industrial and consultancy experience to develop Business Excellence models. Using these, a step-wise approach has been structured for participating members to travel the road towards excellence:

Step 1: At the roadshow, Business Excellence (BE) experts will help units to do a 'Spot Assessment' to get a snapshot of their unit's capabilities.

Step 2: Units can undertake web-based self-assessment using the BE models and get a detailed map of their strengths and weaknesses.

Step 3: BE experts working with IMTMA will re-do the assessment with the units, and through discussions, offer a realistic assessment of their status. This process will identify areas of improvement.

Step 4: IMTMA will form clusters of machine tool units at different locations to address the common issues and bring experts to help these units overcome weaknesses and develop strengths to meet future business objectives. This program can run for 2-3 years to bring sustainable improvements.

Thus, IMTMA has rolled out its Business Excellence Program to help member companies attain higher levels of performance and productivity, match domestic and global benchmarks and emerge as lean, competitive business units to take on the competition on a larger arena. To enable the same, IMTMA is conducting roadshows across the country.

Roadshows

IMTMA has completed introductory roadshows in various machine tool hubs like Rajkot, Pune, Ludhiana, Delhi, Chennai and Bangalore to take this programme at the doorstep of the industry. These roadshows have been actively attended by top management and senior executives of companies. Through various interactive sessions conducted during the roadshow, the stakeholders have been able to arrive at a snapshot of their unit through several tools. As a result, a path has been envisaged for their future development.

Industry participation

This program is especially useful for the SME sector, as many of the companies in this sector, cannot afford to have independent directors or consultants to assess and appraise the management and health of their organization on a regular basis. Through IMTMA's Business Excellence drive, members are offered regular Business Excellence assessments. This further will help them identify risk factor to their businesses and can be addresses accordingly.

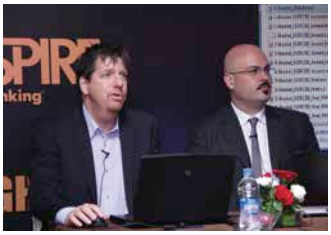
In the long run, Business Excellence helps organizations address various business challenges and aims on various key metrics such as strategic planning, workforce focus, operation focus, leadership, customer loyalty, sustainable future, etc. Companies and management who wish to look for answers to challenges of today's business environment—high competition, sluggish growth and sustainability, would be benefited by IMTMA Business Excellence Programme. MMI

Altair Conducts Seminar for solidThinking

Mumbai – Altair announced the launch of the 2014 versions of solidThinking Inspire and Evolve through the five city seminar series—themed the 'Weight is Over – Design Faster, Better and Lighter'. The seminars attracted 800+ design engineers, managers and industrial designers from over 300+ organizations across five cities, viz., Bangalore, Chennai, Delhi, Pune and Mumbai. The seminars kicked off with the introduction to solidThinking Inspire2014 and Evolve2014. The delegates had first-hand experience to these exciting product design and industrial design solutions with live demos highlighting the benefits of using solidThinking in the design process to design and manufacture organic and lightweight engineering designs as well as use of additive manufacturing in the design and manufacturing process.

Experts from Altair Global Development & Technical team, Director, solidThinking, APAC, Tony Gray and Technical Director, European Industrial Design, solidThinking, Antonio Flores made key presentation on this technology along with related case-studies from customers.

Source: Altair



(LtoR): Technical team, Director, solidThinking, APAC, Tony Gray and Technical Director, European Industrial Design, solidThinking, Antonio Flores making presentations on the latest versions of solidThinking Inspire and Evolve

EEPC India and Hannover Milano Fairs join hands for boosting IESS

New Delhi – EEPC India, the country's apex engineering export organisation, has signed a cooperative agreement with Hannover Milano Fairs India Pvt Ltd (HMFI). The agreement was signed to organize largest engineering sourcing show of the country 'India Engineering and Sourcing Show (IESS)—Industrial Supply INDIA' to be held at the end of this year in commercial the capital of India. The partnership with HMFI is set to generate business worth ₹3,000 crore.

Executive Director and Secretary, EEPC India, Bhaskar Sarkar and Vice President, Deutsche Messe AG, Wolfgang Pech signed the agreement. Also present at the ocassion were Managing Director, Hannover Milano Fairs India Pvt Ltd, Mehul Shah and Joint Secretary, Ministry of Commerce & Industry, Govt of India, Ravi Capoor.

Capoor speaking on the occasion said, "The government under the leadership of Prime Minister Narendra Modi is keen on supporting the industry efforts to reach out to more parts of the world, and this agreement has come at a right time. IESS will also provide an opportune platform to the Indian MSME sector to reach out globally."

Source: EEPC India

(LtoR): Signing of cooperative agreement by Executive Director and Secretary, EEPC India, Bhaskar Sarkar and Vice President, Deutsche Messe AG, Wolfgang Pech

African Ambassadors' Round Table Forum a Success

New Delhi – EEPC India recently concluded the 3rd edition of African Ambassadors' Round Table Forum in New Delhi. The forum was based on the theme of 'Building Partnerships with Indian Engineering & Manufacturing Sector'.

The forum was attended by a galaxy of African ambassadors & diplomats, senior industry representatives keen to develop business relations with the region and officials from Ministry of Commerce & Industry, Government of India.

The interaction proved helpful in devising a roadmap and developing a strategy to develop and strengthen India's trade with the region. India-Africa bilateral trade is presently around $70 billion and has an ambitious target to touch $100 billion by 2015. Engineering has an important role to play to meet this target. Some of the industry representatives who were present during the forum included BEML, RITES, EIL, Reliance Infra, SIDBI, Overseas Infrastructure Alliance, GMR among others.

During the forum, a presentation was made by EEPC India on India Engineering Sourcing Show (IESS IV). It was highlighted that the 4th edition of IESS offers the most appropriate platform for developing trade and bilateral relations between India and Africa in the engineering & manufacturing sector.

Source: EEPC India

African ambassadors & diplomats, senior industry representatives and delegates present at the forum.

Order Bookings for the German Machine Tool Industry Still On Course

Frankfurt, Germany – In the second quarter of 2014, order bookings in the German machine tool industry rose by 1 per cent compared to the second quarter of 2013. Domestic order bookings were 16 per cent up on the preceding year, whereas export orders fell by 7 per cent. For the first half of 2014, order bookings were 6 per cent up on the preceding year's figure overall. Domestic order bookings rose by 18 per cent, while demand from abroad was down by 1 per cent.

"German machine tools were still in demand during the year's first half," comments Executive Director, Sectoral Organization VDW (German Machine Tool Builders' Association), Dr Wilfried Schäfer. Demand from domestic customers in particular, he adds, has picked up perceptibly, whereas demand from abroad has slid into minus territory.

"The general uncertainty due to numerous trouble-spots is causing foreign customers to hold back on new investment projects", says Schäfer. This is being reflected particularly in the year's second quarter, by falls in machine tool orders from countries outside the Eurozone. In the Eurozone itself, by contrast, there is a returning uptrend, with a plus of 13 per cent.

Source: VDW

Executive Director of the Sectoral Organization VDW (German Machine Tool Builders' Association), Dr Wilfried Schäfer

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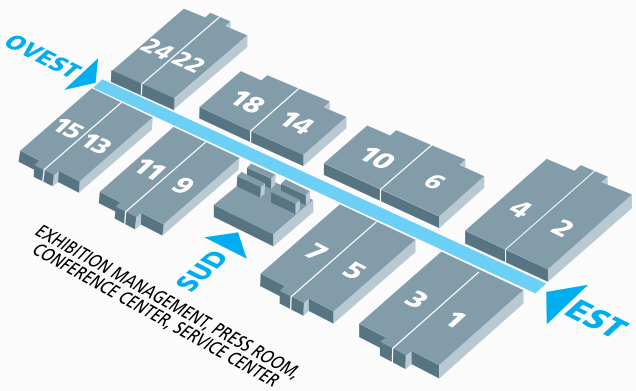

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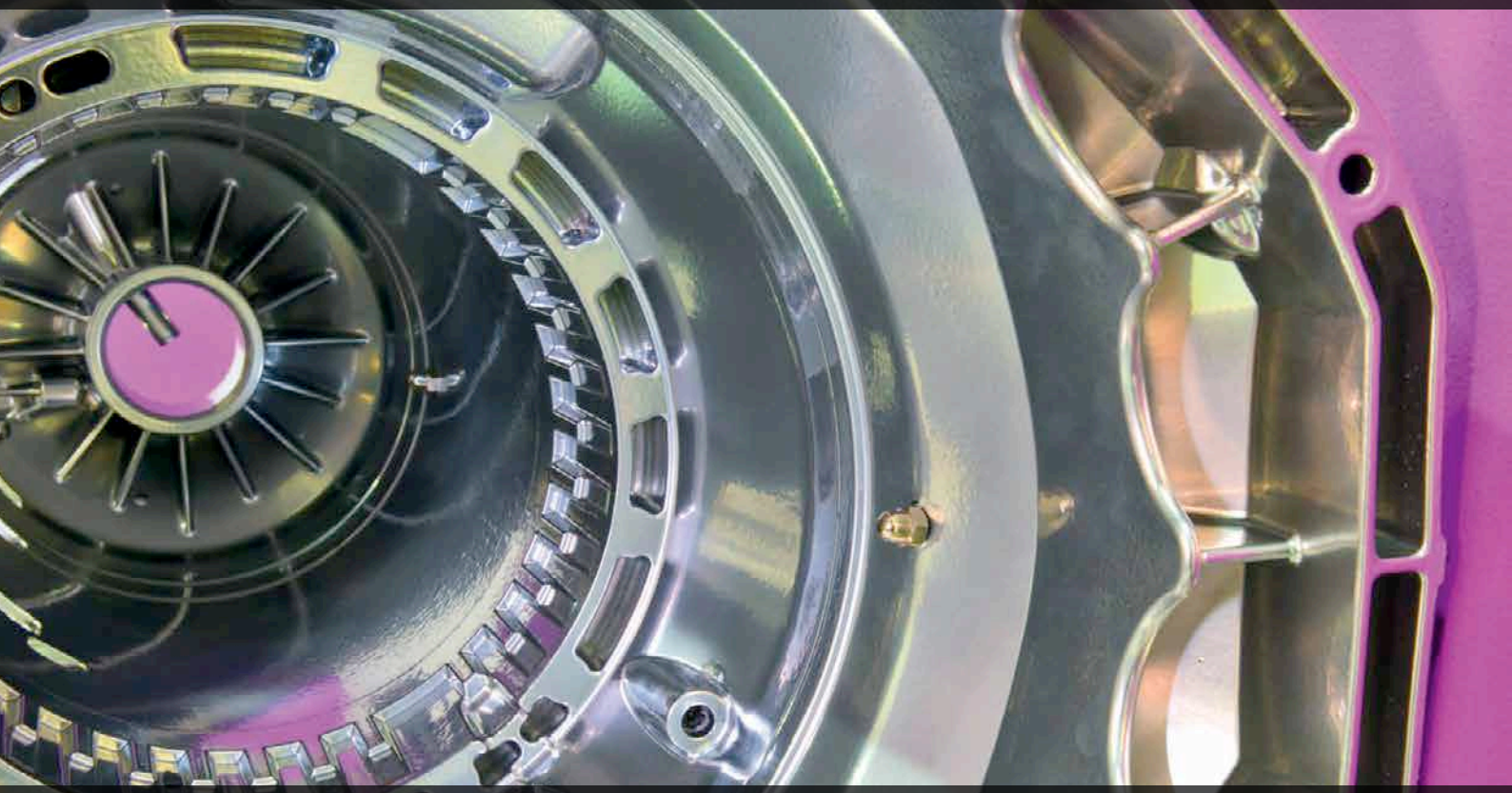

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AMADA Opens New Technical Center

Bengaluru – AMADA India, a subsidiary of AMADA Corporation, has recently opened its technical centre in Bengaluru. Senior Managing Director, Corporate Management HQ and Financial HQ, AMADA Co Ltd, Tsutomu Isobe; President, AMADA (India) Pvt Ltd, Kuniya Matsumoto, and Executive Vice President, AMADA (India) Pvt Ltd, Niraj Seth welcomed the gathering at the event and expounded on why this facility is a stepping stone towards the upgradation of Indian sheet metal industry.

Located in close proximity to the Bangalore International Airport, the center will be used to support the AMADA India team to help customers in bringing about a change in their outlook towards a profitable business. The technical center will be a base for introducing the new and latest technology to its customers in India. It will produce and demonstrate the feasibility of the customer's product. Furthermore, the facility will be used to educate and train its customers' engineers, so that they can operate machines efficiently.

The center will be a symbol of the Japanese production spirit and hopes to make all visitors to feel and experience the best production environment that is created through India and Japan collaboration.

Source: AMADA (India) Pvt Ltd

Visitors at the opening of the AMADA Technical Center in Bengaluru

ACMA Automechanika: Important Destination for Automotive Sector

New Delhi – After the successful first edition of ACMA Automechanika New Delhi, Automotive Component Manufacturers Association of India (ACMA) and Messe Frankfurt are jointly organizing the second edition of the event to be held from February 26 to March 1, 2015, at Pragati Maidan, New Delhi. This is in-line to further stimulate demand in auto parts business and bring the industry's attention on the genuineness of auto components through a professional trade and networking platform dedicated to the sector.

A successful first edition saw 8,096 visitors with a major share of visitors from the top management. The fair's proven reach among the decision making audience has surged demand for floor space with leading domestic and international companies confirming their participation to the show.

Coupled with a series of hi-powered conferences running parallel to the show, ACMA Automechanika New Delhi will provide sector professionals with in-depth knowledge about the global automobile industry in the key areas of R&D and innovation, advancements in mechatronic systems, simulation and testing systems, sustainable mobility, fuel efficiency, etc.

Source: Messe Frankfurt

Glimpse of the previous edition ACMA Automechanika New Delhi

India and China — Strategic Partners of the Future

Mumbai – 'The Silk Road Rediscovered', authored by Anil K Gupta, Girija Pande and Haiyan Wang, predicts that the India–China relationship is at the cusp of transformational change: from a largely trade-driven relationship to one driven increasingly by investment.

Speaking at the release of the book organized by Confederation of Indian Industry (CII), Gupta said that in next 5 to 10 years India and China will be the largest economies. He stated that the cooperative engagement between the two countries will take place not only directly but also indirectly through acquisitions in other countries.

Pande, co-author of the book, voiced that the relationship between India and China relationship is an important one. He predicted that Chinese companies will invest around $25-30 billion in India over the next 5-10 years. He added that with active engagement, China and India can produce global companies. He said there is great opportunity for India to partner with China and this book is like a guide for examining the challenges and opportunities of doing business in these countries.

Source: CII

(LtoR) Past Chairman, CII Maharashtra, MD & CEO, Aptech, Ninad Karpe; Chair & Prof of Strategy, Globalization & Entrepreneurship, Smith School of Business, The University of Maryland, Anil Gupta; Consul General of China, Mumbai, Dr Liu Youfa, and Executive Chairman, Apex Avalon Consulting Pte, Girija Pande at the book launch

SPS Automation India 2015 to be International Standard Sourcing Destination

Frickenhausen, Germany – Exhibition companies P. E. Schall GmbH & Co KG and Mesago Messe Frankfurt GmbH are joining forces by collaborating on a trade show project in India, SPS Automation India 2015, from February 5–7, 2015 at Mahatma Mandir Convention cum Exhibition Centre, Ahmedabad, Gujarat. The companies want to combine SPS IPC Drives, Motek, and Control—the leading industry trade shows.

While SPS IPC Drives is Europe's premier event for electrical automation, Motek (the international trade show for production and assembly automation) and Control (the international trade show for quality assurance) set the global benchmark in their segment.

Trade show development and coordinating firms Schall and Mesago feel that the joint event will have a very good chance of establishing itself as an information, communication, and business platform that targets the booming market in India.

While partner Mesago teams up with the Indian colleagues from Messe Frankfurt to organize and market the event, Schall is in charge of licensing the Motek and Control brands and leveraging its development and marketing know-how.

Source: P.E. Schall GmbH & Co KG

Glimpse of an event organized by the exhibition companies

India to be Partner Country at Hannover Fair

New Delhi – Indian high-tech products and services will receive instant visibility at Hannover Fair which has granted the coveted 'Partner Country' status to India for its April 2015 edition with formal signing of the MoU between Deutsche Messe AG and the Engineering Export Promotion Council of India (EEPC) India.

The Ministry of Commerce has mandated the EEPC India along with the India Brand Equity Foundation (IBEF) for organizing high level participation from the country at Hannover Messe 2015 and help build reputation of India being a high tech and dependable supplier of engineering goods and turnkey services to global giants.

The MoU was signed by Executive Director & Secretary, EEPC India, Bhaskar Sarkar and Senior Vice-President, Deutsche Messe AG, Marc Siemering. Addressing the gathering, Joint Secretary, Ministry of Commerce & Industry, Govt of India, Ravi Capoor said India's participation at the Hannover Fair is timely as it would advance the government's campaign for making India the hub of global manufacturing. Prime Minister Narendra Modi will be attending the Hannover Fair as the head of the government of the Partner Country is invited by German Chancellor, Angela Merkel.

Source: EEPC India

Signing of the Cooperation Agreement between EEPC & Hannover Milano India Pvt Ltd

Sandvik Coromant breaks Guinness World Record

Chicago, USA – The manufacturing industry made history by breaking the Guinness World Record for the 'World's Largest Coin Mosaic' during the International Manufacturing Technology Show (IMTS). In an effort to raise awareness of the vital role the manufacturing industry plays in the US economy and the opportunities it presents for the next generation of workers, the mosaic incorporated more than $65,000 worth of coins—the amount of money manufacturing contributes to the US economy each second.

"While achieving this Guinness World Record is an enormous accomplishment for the industry itself, it is truly gratifying to know that the sum of the coins used, as well as additional donations from event sponsors, will benefit the growth of our industry and the future generations that strive to keep it alive," says President, Sandvik Coromant, Klas Forsström. The money used in the creation of the mosaic will be donated to The Manufacturing Institute. This donation will help students take advantage of STEM-education and help fund its summer camps, as well as other initiatives.

Source: Sandvik Coromant

Sandvik Coromant President Klas Forsström accepting certificate from Guinness World Records

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Composite Market Promises Growth for Particular Sectors

Surveys show that the market for fiber-filled plastics remains strong. These materials are greatly used in auto construction, and components made from them are becoming more complex, which bodes well for composites specialists of all kinds.

The latest survey on the market development for fiber-reinforced plastics conducted by Germany's industry associations AVK is raising the pulses of fiber-composite specialists. According to a Carbon Composites Expert, Bernhard Jahn, the market for fiber-reinforced plastics has been growing in recent years. The global demand for the same has increased from 43,500 tons in 2012 to 48,000 tons this year. It is further expected to increase by 20,000 tons. Jahn further states that capacity expansion plans have been realized, and established firms, along with some newcomers, have begun to underpin their market positions.

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CFRP market development

In 2013, Toray extended its carbon-fibre reinforced plastic (CFRP) capacity, for example, to over 21,000 tons. Russia's Argon and Alabuga fibers count as newcomers: each has raised production to 1,500 tonnes per year. Taekwang Industrial in South Korea began CFRP production in March 2012 and has already reached the level of the two Russian market companions. The investment plans announced by the Zoltek Corporation have come to fruition to provide a total capacity of over 17,500 tons per year, while the SGL Group bought 86 per cent of the shares in the Portuguese fiber manufacturer Fisipe, opening up another source of raw material for this carbon fiber manufacturer. All in all, the data for 2013 points to a theoretical total global CFRP capacity of 111,500 tons. Out of this total global capacity, a quarter of this is based in Europe, with similar capacity figures in Japan and the US, followed by China with 11 per cent, making it the fourth-largest global producer.

In manufacturing CFRP working materials and components, various production processes are used, for which different semi-finished fiber material products are required. Compared to 2012, however, there have been only superficial changes in this segment. As ever, the use of prepregs continues to dominate.

Around 54 per cent of the carbon fibers produced globally are used for prepegs, with 42 per cent going to unidirectional scrims and 12 per cent taken for fabrics. Around 5 per cent of the fibers are processed to semi-finished fabrics, from which, in turn, CFRP components are manufactured using an infiltration process such as resin transfer molding (RTM). The wrapping procedure, with about 15 per cent, and the pultrusion process, with nearly 8 per cent, are likewise important factors in producing CFRP.

Analysts expect the CFRP market to grow rapidly. An annual growth of at least 13 per cent is anticipated while optimists predict 17 per cent growth. Moreover, experts foresee a market volume of $25.2–36 billion in 2020.

Source: MM Maschinenmarkt

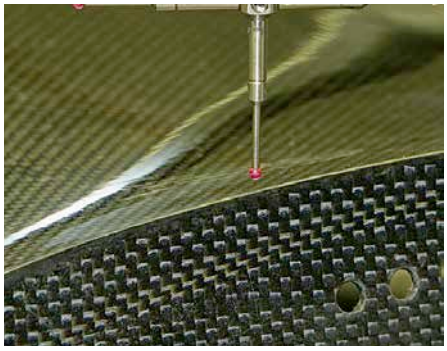
A CFRP intake manifold on a Lamborghini engine for a racing boat

Trends for GFRP use

The development of the glass-fiber reinforced plastic (GFRP) market is described as a slightly positive sideways movement, according to Managing Director, AVK, Elmar Witten. Some countries have witnessed positive development in certain application and manufacturing procedures while others have shown less development. In the heterogeneous GFRP industry, the quantitative changes are reportedly partly owing to shifts and also to shrinking processes or to growth rates arising from innovation. As in previous years, GFRP development is thus following the current predominant economic trend in the development of plastics processing in general. Here, one should note that the composites market as a whole comprises many more application areas in various industry segments, with composite working materials established in many sectors.

Above average growth in CFRP, expected under certain circumstances, e.g., because of the aforementioned possible growth in the auto industry, will have limited effects on the total amount of fiber-reinforced plastics produced in the medium term due to its relatively small market share. In some production procedures, individual countries and in specific applications, there are different

Source: MM Maschinenmarkt



Precise manufacture of CFRP components includes smart automation solutions for affordable series production

leverage points for the further breakthrough of these comparatively young materials. Furthermore, new developments on the raw materials side are to be expected. Usually produced in series, SMC (sheet molding compound) and BMC (bulk molding compound) components still constitute only a quarter of the total quantity of GFRP, with the car industry being the largest customer.

The BMC components have shown slight growth of 1.4 per cent, as in the previous year, which is principally due to applications in the electrical and electronics industry. As it can currently be assumed that car production locations in western Europe and, even more so, in southern Europe are unlikely to return to their former production levels in the short and medium term, SMC manufacturers are facing the challenge, but also the opportunity, of entering new sales and production markets. The present tendency towards the use of thermoplastic GFP in the auto industry could raise the pressure to act even further.

RTM powers forward

The production of RTM components grew in 2013 at an above average rate of 5 per cent. Because of the broad production possibilities and the great flexibility of the process parameters, a slight fall-off in open processes is observable. The 2013 production of GFRP panels and blanks in a continuous process is growing at the fast pace of almost 8 per cent. The market for GFP pultrusion profiles is maintaining its position after falling off in the previous year; Europe-wide there is currently no further decline. The main area of application is construction, which in many cases is still moribund in southern European countries.

As in the previous year, development of glass-mat reinforced thermoplastics and long-fiber reinforced thermoplastics has been above average. **MMI**

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Mitsubishi E70: Best Suited to Simple Lathes/Milling Machines

Mitsubishi's E70 CNC solution offers cost efficiency with reliability

To enable Indian small and medium scale industries with a cost-effective solution, Mitsubishi Electric presents the E70 series. Seeking easier usability and higher cost-efficiency, this series succeeds the high performance and high operability of its predecessors. The advantage of this series is that it is more compact in dimension and requires less wiring. With the latest hardware installed, the E70 series is best suited to simple lathes and milling machines.

Source: Mitsubishi Electric

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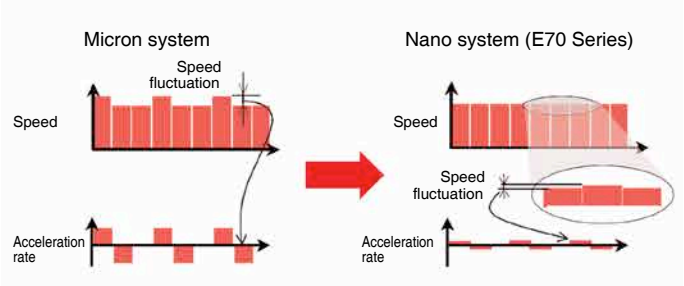
- Ethernet is available as standard specification, enabling input/output of machining programs and parameters by connecting the NC to a personal computer.
- Front CF card/USB memory interface in the display as standard specification.
- Analog output offered as standard specification to enable the use of a spindle drive with an inverter.

High Cost Effectiveness

- Very smooth cutting surface achieved with one-nanometer position interpolation.
- Up to 20 sequence programs can be registered with the built-in PLC function.
- A wide array of development support tools such as NC Designer is available.
- Ultra-compact drive units with built-in power supplies contribute to reducing control panel size.



Mitsubishi CNC Machine Operation Panel

- The display and keyboard are the same color, providing consistency in design.
- The key layout can be customized according to machine specifications.
- The sequence program samples have been prepared for the basic key layout.
- Wiring has been reduced by connecting the panel with the NC via a remote I/O link.

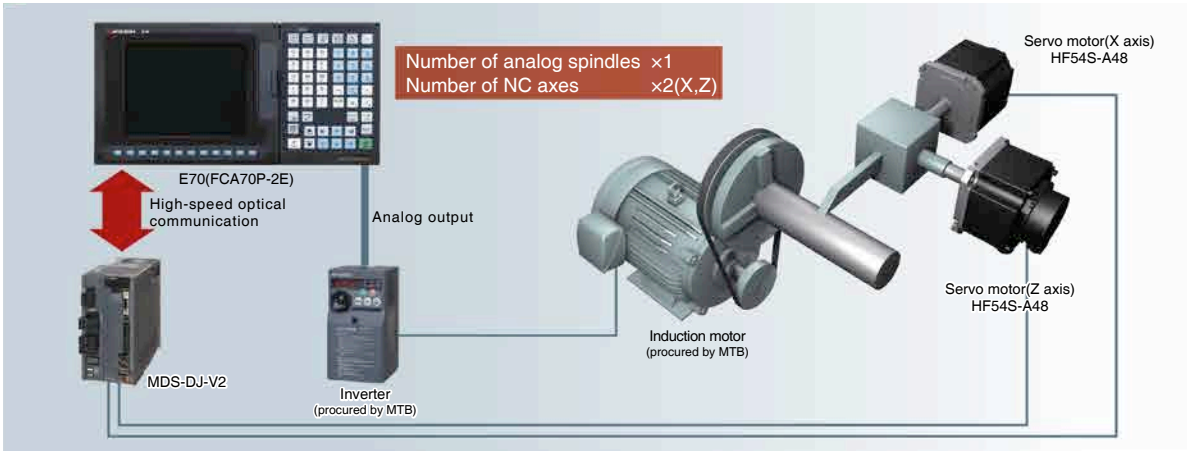

Example when combined

System Configuration Example

Here are some examples of simple configuration of the system

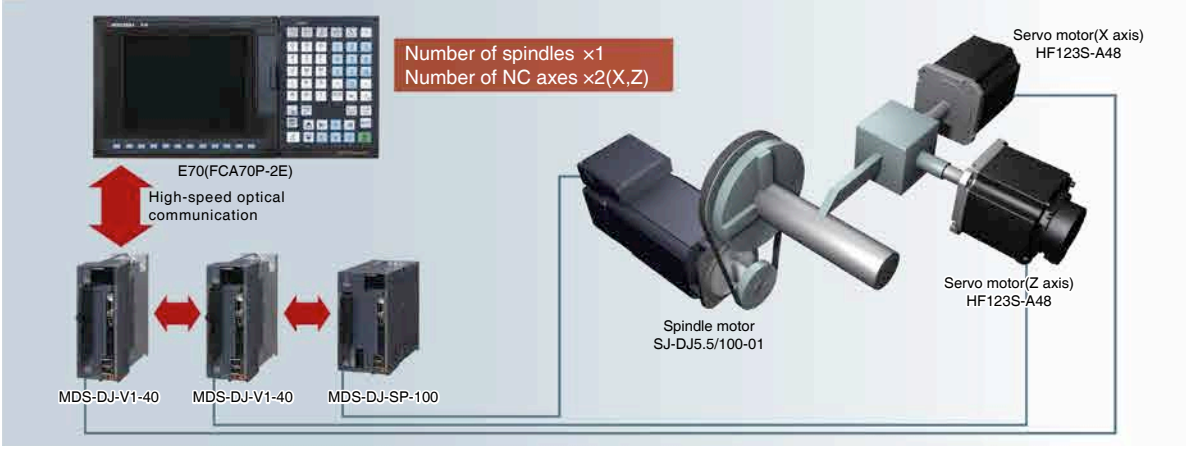
Simple, small lathe (with analog spindle)

Cost effective configuration to control the spindle with an inverter using analog output.



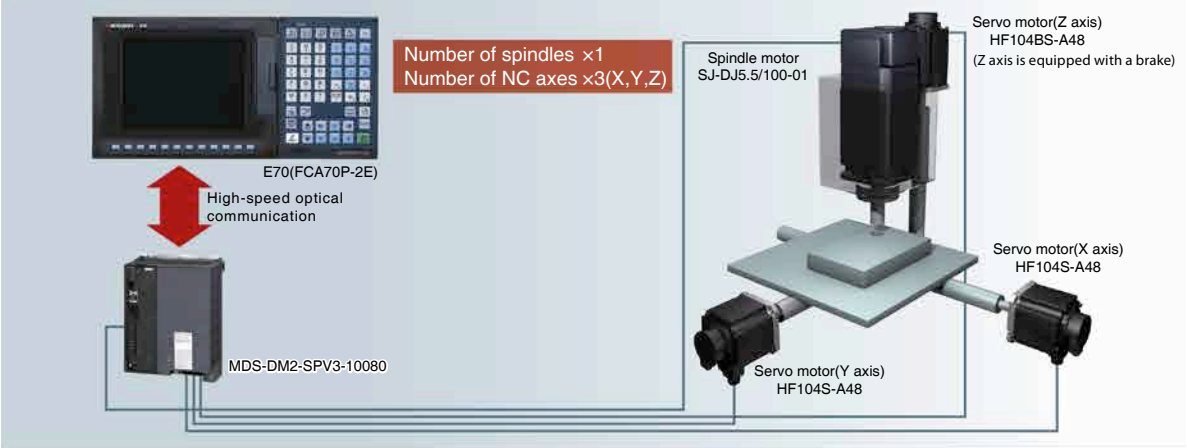
Simple, small lathe (Drive unit: MDS-DJ Series)

Space-saving, cost effective configuration using MDS-DJ Series: Ultra-compact drive unit series with built-in power supply.



Small milling machine (Drive unit: MDS-DM2 Series)

Space-saving, wire-saving configuration to control three servo axes, one spindle and converters with one MDS-DM2 Series drive unit.



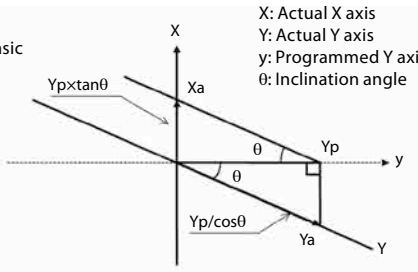
Functions & Usability

E70 is also user-friendly and simple to operate. Read on to know more about its functions

Inclined Axis Control (lathe system)

- Even when the control axes configuring a machine are mounted at an angle other than 90 degrees, this function enables it to be programmed and controlled in the same way as with an orthogonal axis.
- The inclination angle is set using a parameter, and axes are controlled using the movement amounts of the axes that are obtained through conversion and compensation using this angle.

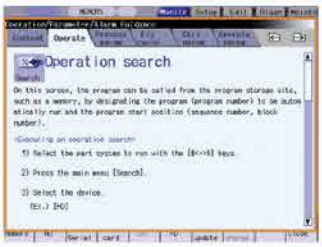
<Example of use>
When the X axis serves as the basic axis and the Y axis serves as the inclined axis



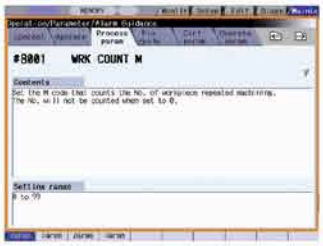
X: Actual X axis
Y: Actual Y axis
y: Programmed Y axis
θ: Inclination angle

Guidance Function

- By pressing the help button, guidance (operation procedure/ parameter descriptions/alarm descriptions/G code format) regarding the currently displayed screen will be shown.

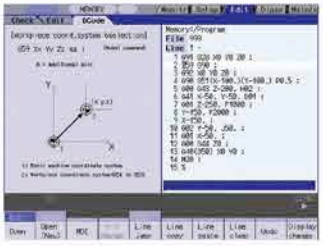


Operation guidance



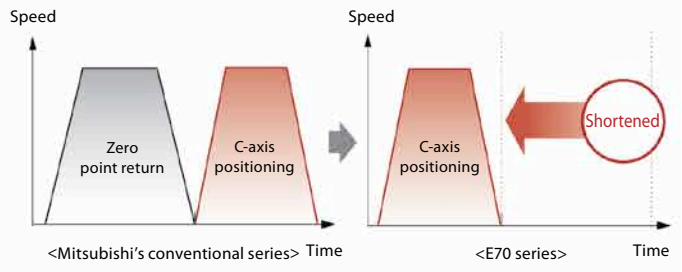
Parameter guidance


Alarm guidance


G-code guidance

Spindle/C-axis Control

- The spindle's constant position loop control has eliminated the zero point return time when switching from the spindle to C-axis.



System Lock Function

- This function allows machine tool builders to set the expiration date for machine use.
- If the cancel code is not entered by the specified deadline, the system forcibly turns OFF the Servo ready completion signal, placing the machine in an inoperable status.

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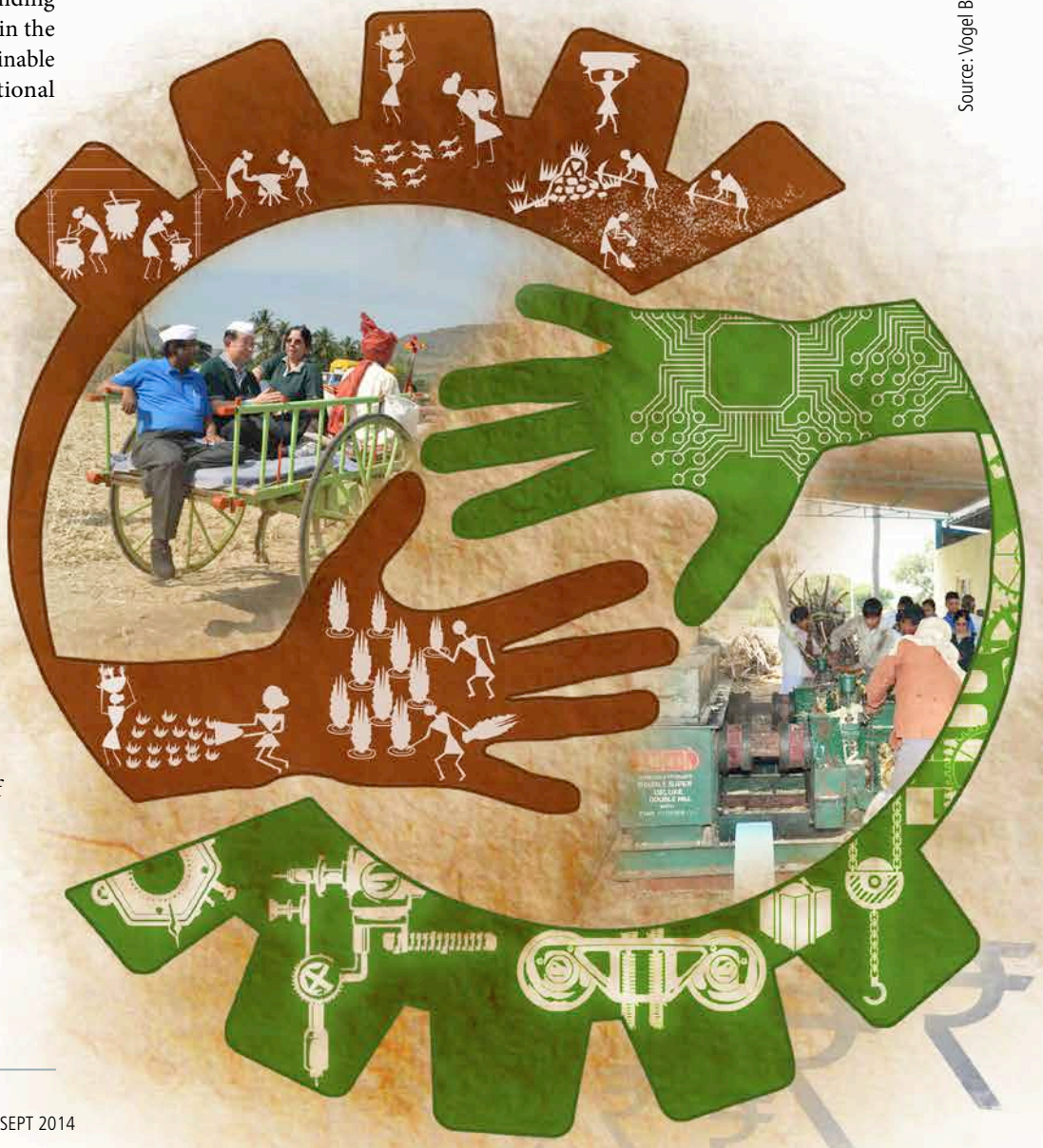
New Perceptions for Metamorphic Transformation

Around 75 per cent of India's exports can be attributed to the manufacturing sector. However, this sector comprises only 17 per cent of India's GDP as compared to the higher contribution made by other East Asian economies. In order to enhance this sector further, Confederation of Indian Industry (CII) along with the National Manufacturing Competitiveness Council (NMCC) and Japanese International Cooperation Agency (JICA) brought about a program that would further develop visionary leaders capable of breakthrough thinking and envisioning future concepts, trends and business to thereby transform the Indian manufacturing industry. Take a look at the journey so far.

The list is endless for reasons as to why India's manufacturing sector needs to be strengthened. One of the ways improvement can be brought about is changing the way leaders think. Expanding and changing the mindset of leaders in the field will result in a stronger and sustainable manufacturing sector. The National Manufacturing Competitiveness Council (NMCC) in association with Japanese International Cooperation Agency (JICA) and Confederation of Indian Industry (CII) came up with a very unique program called 'Visionary Leaders for Manufacturing Programme' (VLFM).

"Manufacturing is very important for India. Prime Minister Narendra Modi has enunciated the vision of 'Make in India' and 'Made in India'. This is the key to a breakthrough in speedy elimination of poverty and for creating employment for the increasing numbers entering the work-force. The VLFM Programme was conceived with this in mind," voiced Member Secretary, National Manufacturing Competitiveness Council, Govt of India, Ajay Shankar.

A win-win approach will help enhance and create sustainable business opportunities and encourage the all-round development of India



Source: Vogel Business Media India

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

Source: CII

Graduation ceremony of students passing out from the VLFM course

"One's mindset changes when one experiences and addresses a situation with added skills and gets an opportunity to practise these skills in their own work."

Chief Adviser, Champions for Societal Manufacturing (CSM), (earlier known as VLFM), CII & JICA Project, Prof Shoji Shiba

Continuing on the same note Chairman VLFM Initiative and Past President, Confederation of Indian Industry (CII) and Chairman and Managing Director, TVS Motor Company Ltd, Venu Srinivasan explained, "The objective of the VLFM programme created by Chief Adviser, Champions for Societal Manufacturing (CSM), (earlier known as VLFM), CII & JICA Project, Prof Shoji Shiba is to strengthen the Indian Manufacturing Industry."

He elaborated on how earlier Indian manufacturing companies focused on only production improvement—the small 'm' concept. However, to be able to compete on a global front, it was essential that Indian manufacturing companies needed to shift their focus on the Big 'M' concept—enlarging their perspective and developing an integrated thinking capability dovetailed with a strategic mindset.

"Prof Shiba introduced the concept of Big M for adoption by the government, academia and industry together and set a goal to create 1000 visionary leaders who not only understand this concept, but are empowered with implementation skills as well," exclaimed Srinivasan.

Four courses have been developed so far under this program— for CEOs and senior managers (future leaders with 15–20 years' experience), middle level managers (4–5 years' experience—a course offered by IITK, IITM, IIMC), and Visionary SME course for developing a win-win relationship between big, medium and small companies and for strengthening the SMEs.

"This could happen with the collaboration of India and Japan under the Indo-Japan Technical Cooperation Agreement, which has worked very well since 2007. Today, more than 1,300 visionary leaders from more than 300 manufacturing companies in India have graduated through the four courses developed so far," stated Srinivasan.

How it all began

The idea of VLFM grew from CII's association with Prof Shiba. Principle Adviser, Confederation of Indian Industry (CII), Dr Sarita Nagpal reminisced, "My association with Prof Shiba dates back to 1994, when he first conducted workshops with CII on Total Quality Management. 'The new American TQM' had already been spearheaded by the professor in the USA, and we were very keen on bringing it in India. While in India, we were already familiar with the tools of control (Standards) and the tools of incremental management (Plan-Do-Check-Act), what India needed were tools of breakthrough management."

Having been involved in CII's Quality movement since 1988, the development of VLFM was a natural progression. "It was the next benchmark, and I was confident that many of the Indian companies who had been introduced to Quality improvement initiatives would need this someday. It is this belief that drove CII to pursue Professor Shiba," said Dr Nagpal.

Development of the program

Speaking on how the program transpired, Dr Nagpal continued, "The idea of VLFM grew out of our association with Prof Shiba; where we first began experimenting with the idea of breakthrough management, engaging a small community of companies. Along with Dr Surinder Kapur of Sona Koyo Steering Systems, we got together the first four companies in July 2004. The learning communities formed over two batches brought together change leaders who were open to new ideas and methods that Prof Shiba brought with him."

Acting on a mandate from then President Abdul Kalam, Prof Shiba envisioned the scaling up of the learning communities, pitching breakthrough transformation in the manufacturing sector at the national level. The opportunity arrived when Dr Krishnamurthy, whose company was a part of the first learning community and also the Chairman of the National Manufacturing Competitiveness Council, saw the benefits and felt the need for larger Indo-Japanese collaboration in the direction of breakthrough management. With Professor Shiba's efforts, JICA agreed to support the collaboration by providing experts, the faculty and an annual visit to Japan by participants. NMCC's collaboration further helped bring IIT Madras, IIM Calcutta and IIT Kanpur on board. Four

Source: CII

Helping the community with technology for sustainable development

"For economic growth in India to be holistic, it is imperative that villages and cities meet the growth index criteria in equal measure."

Chairman VLFM Initiative and Past President, Confederation of Indian Industry (CII) and Chairman and Managing Director, TVS Motor Company Ltd, Venu Srinivasan

different programs were structured to separately focus to leadership development amongst CEO's, senior managers, middle level managers and SMEs.

"For Indian manufacturing industries to achieve the expected growth rates, we first need to create a pool of visionary leaders who are equipped with the skills and capacity to think ahead of times. At VLFM we set out to expand that pool of change makers who can lead by example," averred Dr Nagpal while stressing on why the initiation of the program was necessary.

A different train of thought

Chief Adviser, Champions for Societal Manufacturing (CSM), (earlier known as VLFM), CII & JICA Project, Prof Shoji Shiba believes that to find different solutions, it is necessary to a good first hand view of the situation. He uses the methodology of 'Jumping into the fishbowl' as a way to help understand how thinking patterns need to be changed.

"Jumping into the fishbowl was a 'research methodology' developed when I spent more than 15 years working with US academia and Industry at MIT," explicated Prof Shiba.

Explaining the methodology further, said that there were three parts to it—jumping in, swimming with the fish and jumping out.

"This entire process helps a manager to become a leader. My belief is that when a human being puts himself through this process, it builds a human ability for seeing the future and helps in creating a future dream and vision that can be implemented in a very practical way," asserted Shiba.

In brief, he elucidates: firstly, to 'jump in' one needs to have a positive mindset to challenges and has to have the courage to tread toward something invisible; in addition to this, curiosity for unknown. Only those people who have a positive mindset, are courageous and curious can jump in. Therefore, the 'jump in' process is a screening one wherein identification of visionary leaders is possible.

Secondly, to 'swim with fish' is the process wherein the mindset is expanded horizontally and vertically. In addition, it is the process used to create a meaningful outcome together with the fishes. A leader needs to create meaningful results toward future instead of just yakking on. 'Swim with fish' is the process for creating visible results.

Thirdly, 'jump out' from fish bowl is the process to cope with changes. One cannot stay within the same fishbowl forever. Because society, customers, technology, all business environments are constantly changing and in drastic manner. Moreover, 10X change is a characteristic of the current business environment. A visionary leader needs to perceive societal change by 'jumping out' and coming up with solutions that fit the need.

Success achieved

So far, more than 1,300 people from over 300 manufacturing companies across India have taken advantage of this program. Prof Shiba affirms that one's mindset changes when one experiences and addresses the situation with added skills such as observation, the Five Step Discovery Process and 5 Kawakita principles, and gets an opportunity to try them out in their own work.

"With per capita incomes almost doubling, the new Indian consumer (from villages) is buying everything from tractors to shampoo sachets. One should devise products for him right here in India."

Chairman and Managing Director, Godrej & Boyce Manufacturing Company Ltd, Jamshyd N Godrej

Agreeing with this sentiment Dr Nagpal advised, "Our past success stories have shown that VLFM holds huge potential for companies who want to enhance their competitiveness in current times. The Five step discovery process, for instance, has helped companies in recording improvement on critical parameters, by identifying the problem that impeded their performance."

The program has had more than 300 success stories and counting.

"The aim of the VLFM programme has been to strengthen Indian manufacturing industry. As one of the top ten global industrial economies, India is on a steep growth trajectory based on strong capital investments. With a huge surge in new projects of almost $100 billion, the demand for every kind of manufacturing is on the rise, including basic goods, intermediates and capital equipment," claimed Chairman and Managing Director, Godrej & Boyce Manufacturing Company Ltd, Jamshyd N Godrej.

"Out there in the villages is where you can find the new Indian consumer. With per capita incomes almost doubling in the last ten years, he is buying everything from tractors to shampoo sachets. It just makes more sense to learn about the rural Indian and devise products for him right here in India," he further continued.

Taking the lesson one step further

CII has also since launched another

Source: CII

Applying a scientific approach and bringing about skill development within a village

Source: CII

Chotukool: A product innovated to address the basic refrigeration needs of families in rural India.

unique program—Village Buddha—that aims to build a strong relationship between business and society to create a mutually beneficial platform. The mission is to help the Indian industry channelize its practices, processes, learning and experiences to connect with village India on a long-term sustainable basis using a scientific approach.

Speaking on the necessity of such a program, Dr Nagpal professed, "The concept of Village Buddha is based on a fundamental truth that business and society are, in reality, interdependent and interconnected. It is founded on certain beliefs, one being that an unsolved problem of the society is a future business opportunity and companies can tap new business opportunities from emerging markets in India by leveraging the relation between business and society."

Godrej added, "Many of these unsolved problems are at a latent level; they are not often expressed properly. If the business attempts to solve these problems, it will be laying a foundation for creating growth business opportunities for the future. For example, to solve the water problem in rural India, there is literally a huge business opportunity for connecting a network for supplying water to meet such a basic need. Once the basic needs are met, they will go for value-added services and value-added support."

Therefore, Village Buddha will provide a platform to inculcate companies with skills/methods and mindset to engage with the community for building a better and happier society. Furthermore, when business organizations work with society, it will enable capacity enhancement of business and manufacturing as well.

"Manufacturing is very important for India. 'Make in India' and 'Made in India' is the key to a breakthrough in speedy elimination of poverty and for creating employment for the increasing numbers entering the work-force."

Member Secretary, National Manufacturing Competitiveness Council, Govt of India, Ajay Shankar

"For Indian manufacturing industries to achieve the expected growth rates, we first need to create a pool of visionary leaders who are equipped with the skills and capacity to think ahead of times."

Principle Adviser, Confederation of Indian Industry (CII), Dr Sarita Nagpal

Agreeing with this sentiment, Shankar also commented, "This new initiative, which has being introduced this year, will take the creative and innovative strength of Indian manufacturing to the villages for evolving appropriate transformation products processes and services."

The program aspires to develop villages through its scientific approach by evaluating problems at the village level and enabling companies to strategize effectively to address those unsolved problems.

Srinivasan stressed on another factor for incorporating the Village Buddha initiative: "For economic growth in India to be holistic, it is imperative that villages and cities meet the growth index criteria in equal measure. According to the 2011 census, out of a total population of 1.27 billion, approximately 72.2 per cent live in 638,000 villages and 27.8 per cent in 5,480 towns and urban agglomerations." This means that if the development is only done in existing industrial environments, eventually the growth of the manufacturing sector will slacken. VLFM's goal now is to diffuse the breakthrough principles to more and more companies so that the entire ecosystem of the manufacturing sector changes.

Bringing out solutions for sustainability

The key focus of VLFM and Village Buddha is the 'transformation of relationships' emphasizes Prof Shiba. The future of village development will decide the future growth of India. There are tremendous opportunities to utilize resources from businesses to help accelerate development of villages. Money is not the only resource for hastening development; methods/tools that the manufacturing industry has developed for scientific problem solving can also help with this endeavor.

"This program will work along the lines of the fish bowl methodology; villages are visited, the life there is observed and then after getting insights, solutions are built in accordance. This initiative provides an insight to a rapidly changing society, especially where the markets are also changing rapidly," highlighted Godrej.

Apart from skill building for the development of the villages, business opportunities also will be identified. One example of a product that was innovated to address the basic refrigeration needs of rural families in India is the Chotukool.

On another level, Godrej feels that this initiative allows for people to become aware of the living conditions in rural parts of the country; thereby wanting to make a bigger difference in societal development through a new mindset. He also confirmed that in doing so companies also will build a more powerful sense of corporate social responsibility.

Future forward

Companies such as TVS and Godrej along with CII and JICA have already begun their journey in helping villages through the Village Buddha initiative. This win-win approach will help enhance and create sustainable business opportunities and encourage the all-round development of India. Perhaps it is time now for other companies to also jump on the bandwagon and take India to the next level. MMI

Six Key Messages

- Transformation starts from 'mindset change' and ends with 'mindset change'.
- Tangible results appear within one year if you apply a scientific approach.
- Age of operational excellence is passing—creating new businesses is imperative to manufacturing growth.
- Invest in the Indian manager to become more global.
- Linking villages and industry with a win-win approach will make Indian leaders more inclusive.
- Sustaining results needs an Indian approach.

Constant Learning and Recurrent Training is a Requisite for Growth

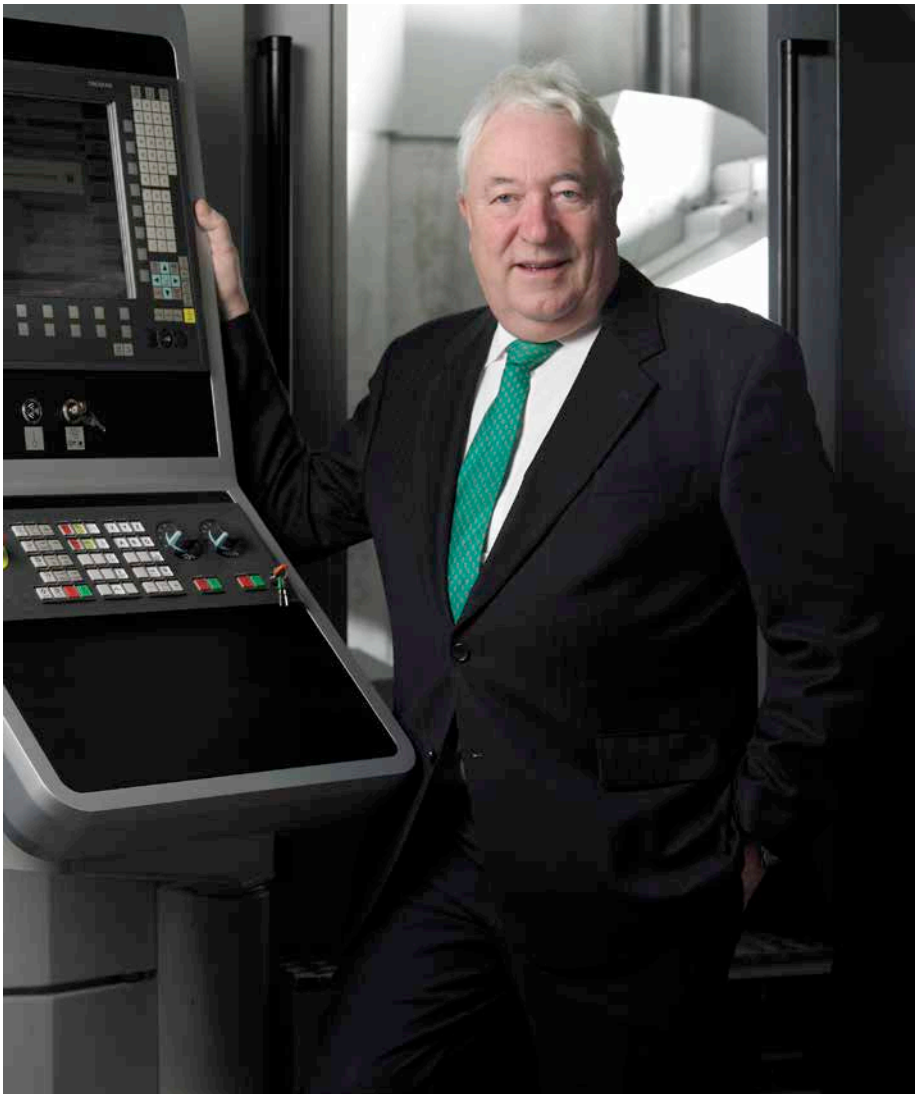
In a freewheeling conversation, Vice Chairman, Starrag Group Holding AG and Chairman, Economic Committee, CECIMO (European Association of the Machine Tool Industries), Dr Frank Brinken elaborates on the aspects of how the Indian machine tool sector can leverage the best out of collaboration and automation. Interview excerpts follow...

How do you perceive the price sensitivity issue globally in the machine tool sector?

Dr Frank Brinken: Price consciousness is no longer a regional specific trend—it is global one. Pricing of capital goods is a complex matter as it comprises the initial investment and the life cycle costs. Globally, the set of criteria in the evaluation of purchasing capital goods does not primarily revolve on the initial investment amount, although it is an important factor. Gone are the days when low cost machines along with cheap labor brought about a success story.

In India, the main driver that is often cited for price-sensitive investments is high interest rates. However, this is largely offset by the lower salaries given to the blue and white color work force.

In the US, for instance, everyone thinks that it outsources machining components to China for its cheap labor costs. In actuality, it is owing to the consistent quality of components produced. The average age of a machine tool in China is probably 5–10 years, whereas in the US, the average age is most likely is over 20—25 years. Older machining technologies lack quality consistency which is an absolute must. China, for the US, provides consistent quality products for the final customers.



It is very important to own state-of-the-art production equipment to beat competition. In this context how do you rate the mind set of Indian customers in terms of understanding the importance of lifecycle cost and product reliability?

Dr Brinken: Most times Indian customers focus their energies on the price of purchase, which essentially should be the easiest part of a complex decision making process. What this will invariably lead to is the purchasing of a 'collection' of machine tools from different suppliers. Imagine a manufacturing plant with eight machines bought from eight different vendors. You will need eight different service contracts and eight different programming strategies. Part transfer from one machine to another will not be an easy task, and in case of a break down, spares may not be easily available. Maintaining such a variety on its own will inevitably lead to high complexity costs in daily operations and prevent one from attaining a competitive position globally.

"The Indian market must become part of the global manufacturing chain. If the government plans to create more jobs in the sustainable manufacturing sector rather than in more volatile businesses, India needs to make a quantum leap in productivity and quality of goods in order to create these jobs."

Vice Chairman, Starrag Group Holding AG and Chairman, Economic Committee, CECIMO (European Association of the Machine Tool Industries), Dr Frank Brinken

The only winners in this situation will be the fledging suppliers, who perhaps are on the verge of bankruptcy, and who fail to offer a reliable customer service or technical support all over India. The belief that low cost machinery and cheap labor will make for a definite win is a thing of the past.

In this aspect, what suggestions would you give to the Indian manufacturing companies in terms of enhancing their practices on innovation, improvement and reevaluating themselves?

Dr Brinken: The Indian market needs to enhance its place in the global manufacturing chain. The government should plan to create more jobs in the sustainable manufacturing sector rather than in more volatile businesses. India needs to make a quantum leap in productivity and quality of goods in order to create these jobs. The country has all the resources like great engineering schools, language skills to communicate internationally, motivated career hungry graduates, breeding enough talent and more to support this initiative. It now needs to look at the best practices in manufacturing, and identify productivity champions and visionaries and learn from them.

Having the right talent in processes and plants will allow for identifying and analyzing and fixing gaps in the process. It should be noted, at the end of the day, the main requirement of the customer is having on-time delivery of a product with consistent quality. To achieve this, recent trends like six sigma, avoiding waste and continuous improvement are becoming the norm in manufacturing. 'Just in time' in supply chain management too is a standard practice.

PERSONAL

"The inefficient supply chain for quality machine components is indeed a huge barrier for the Indian machine tool industry. To overcome this, it is necessary to have a well invested and vast local supply chain for the manufacture of machine components."

Dr Frank Brinken

How do you perceive the Indian market in terms of investment destination when talking of launching new machines especially with IMTEX 2015 just weeks away?

Dr Brinken: India can find and enhance its role in the global supply chain for tangible goods. We will be launching new machines at IMTEX 2015, which are manufactured in India adhering to European quality standards. These are specifically designed for easy programming and set up as well as for the wider range of operating temperatures and the variations in power supply, which unfortunately is still common issue in India.

The last 2–3 years witnessed a short-term bump in the long-term growth story. India has shown a revival this year and is on the rise again, which seems to be sustainable and long-lasting, paving the way for more manufacturing activity.

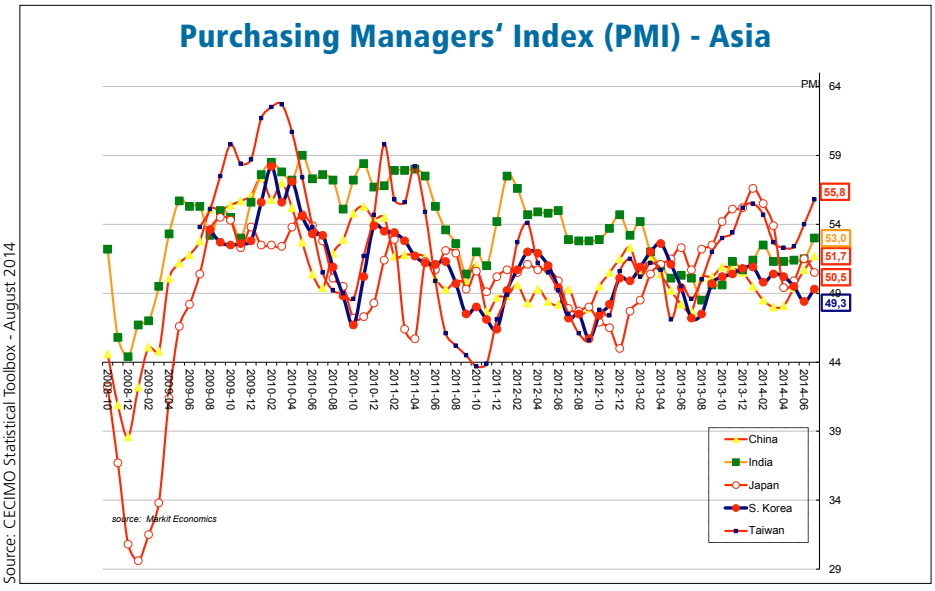
In today's day and age where automation is the norm how do you foresee this being incorporated especially in East Asian countries to bring about enhanced productivity and increased cost saving?

Dr Brinken: The main driver for automation is not cost saving, but maximization of machine running times towards a 24/7 operation year round and increasing flexibility in a given machining environment. Secondary drivers are avoidance of set up times and the increasing trend to lower lot sizes. The drive to produce lot sizes according to requirement as opposed to having large inventories is becoming more evident in the supply chain for machine builders and other capital investment goods.

Highlighted is an example. In India, one of the largest and best Indian machine tool builders, opted for automation with flexible manufacturing system (FMS) with 2 HMC and 20 pallets in their own component manufacturing plant to handle variety and small batch production to meet the market demand and create flexibility to respond. It is truly a world-class 24x7 operation with very little operator dependency.

Another important aspect for automation is part consistency and reduction of human errors. A zero defect production clearly requires automation. We all know that automation is necessary; apart from this, collaboration is also a key aspect. From the current scenario in countries like India, very few companies collaborate with other companies to manufacture a complete machine.

The inefficient supply chain for quality machine components is indeed a huge barrier to overcome for the Indian machine tool industry. If we look at some of the machine tool hubs like Germany, Northern Italy and Taiwan, we quickly realize that a well-invested and vast local supply chain for machine components is the key success factor for their growing machine tool industries. Most innovative machine tool builders in these countries are medium-sized companies, who rely on new ideas and developments from their suppliers to enhance their products. These collaborations between suppliers and builders are essential to keep the competitive edge. MMI



Source: CECIMO Statistical Toolbox - August 2014

The interview was conducted by:
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E-mail: soumi.mitra@vogel.de

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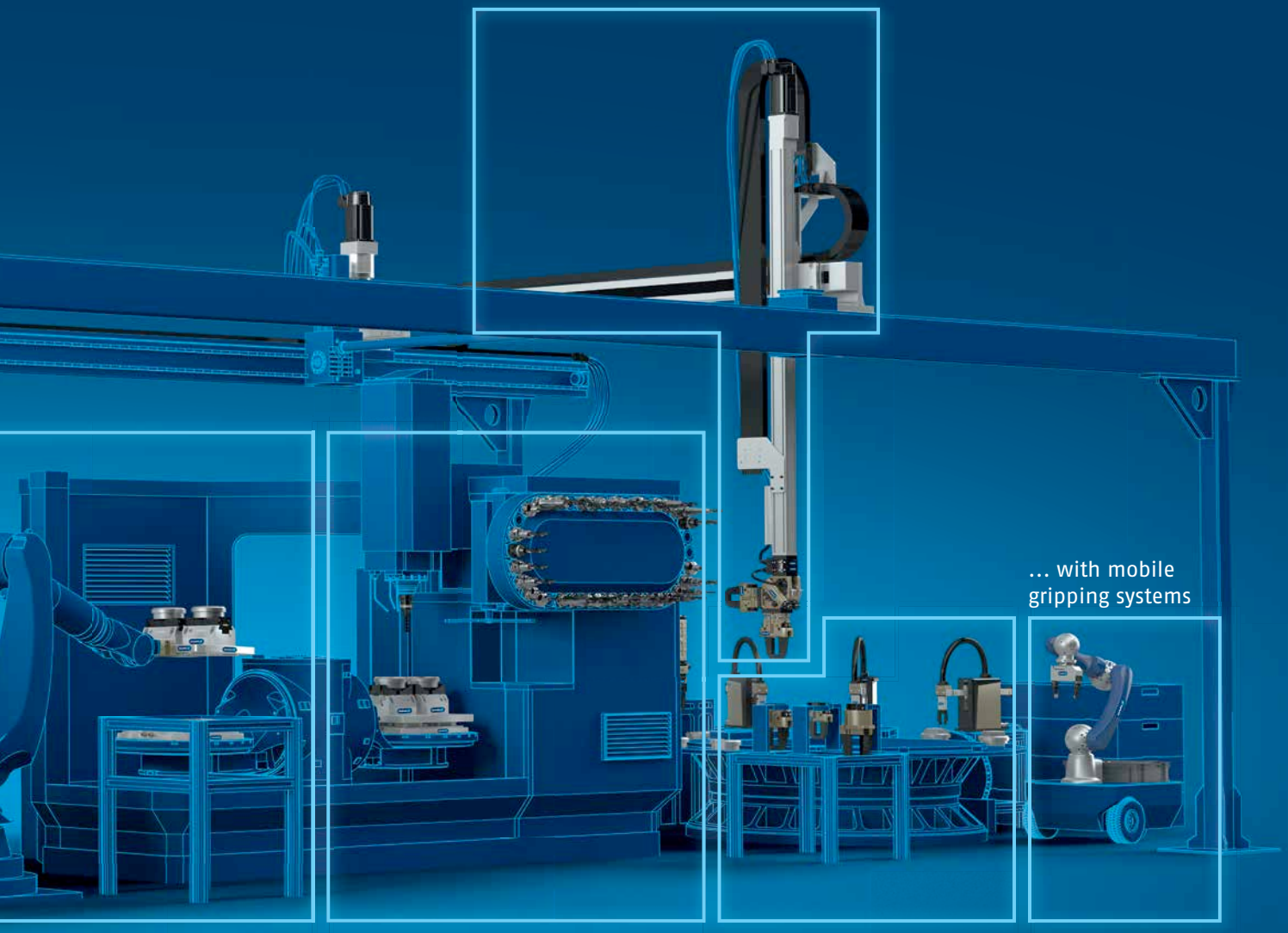

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Quality Slide Production

When it comes to manual quality control, it is not only an expensive process but also time consuming. To modernize it, Thomas Regout International BV opted for Turck's BL ident RFID system. This helped the company make its quality control process reliable and efficient.

Thomas Regout, a company from the Netherlands, produces telescopic slides for drawer elements in furniture and other applications. In order to keep production viable in Western Europe this Dutch SME has to manufacture its telescopic slides to the highest quality specification.

Ronald Heijnemans
Sales specialist
Turck BV Netherlands
more@turck.com

Previously each product that left the company was checked for faults by hand, something that is not always the ideal choice—especially when the financial aspects are considered. "The manual quality control is time consuming. Moreover, a check of the running properties of a slide is always subjective. Results can vary from employee to employee or between days of the week," said Process Engineer in- charge, Thomas Regout, Roy Klaassen. In order to monitor production quality without manual inspection, Klaassen planned to optimize an assembly plant for telescopic slides from 30 cm up to almost one mtr in length with an integrated quality control. "Previously, we had to stop the plant if a production fault was discovered. This cost a lot of time," Klaassen describes the situation prior to modernization.

Thomas Regout International BV

Challenges
Automating the quality control process

Solutions
Turck's BL ident RFID system

Results
Reliable and efficient quality control process
Lesser time consuming
Cost effective process

Source: Turck Automation

Material carriers run through the assembly plant at Thomas Regout

"It was also possible to create new faults in the process by shutting down the machines," added CEO, Consulting Engineer and Programmer, Inofil Besturingstechnologie BV (the system integrator), Timo Rutten. Inofil had already implemented other automation projects within the company. The system integrator advises its customers in finding solutions and product selection. Furthermore, it also integrates the selected solution at the customers' facility.

Quality control by RFID

In order to automate the assembly process for the telescopic slides, the system integrator wanted to use RFID to identify the material carriers. This enables the user to detect faulty

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"We now have considerably less manual interventions in the plant. Production runs more smoothly and we are also achieving a higher level of productivity and quality."

Process Engineer in- charge, Thomas Regout International BV, Roy Klaassen

parts during assembly and continue running the plant since the slide concerned does not have to run through the production process to the end. Previously, the user had to complete the production of faulty products if they were not removed from a plant when a machine was shut down. The RFID tracking of the material carriers now enables the faulty parts to be rejected at the end of the assembly. The tracking of faults saves resources and energy because the machine no longer carries out any processing steps on these parts.

"Another benefit of the RFID solution is the fact that the controller gives us a long-term view. If a material carrier increasingly produces faulty products, this is noticed by the employees, who identify the source of the fault and rectify it. Defects on the material carrier would have previously been discovered much later," says Rutten.

BL ident: system of choice

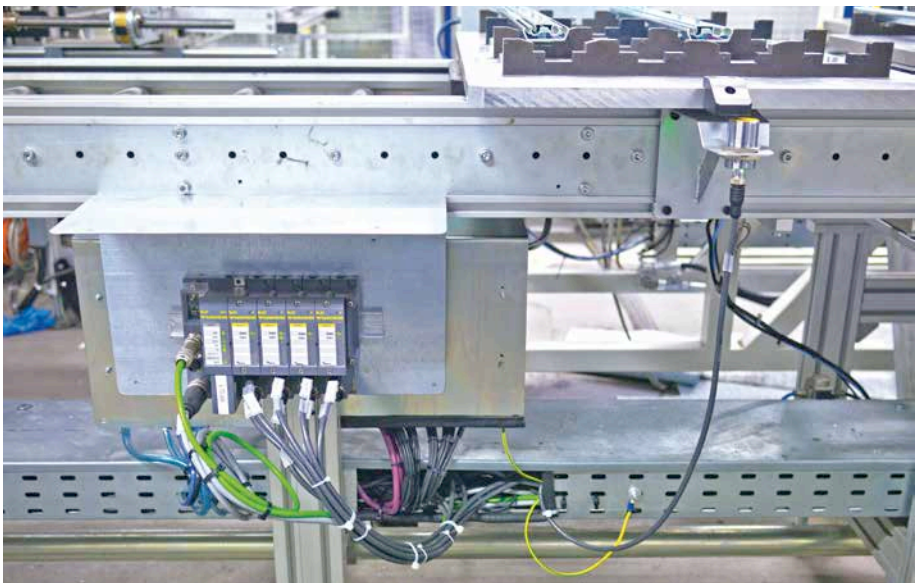
Inofil recommended Turck's BL ident RFID system to its customer because they already had good experiences with it in previous projects. "In one project for automobile manufacturer BMW, the Turck system, unlike those of other manufacturers, could also read tags when they were placed on the inside of carbon components," Rutten explains.

In the assembly project, 15 type TB-M30-H1147 read/write heads reliably detect the tags on the 32 workpiece carriers. The data is routed via Profinet to the plant controller via Turck's BL67 Ethernet gateway. Inofil programmed the processing of the data together with the visualization in the controller. The Siemens PLC detected the DTM modules of Turck without any problem, which clearly simplified programming.

All tags in view

The operator panel gives the plant operator an overview of all stations and the tags that are read there. A history display can also be called up for each individual tag, showing all the faults that have occurred with it. The data itself is stored in a database that assigns it to the individual tags. "The tags do not leave the process. This means that a database solution is more suitable than data storage directly on the tags," noted Rutten.

Turck's BL67 I/O system brings the system from the sensors and the RFID data to the controller via Profinet



Source: Turck Automation

"In one project for automobile manufacturer BMW, the Turck system could also read tags when they were placed on the inside of carbon components"

CEO and Consulting Engineer and Programmer, Inofil Besturingstechnologie BV, Timo Rutten

At Thomas Regout, the RFID system forms the interface between information and production. Design features prevent the tags from being read directly at some of the testing or assembly stations. The controller then calculates from the data of the previous and subsequent RFID reader which tags are currently present at the station and assigns the information in the database to the appropriate data record.

Further RFID projects planned

The modernization of another plant is planned for 2016. This plan involves the optimization of the entire production flow so that it follows the logic of the production chain instead of the historical progression of plant expansions. This would enable the job lists and product parts lists with a long history of use to be replaced with an electronic production data management system based on RFID. RFID tags fitted on the component containers and the corresponding mobile handheld RFID readers will then virtually exclude the possibility of any read or transmission errors. Another optimization feature will enable the identification of punching and cutting tools. This would make it possible to prevent the misuse of tools, and also to permanently monitor the lifespan of the individual tools. Any deteriorating machining results can be detected early on.

The three-month test phase with the current system is very promising. "We now have considerably less manual interventions in the plant. Production runs more smoothly and we are also achieving a higher level of productivity and quality," concluded Klaassen. MMI

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Making Machines Safer through Drive-based Functionality

New developments in drive-based functional safety contribute to greater overall protection of people, machines and ecosystems. These developments aim to make machine safety, and especially drive-based functional safety, easier for machine safety professionals. Here are some new possibilities that integrated drive-based functional safety brings to machines and applications.

In any industrial process, it is critically important that when something goes wrong the machinery is quickly and safely brought to a safe state, which usually means stopped. Once stopped it must not start unexpectedly. Depending on the application and its work cycles, machines may also need to operate at reduced speeds during specific times. Any malfunction in machine control can result in hazardous situations leading to serious injury, or even death, with disastrous effects for the company, its people and its image.

Ultimately, machine builders and system integrators have the responsibility for ensuring that any product or machine they supply is safe. It must be designed by following safety principles and must comply with relevant directives such as standards and national laws. The machine's end-user has responsibility of the safety extending through the entire lifecycle of an industrial system. It is, thus, important to consider safety planning right from start of the machine design process. This way safety becomes a natural and functional part of the machinery and not an afterthought.

Drive-based functional safety, which can be defined as active machine safety functionality designed to work with drives, simplifies the task because drive safety functions are certified and integrated into the drive system.

Safety is important in industrial applications that involve motors, drives and programmable logic controllers (PLCs). Machine safety is achieved by identifying and reducing risks to an acceptable level. Risk reduction is done by an inherently safe design and by applying risk-reducing protection measures.

When done correctly, these measures can be flexible, reliable and easy-to-use. They also bring solid economic benefits such as increased productivity and uptime, without generating additional risks.

Towards integrated drive-based functional safety

Thanks to three main factors mentioned below, the job of implementing a machine safety system is becomes easier. First, modern electronics enable safety functions to be directly integrated into a drive's safety logic, so functional safety is a standard feature of the drive.

Second, legislation has kept pace with these advancements, with new standards that define the requirements and provide guidelines for implementing machinery safety.

Third, engineering companies such as ABB have developed a wide range of safety devices and solutions that are easy to integrate in industrial applications for improved safety, uptime and functionality.

These factors have enabled safety solutions that can be more effective in preventing accidents, are less costly to implement, easier to adapt and more reliable than previous hardwired electromechanical systems.

The result being that electromechanical safety systems can now be replaced with electronic safety functions. Built directly into the drive's safety logic, the safety functions work seamlessly, side-by-side with the drive´s normal control functions.

Source: ABB

Source: depositphotos.com / michaeljung

Drive-based functionality improves safety in the facility

Drive-based functional safety solutions in industrial systems

Drives, simply put, control movements such as motor speed and torque in industrial applications like conveyors and cranes. As levels, complexity and modularity of industrial automation increase, drive-based functional safety is fast becoming an important part of overall safety design for industrial processes.

In larger systems with several drives, control of the overall safety system can be done using a safety PLC, which activates drive-based safety functions when required in the whole system.

Safe torque off (STO)

STO is the required basic foundation for

Source: ABB

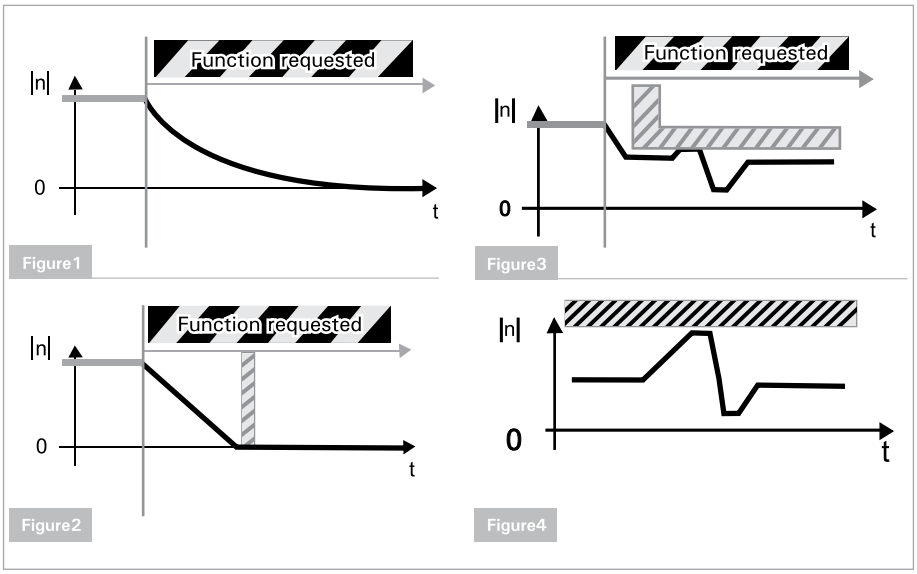

Illustration of different safety functions through drive-based functionality

drive-based functional safety, since it brings a drive safely to a no-torque state. STO is typically used for prevention of an unexpected startup (EN 1037) of machinery or for an emergency stop, fulfilling stop category 0 (EN 60204-1).

Safe stop 1 (SS1) stops the motor safely, using a controlled ramp stop and then activates the STO function. SS1 is typically used in applications like rolling mills where motion must be stopped in a controlled manner before switching to a no-torque state. In addition to a safe process stop, SS1 can also be used to implement an Emergency stop, fulfilling stop category 1 (EN 60204-1) (refer Fig. 1).

Safe stop emergency (SSE) is a safety function specifically designed for emergency stops. SSE can be configured to execute either STO or SS1 depending on which emergency stop is suitable for the system. For examples of this functionality (refer Fig. 2).

Safely-limited speed (SLS) prevents motors from exceeding a defined speed limit. The SLS safety function can be used in applications such as decanters, mixers, conveyors or paper machines where excess speed can be hazardous during i.e. maintenance or cleaning operations (refer Fig. 3).

Safe maximum speed (SMS) is a variant of the SLS-safety function. It provides continuous protection against a motor exceeding a defined maximum speed limit (refer Fig. 4).

Safe brake control (SBC) provides a safe output signal to control a mechanical holding brake. Drills, cranes, winches, hoists, vertical conveyors and elevators that need external brake solutions require this type of safety function. Typical use for SBC is when a drive is switched off with STO function and there is an active load affecting the motor (eg. a hanging load on a crane/winder).

A common way to design a safe machine is to follow suitable standards and regulations such as EU Machinery Directive, ISO, etc., when implementing the safety system. By fulfilling their requirements, it is presumed that the machine meets the essential health and safety requirements. Drive-based functionality will help the manufacturer comply with health and safety requirements in relatively simpler way. MMI

Making the Nuclear Decommissioning Process Cost Effective

Decommissioning of a nuclear facility followed with processing of nuclear waste is considered to be challenging and costly. To come over these challenges James Fisher Nuclear Ltd has developed a robotic manipulator with the help of National Instrument's systems. Read on to know more about the development of this cost-effective manipulator.

Decommissioning redundant nuclear facilities, coupled with the subsequent decontamination and processing of nuclear waste, is a crucial challenge for the nuclear industry. Many of these processes require the adoption of remote handling techniques to minimize the risk to human operators. Often, these tasks need to be performed in high-radiation environments, frequently complicated by a combination of heat, humidity, caustic or acidic fumes and limited visibility.

James Fisher Nuclear Ltd (JFN) specializes in robust, remote handling and inspection solutions for the decommissioning of nuclear facilities and processing of nuclear waste. JFN's remote solutions range from dexterous manipulators that handle heavy loads in harsh environments to high-tech remote inspection or navigation systems. Remote inspection solutions draw on technologies such as ultrasonics, laser scanning, chemical sensing, camera systems, heat monitoring, and defect detection sensing using electromagnetic sources. In several applications, this data is used to navigate or maintain difficult-to-access areas remotely.

ModuMan 100 Concept

Current commercial robotic manipulators are largely inadequate for nuclear decommissioning tasks due to limitations in radiation tolerance, dexterity, working range, and payload. A fundamental difficulty for many arms is that they cannot be inserted into a standard diameter penetration port (smaller than 300 mm) adopted by the nuclear industry. The available manipulators are expensive.

To resolve this situation, the company developed a ModuMan 100, a modular manipulator to use for a range of remote handling and decommissioning tasks to suit customer needs while remaining cost effective. It offers six degrees of freedom (6DoF) and provides a functional 2.3 mt reach and a payload capacity of 100 kg at full stretch. The arm can be deployed through a standard-size penetration port for radiological cells or by

Source: National Instruments

With the help of solutions from National Instruments, James Fisher Nuclear Ltd could develop manipulator for decommissioning nuclear plants

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James Fisher Nuclear Ltd (JFN)

Challenges
Developing a cost-effective modular robotic manipulator for use with a range of remote handling tasks in nuclear decommissioning applications, which represent some of the most hazardous environments

Solutions
Using National Instrument's NI CompactRIO hardware, NI LabVIEW system design software, and the NI LabVIEW Robotics Module to develop a cost-effective, safe, and reliable system that provides accurate remote control of a heavy-duty manipulator in an environment that is otherwise inaccessible to humans

Results
By providing a safe, fast, reliable, and cost-effective development environment, National Instruments helped JFN produce a valuable tool that is able to solve many nuclear decommissioning challenges.

using a carrier system and is compatible with a range of tooling.

ModuMan 100 Design

The company designed the system with in-cell (inaccessible area within harsh environment) and out-cells components. In-cell multiple hydraulic actuators power the joint motion and out-cell powers a dual servo motor arrangement that drives the shoulder to rotate. All the hydraulic sensors and drives are located out-cell to provide ease of maintenance and to minimize downtime. At the end of the arm, a jaw picks out debris or grasps tools such as a shears, drills, and wash-down equipment to aid in decommissioning.

To navigate the environment, the operator uses two 3-axis joysticks, which provides proportional control for each individual joint. An NI USB-6212 module acquires analogue joystick data and controls LED indicators, which confirm the current mode of operation, if the jaws are locked, and if that joystick is active to the operator. A comprehensive user interface uses National Instrument's NI TPC-2512 touch panel to help the user select which mode to control the arm with, including joint, world and tool. The touch panel also presents data such as current joint angles and their software limits, the end effector position and orientation, fault analysis and a teach and repeat interface.

The company uses NI LabVIEW system design software and NI CompactRIO hardware to control the manipulator within the harsh area. More specifically, it uses an NI cRIO-9024 controller, NI cRIO-9118 chassis, NI 9239 analogue input module, NI 9425 sinking digital input module, NI 9485 8-channel relay module, NI 9263 analogue output module and NI 9401 high-speed bidirectional digital I/O module. The rugged and reliable CompactRIO platform is easy to maintain and scalable for future modifications to the system.

During the system's development process, CompactRIO was ideal for modular testing and prototyping. Where hardware was not available, JFN could simulate inputs, which ensured the software was functionally correct before the company incorporated it into hardware. When individual hardware components became available during the manufacturing process, the company could carry out loaded and unloaded single joint testing using CompactRIO.

Implementation

JFN linked the touch panel human machine interface (HMI) to the CompactRIO system through a combination of TCP communication and network-published shared variables. On the CompactRIO system, the real-time controller runs the kinematics algorithms for the ModuMan 100 as well as the teach and repeat function. The PROFIBUS communications link to the Moog proportional integral derivative (PID) controllers using the COMSOFT PROFIBUS module. The Moog precision control servo valve drives and motor drivers are used throughout the arm.

Aside from the real-time processor, CompactRIO incorporates a Xilinx FPGA. Any code that the company deploys to the FPGA effectively becomes a hardware solution, representing the highest performance and reliability. Thus, JFN reserves the FPGA for all of its safety-critical processing. Following this safety methodology ensures that the company complies with Machinery Directive 2006/42/EC for the control system. This is essential for to receive the CE marking, which is a mandatory conformity designation for products sold in the European Economic Area.

Safety is a critical design aspect. The arm can lock out the hydraulic system and electric motors to instantaneously stop motion. All communication paths feature watchdogs checking the status of each part of the system. Any issues or loss of communication stop the system in a safe state and alert the user.

A comprehensive fault analysis system runs on the real-time controller. This system classifies, reports, and acts upon all hardware- and software-defined faults that could occur.

Source: National Instruments

The arm developed by JFN can lock out the hydraulic system and electric motors to instantaneously stop motion

Safety-critical faults immediately trigger the FPGA to put the arm into a safe state and inform the user on the HMI. Non-critical faults are logged to the internal non-volatile memory of the CompactRIO system as well as the HMI's hard drive. The thoroughness of the fault analysis system eases post-failure investigation.

The company implements a teach and repeat facility on the real-time controller to assist with operation of the robotic manipulator for repetitive tasks. This provides 6DoF real world paths that can be defined and replayed easily. These paths can be initiated from the HMI and replayed at any time within five mm accuracy at the end-effector during any path.

Conclusion

CompactRIO provided a rugged and reliable stand-alone platform at the heart of the ModuMan 100 system. The company used the LabVIEW Robotics Module to quickly generate kinematics, which gave effective deterministic control of the system. The CompactRIO ideally supported the fast-paced development process, which has significantly lowered development time and has ensured ModuMan 100 is a cost-effective product.

Another major advantage of using the NI platform was access to the NI Alliance Partners, who specialize in many areas of engineering. Key engineering solutions, CompactRIO hardware and robotics experts, played a pivotal role in architecting and commissioning ModuMan 100 software. MMI

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Precision Workholding Offers Multiple Advantages

The American manufacturing industry is going through the transition from the mass production of conventional parts to the manufacture of complex, high-value components in relatively small lot sizes. As the industry continues to change on this path, precision workholding is expected to gain importance.

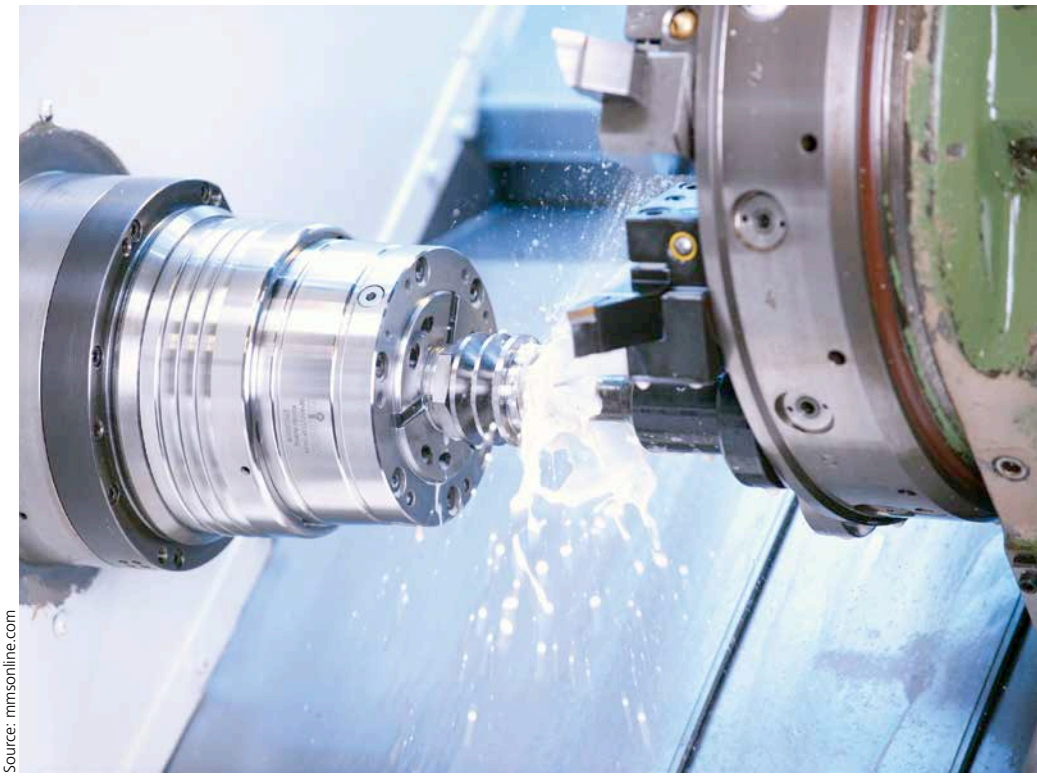
Efficiency and throughput in precision machining operations continues to be the watchword for American metalworking manufacturers. Many shops have taken steps to accomplish these goals through higher performance machine tools, using automation, improved cutting tools, optimized programming techniques and more.

The net result has been a resurgence of globally competitive, home-grown metalworking. Those shops that have seen productivity improvements with better applied technology are looking to precision workholding solutions as another opportunity to move a competitive step forward.

In key manufacturing segments, conventional chucks are being replaced with high precision workholding units, offering improved construction, increased gripping power, improved repeatability, more flexibility, faster change-over and longer life. The driver for this, like most shop floor technology improvements, is market demands for tighter tolerances and more consistent quality and flexibility. While this general trend is true across most metalworking operations, it is especially true in the manufacture of parts of rotation. Increasingly, the advantages of precision workholding are being viewed as a critical component in overall manufacturing process.

"To compete effectively in today's manufacturing environment, the machine, the workholding device and the cutting tool must all work together to optimize your return on investment," says President, Hainbuch America, Jim Woods. "If any one of those elements is inferior, the whole process suffers. This interdependence is especially crucial when it comes to high precision components where tolerances are tight and pristine surface finishes are required," he continued.

Going from OD to ID to three-jaw chucks is accomplished in a matter of minutes



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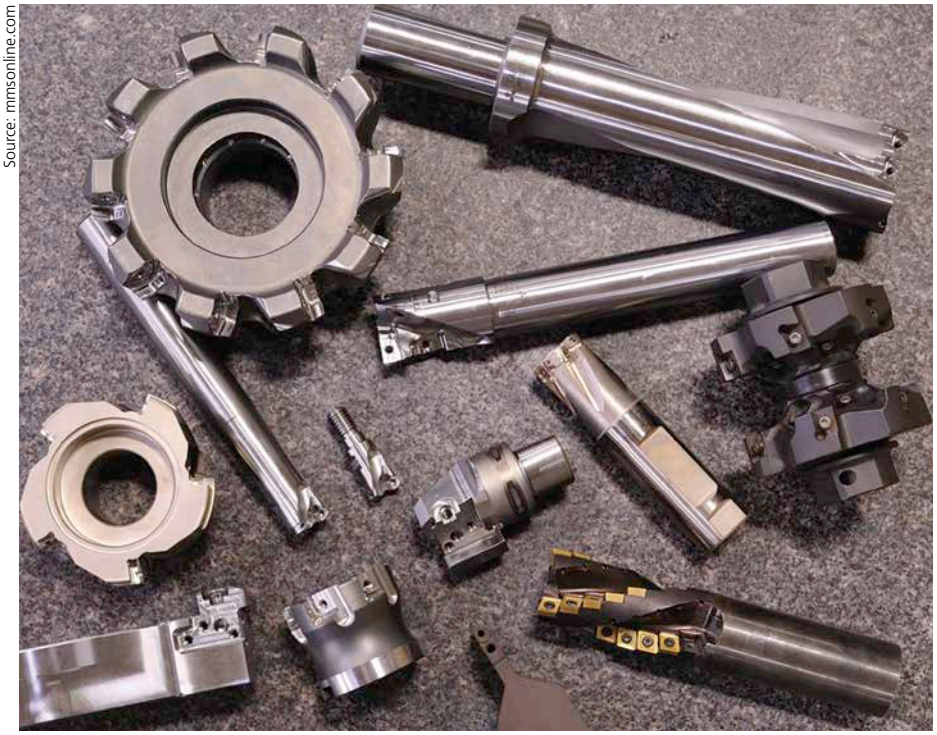

Here is a variety of the cutting tool bodies produced by RFM

The changing nature of volume manufacturing is another critical factor in the move toward higher precision workholding in turned parts. No longer can a shop set a machine and run it for long periods of time.

Most of those jobs have become victims of shorter product life cycles and in some cases, blanket production orders. The ability to quickly change from one workholding size and in some cases, type (such as OD to ID), is also driving this move to precision workholding.

"Because valuable parts often need to be run in small to medium sized lots, the change-over from one part to another has to be performed quickly without sacrificing any of the elements that could impact quality. It is all about what we call 'Your green light strategy', which, on the shop floor, means working to maximize the time machines are producing at optimum cycle times, while producing a quality part with each cycle," adds Woods.

Go to the light

A demonstration of Green Light Strategy in action can be found at RFM Inc of Brighton, Michigan. The company is a wholly-owned subsidiary of Mitsubishi Materials. RFM manufactures high quality, indexable insert cutting tool bodies including shell mills and end mills. The manufacturing process uses multiple turning centers, including two Mori Seiki NL2500s and an Okuma LB3000MY lathe. All of these machines are equipped with a bar feeder.

"Prior to 2006, we used standard three-jaw chucks; but, as our tolerances tightened and we looked for more efficiency in change-over, we realized we needed to find a better method," says Plant Manager, RFM, Tim Barnes. "We typically rough machine the body of our tools on the back end, then transfer the part to another lathe to machine the other end. The part is then sent out for heat treating and subsequently placed in a chuck with center drive for finishing operations. Unless your chucks are extremely accurate, moving workpieces between machines can cause real problems. This is especially true when the tolerances go from 0.005 inch in the roughing operation to 0.0003 to 0.0005 inch in finishing."

Another factor demanding improved workholding capability is the material used. Although many parts are machined from 4-foot bars of 4140 and 4340 steel, special orders demand harder materials that require increased gripping power. Barnes notes, "The chucks we now use employ a parallel clamping design that allows the engagement of 85 per cent of the diameter—significantly more than a standard three-jaw chuck. That results in 25 per cent more gripping power."

A major reason to incorporate improved workholding is change-over time. "Our part runs vary widely," Barnes states. "I would say our longest runs are from 400 to 500 pieces, but we frequently do lots as small as 5 to 10 units. When you calculate the dollar value of the time involved in change-overs with conventional chucks, you are talking about a large financial burden."

"The quick-change feature enables us to load and lock different collet sizes quickly and easily without sacrificing quality and accuracy," he continues. "In fact, we are now able to machine surfaces in-house that we used to have to send out for grinding, and our change-over time is 35 to 40 per cent faster."

In his 22-year career at RFM, Barnes has progressed from the shop floor to his current position of plant manager, a transition that enables him to see the business from both a technical and a managerial standpoint. "Improving workholding capability, like any capital

Source: mmsonline.com

All of the turning centers on RFM's shop floor are bar fed. A low-volume and high-mix production has driven the company to look for quick-change options in its workholding.

improvement, demands an investment of both time and money and has to justify itself," he says. "Our shop produces roughly 2,800 parts per month, with a staff of 15 people. By improving our procedures, we have generated improved efficiency and increased our per-person output. As a result, even in slower times, we have not had to lay anyone off. When you consider what a company invests in each person in terms of training, that represents a significant achievement, along with the fact that we have been able to keep our corporate family together."

He continues, "We have also added continuously to our output, and we expect to produce even more in the future. By adopting high precision, quick-change chucks, we have not only reduced scrap and improved change-over times, we have maintained and even improved the quality of the parts we make."

Helping shops help themselves

The need for support and training from the manufacturer is a critical factor in introducing improved workholding technology. It is generally not a 'plug and play' solution for precision manufacturers.

According to Great Lakes Area Regional Manager, Hainbuch America, Larry McMillan, "The adoption of high precision workholding technology is a major move for any manufacturer and involves significant responsibilities on our side. First, we need to survey the operation and look carefully at both the present parts mix and what is anticipated in the future before we recommend the appropriate chuck. These chucks have two basic configurations: one, called the Spanntop, uses a round collet clamping unit, and the second, called Toplus, uses a hexagonal clamping unit."

The quick change comes from the use of a permanently mounted face plate attached to the spindle nose. In the case of Spantop, the receiver is round. For the Toplus, the receiver is hexagonal. These are precision taper connections for high accuracy.

From this base plate, various chucking units attach for ID clamping (using and expanding bushing), OD collet clamping or three-jaw OD clamping. All are actuated by the base plate unit, making change-over as short as three minutes. In addition, collets are available with smooth faces and serrated designs for improved gripping. Several grades carbide or diamond can be specified as well.

Both designs offer multiple features and where necessary, special order chucks can be made and customized to the individual application requirements. In applications involving highly polished parts or no-mar surface finish specifications, custom collets with plastic coating are available.

It is important in today's manufacturing environment that precision workholding emphasizes not only the speed of change-over but also the flexibility needed to convert from one setup to another, depending on an application. Since these are precision workholding devices, it is essential that the shop's processes be understood thoroughly prior to making a recommendation. In precision workholding, the unit must match the application, and the manufacturer must have the in-house capability to make that match work.

"The second phase of the evaluation involves installation and training," McMillan says. "Precision workholders, such as Hainbuch's, are both faster and easier to operate than conventional three-jaw chucks. They also have multiple features and much better versatility.

"It is our job to make sure that the customer and the operators understand the scope of the advantages to get the most out of the product. Once the installation is complete, we maintain close touch to answer any questions or assist in any way we can. I tell our first-time buyers that we are at the beginning of a long relationship because our products have such an extended life. We installed the first chuck in RFM more than 12 years ago, and it is still performing to specification."

Taking the plunge

RFM's decision to opt for versatile, high precision workholding has delivered the expected benefits of improved efficiency, faster change-over and higher accuracy. As part blanks are roughed on one machine, heat treated, then finished on a second machine, the improvement in repeatability alone has been a big benefit to RFM.

Barnes notes a further advantage. "When you have confidence in the performance of your tools and the quality of your processes, you are not afraid to try new things. Our experience has proven to me that precision drives innovation." MMI


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Securing the Product with Right Sealing

In order to keep the product to be sealed intact, choosing the right sealing is important. However, this choice depends on the product to be sealed, its material and shape. Read on to know more about how selecting the right seal depends on the individual operating conditions of the part and the particular requirements of the customer.

In the highly industrialized world, electronic and technical components need to be sealed in the best way as to maintain their functions. The part to be sealed and the sealing have to be in a particular construction as it is important to maintain stability of the product and adhesion of the sealant on various surface materials. Therefore, the importance and demand for sealings is reinforced. The liquid 2-component foam sealing and potting compounds for encapsulation of elements sealings are particularly in demand. They can be found used in various applications such as car building, electronics, switch board cabinets, air filters, packaging, household appliances, lighting and photovoltaic systems, etc.

To serve this demanding market, Sonderhoff offers foam gasket solutions for automotive and other industrial suppliers. Structural components and modules that

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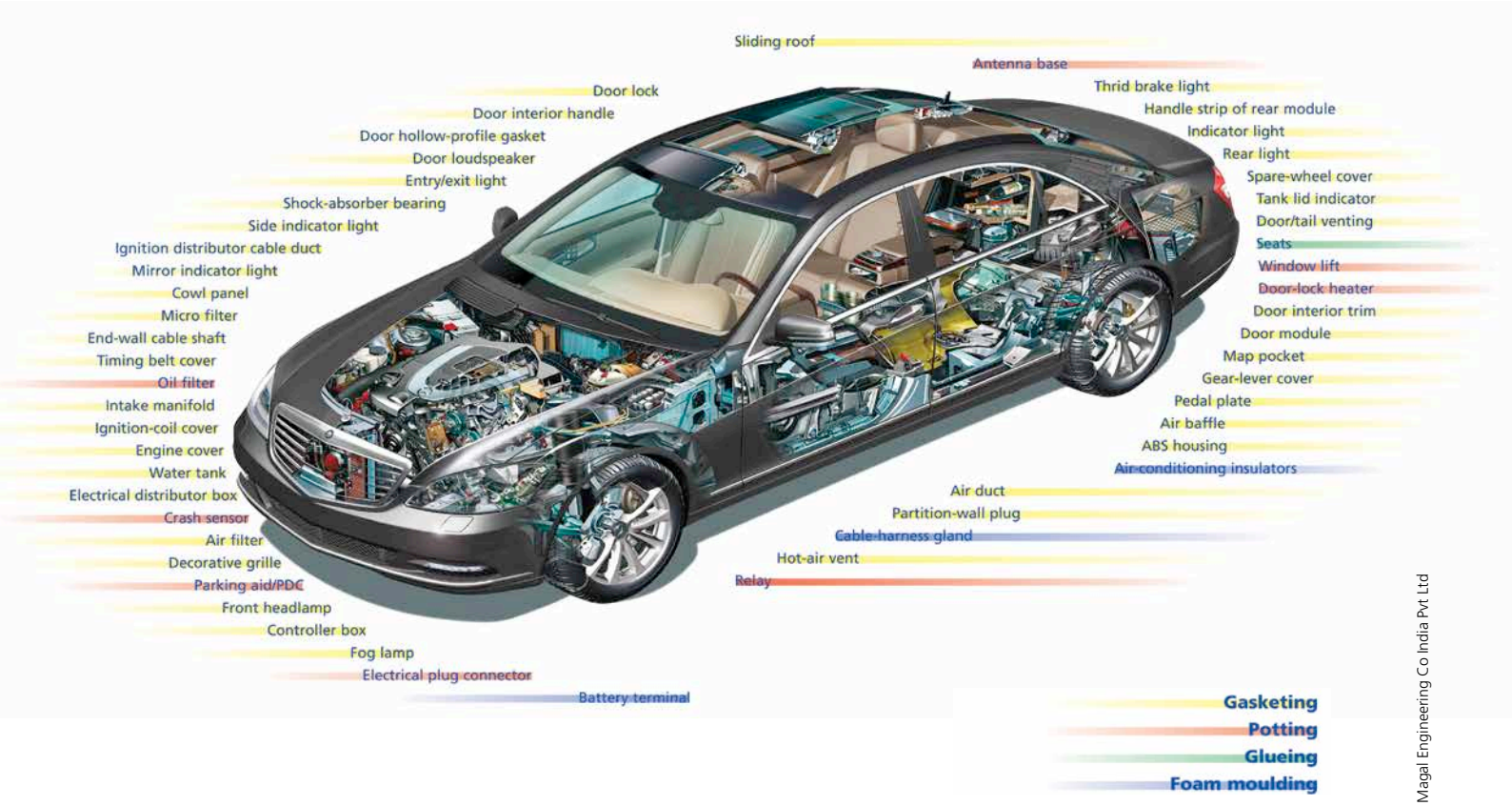
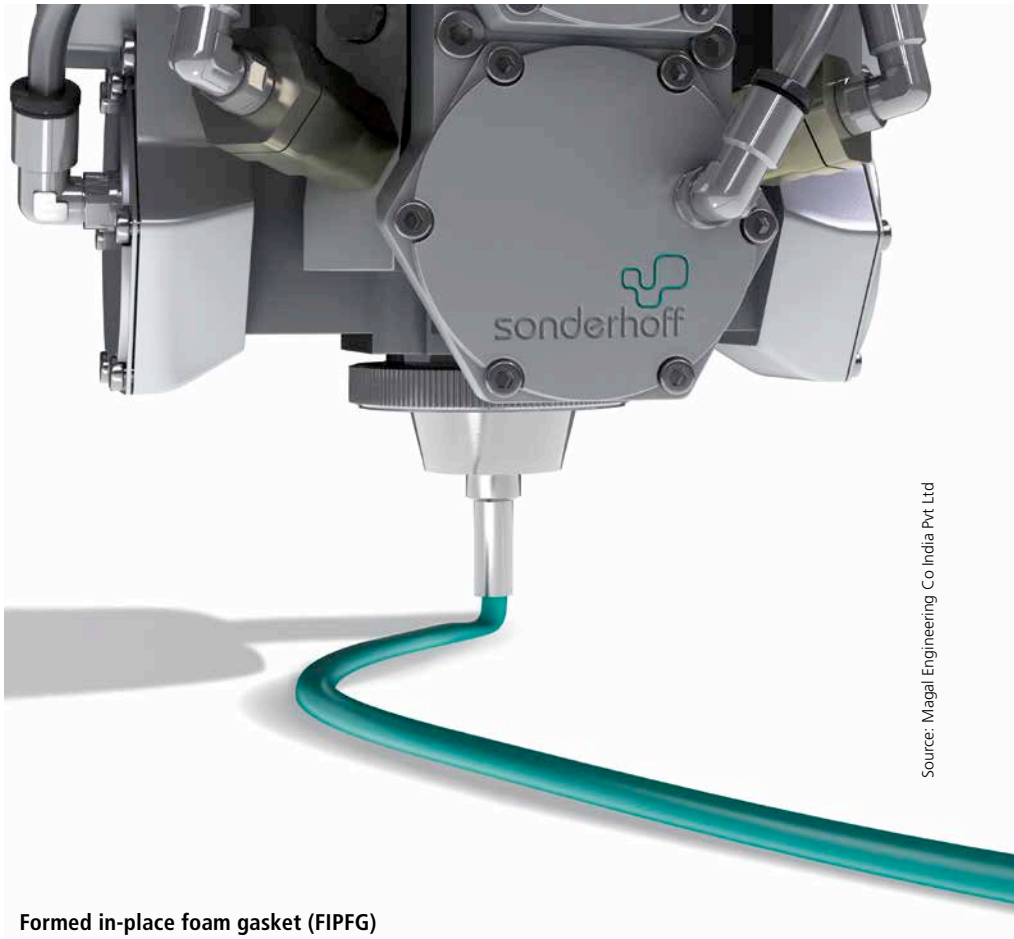


Use of different types of sealings in an automobile

Source: Magal Engineering Co India Pvt Ltd

are used in the automotive components manufacturing industry must remain tightly sealed even after their assembly. The reason is obvious—the interior space must be dry, clean, humidity and dust free because such influences can easily become a risk for the car and driver. Hence, the company's range of 2-component foam sealings and potting products offer optimal protection against moisture, dust, temperature, chemistry, lubricants or other substances. These products also help reduce the effects of vibrations.

The 2-component foam sealing products that the company offers are polyurethane based FERMAPOR K31 and silicone based FERMASIL. They are applied directly to the part using a fully automatic procedure known as formed in-place foam gasket (FIPFG) technology. It involves using a dispensing machine from Sonderhoff Engineering with a mixing and dosing head for the sealing application, whose path is guided by the CNC controlled three-axis linear robot. Alternatively, if using the fixed mixing and dosing head, a six-axis robot is used to guide the sealant path on the part. A chemical reaction then causes the liquid material to foam up and generates a seamless gasket. Even the most complex construction element shapes and even the smallest grooves do not cause obstacles. For flat sealing surfaces, such as vertical surfaces and surfaces without grooves, it is possible to apply foam gaskets as they have a paste-like consistency owing to high material viscosity.



Source: Magal Engineering Co India Pvt Ltd

Formed in-place foam gasket (FIPFG) technology, a fully automatic procedure, help in applying the 2-component foam sealing products.

Mutual influence between part construction and sealing

Selecting the right seal material is essential as it should correspond to the individual operating conditions of the part and the particular requirements of the customer. Therefore, it is important to know that the part and the sealing need to be considered as an entity that has to achieve the required seal effect together. That can be examined by numerous tests and protection standards, such as NEMA 4 und 12, IP- protection up to class 68, UL50/50 E, UL 94 HF1/HF2 or FDA conformity.

Thus, the right choice of gasket material is determined by the construction of the part and its specific operating conditions. It, therefore, makes sense that the design engineer takes into account the exact position and geometry of the sealing at the earliest possible date of product development. Considerations such as whether a sealing groove would be necessary or how inclined contours can be best sealed should be taken.

Long curing times

Conventional liquid-applied 2-component silicone systems do not fully cure at room temperature on the part owing to air humidity. They often have to be tempered in a furnace so that they are cured within an acceptable time frame and have a good compression set. As well as the increase in curing time, in which the part cannot be further processed, additional costs for the acquisition of the furnace and higher energy consumption occur.

With silicone foam sealants from the FERMASIL product family, which crosslink at room temperature, a solution that saves energy and costs and makes an annealing furnace superfluous. But in certain production situations, the curing time can still be too long, if the parts have to be further processed immediately after the application of the foam.

Source: Magal Engineering Co India Pvt Ltd

The treatment of the silicone foam sealant with plasma also has a positive effect on the mechanical sealant properties.

Rapid curing with plasma finishing treatment

To achieve an even quicker tack-free time, the sealant application is immediately followed by a finishing treatment of the 2-component FERMASIL silicone foam sealant with plasma. This final treatment has been patented by Sonderhoff. The plasma nozzle is directly applied to the mixing head of the mixing and dosing system and is often needed for the pre-processing of plastic components for improved adhesion.

For foam sealants, the operator can use the FERMASIL-A-93-1-VP3 silicone foam system, which cross links at room temperature, together with the FERMASIL-B-93 hardener in a mixing ratio of 1:1. Immediately after application of FERMASIL to the part, the plasma nozzle treats the surface of the applied silicone sealing at a defined distance. As a result, the tack-free time can be improved by about 25 per cent with the same speed of application. If a lower speed is selected, the sealant actually becomes tack-free 40 per cent faster. By applying a plasma finishing treatment, the curing time of a FERMASIL silicone foam sealant can be reduced to a minimum. The parts with silicone seals can be finished faster. And valuable time is saved throughout the entire production process.

FERMAPOR K31

Sonderhoff's FERMAPOR K31 systems are most suitable for sealing industrial parts, complex shapes and seal geometry. It achieves particularly good adhesion of the parts owing to the chemical reaction of the two components on the carrier material. Another advantage is that the sealant becomes tack-free at room temperature in two to twenty minutes. It develops a cross-linked structure, which is extremely resistant to environmental effects such as humidity, dust and temperature. Additionally, it is processed using two component metering units and can be adapted flexibly and quickly. With FERMAPOR K31 systems, it is also possible to achieve sealing foams with ultra softness.

FERMASIL

The plastics-processing industry constantly seeks the most efficient production methods for injection molding and the necessary upstream and downstream processing procedures. Because this industry is very competitive and cost sensitive, streamlined demand and rapid production processes are necessary. In the case of foam sealants, which are applied using the automated FIPFG technology, the curing time is reduced considerably.

With a well-functioning sealant, the interior of a plastic component can be almost completely protected from moisture, dust, temperature and other media. The sealant must provide certain properties for this. For an injection molding company, the question faced time and again is which is the right sealant for the best possible result. In the last few years, this question has been increasingly answered by the application of a foam sealant, made possible with the modern FIPFG procedure.

Other add-on properties

Besides a FIPFG-compatible part design, the optimal sealant effect depends on the right material selection, and this is significantly determined by the usage and environmental conditions of the part. Apart from the time saving, the treatment of the silicone foam sealant with plasma also has a positive effect on the mechanical sealant properties. The gasket generally becomes more stable against mechanical shearing forces, which can lead to damage of the gasket during careless treatment of parts in the finishing procedure. This saves time and money for special protective precautions. The plasma-treated FERMASIL-A-93-1-VP3 silicone foam sealant with a hardness of 60 to 70 Shore 00 and with a width/height ratio of approximately 2:1 also shows an improved compression set. And often another plus for customers is that the surface of the silicone foam sealing has an attractive appearance. It becomes smoother and brighter due to plasma treatment. MMI

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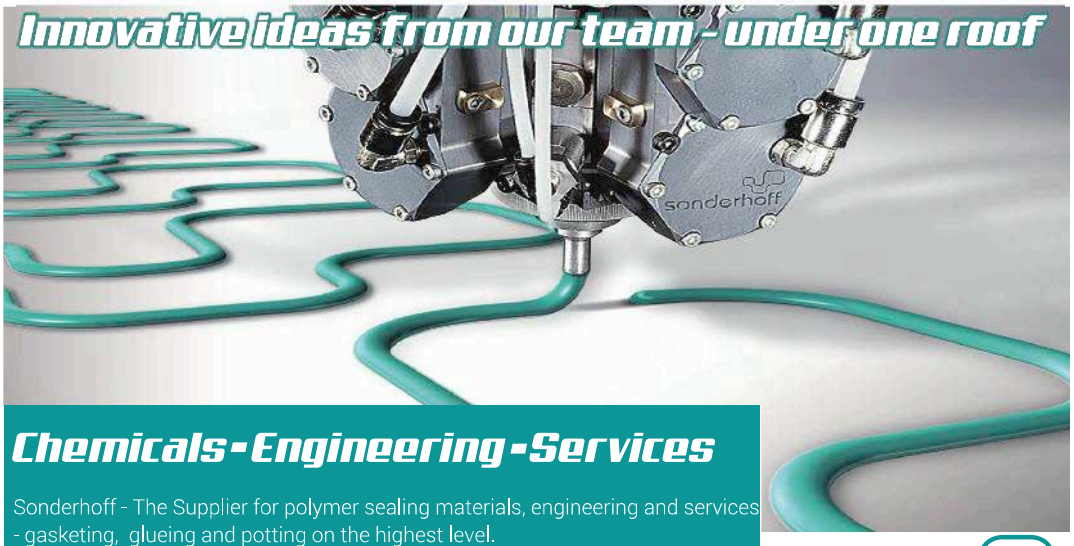

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SAVE THE DATES

EVENT CALENDAR

Event Name	Contact	Date & Venue
EuroBLECH 2014	Tel: +44 (1727) 814400 info@euroblech.com www.euroblech.com	October 21–25, 2014 Hannover, Germany
Machine Tool Indonesia 2014	Pamerindo Indonesia Tel: +62 (21) 2525320 www.pamerindo.com	December 3–6, 2014 Jakarta International Expo Kemayoran, Jakarta, Indonesia
ALUCAST	Rucheeka Chhugani T: +91 (11) 47168828 E: rucheeka.chhugani@nm-india.com www.alucast2014.com	Dec 4–6, 2014 BIEC, Bengaluru, India
India Engineering Sourcing Show IV	Rajat Sharma T: +91 (11) 23711124/25, E: rsharma@eepcindia.net www.iesshow.in	Dec 16–18, 2014 Bombay Exhibition Centre, Mumbai, India
IMTEX 2015	Balasubramanian Pillai bala@imtma.in www.imtex.in	January 22–28, 2015 BIEC, Bengaluru, India
ACMA Automechanika	Syed Mohd. Javed T: +91 (22) 61445900, E: syed.javed@india.messefrankfurt.com www.acma-automechanika.in	Feb 26–Mar 1, 2015 Pragati Maidan, New Delhi, India
TIMTOS 2015	Tel: +886 (2) 27255200 timtos@taitra.org.tw www.timtos.com.tw	March 3–8, 2015 Taipei World Trade Centre, Taipei, Taiwan
Northwest Machine Tool Expo	Tel: +1 (800) 5477377 info@cygnus.com machinetoolexpos.com	April 1–2, 2015 Oregon Convention Center, Portland, US
INTEC 2015	Tel: +91(422) 2222396 intec@codissia.com www. intec.codissia.com	June 5–9, 2015 Codissia Trade Fair Complex, Coimbatore, India
IMTOS 2015	Kamlesh Gohil Tel: +91(0) 9328899503 www.kdclglobal.com	July 4–7, 2015 Pragati Maidan, New Delhi, India
Automotive Engineering Show (AES)	Sameer Khedkar T: +91 (22) 61445900 E: Sameer.khedkar@india.messefrankfurt.com www.aes-show.com	July 7–9, 2015 Chennai Trade Centre, Chennai, India
Cambodia International Machinery Industrial Fair	Phnom Penh +855 (2) 35553219 service@chanchao.com.tw www.camboexpo.com	August 15–18, 2015 Diamond Island Exhibition and Convention

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HIGH SPEED PROCESSES – FOUR APPLICATION EXAMPLES

GEARS

Laser welding a synchronizer ring to the gear.
Welding / Jointing process time:
12 SEC.

DIFFERENTIAL HOUSING

Laser welding a ring gear to the differential housing.
Welding / Jointing process time:
35 SEC.

GEAR SHAFT

Laser welding the synchronizer wheel to the gear shaft.
Welding / Jointing process time:
16 SEC.

PROPELLER SHAFT

Assembling the propeller shaft from three single components.
Welding / Jointing process time:
14 SEC.

East meets West!

The first edition of EMTE-EASTPO marked a successful yoking of two established machine tool show owners from Europe and China—CECIMO (European Association of the Machine Tool Industries) and Shanghai EASTPO Culture Development Co Ltd, respectively. Held from July 14-17, 2014 at Shanghai New International Expo Centre, (SNIEC), the fair was a host to 650 international manufacturers from 24 countries showcasing their innovative machinery to buyers from almost 54 economies. A report…

Spread across four days, EMTE-EASTPO 2014 housed eight country pavilions and national groups from Czech Republic, France, Germany, Italy, Korea, Spain, Switzerland and Taiwan region. The machine tool exhibition brought together some of the world's leading machine tool manufacturers eyeing the vast market opportunities in China, attracting around 47,654 visitors. Local visitors from 32 cities made up majority of the participants. The biggest group of domestic visitors were from south-eastern China; namely Anhui, Jiangsu, Shanghai and Zhejiang. The majority of international visitors were buyers from India, Japan, Korea and Southeast Asia.

Soumi Mitra
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The show is open

The exhibition leveraged on the combined expertise and track records of both CECIMO and EASTPO Culture Development Co Ltd. In this context Director General, CECIMO, Filip Geerts said at the inaugural ceremony, "As the focus of the global machine tool industry shifts towards Asia, and the demand for European machine tools in China is strong, we are pleased to offer a promotional platform with the high quality standards that we have been used to in Europe for machine tool makers from all over the world. Today marks a milestone for us as we witness the opening of the first EMTE-EASTPO machine tool exhibition in Shanghai." Concurring on these lines, Chairman, EASTPO, Lee Qiong commented, "Our collaboration with CECIMO has enabled us to present an interesting range of innovative technologies from both east and west. Buyers from China and the rest of Asia will be able to source both top quality machinery and cost-effective solutions. For our inaugural joint exhibition, we are happy to welcome delegations from China, India, Philippines and Korea." Vice Chairman, Starrag Group Holding AG and Chairman, Economic Committee, CECIMO (European Association of the Machine Tool Industries), Dr Frank Brinken remarked, "We are very pleased with the outcome of our maiden efforts to stage the first EMTE-EASTPO exhibition—a high quality showcase of innovative technology and practical solutions presented by leading names from around the world."

Source: Vogel Business Media India

Glimpses of the first edition of EMTE-EASTPO

Displays galore

The first EMTE-EASTPO was a quality showcase following the tradition of major exhibitions in Europe. Exhibits were presented in myriad product sectors, and measures were taken to ensure that the intellectual property rights of manufacturers were not infringed. Exhibitors also held live demonstrations to provide visitors with hands-on experience on the most sophisticated machinery.

Impressions and conversions!

Chen Jian from Liaoning Jinggang Heavy Forging Co Ltd praised the extensive range of innovations and machines on the show floor. "We planned to invest in the latest technologies and met two European exhibitors at EMTE-EASTPO who showcased machinery which matched our requirements. We will be confirming the purchase very soon," he averred. In sync, CEO, Fastems Group, Tomas Hedenborg shared, "We have participated for the first time in an exhibition in China. We had quality business discussions with buyers and even concluded a sale during the exhibition. It was a rewarding experience for us and

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"Asia's share in global machine tool consumption amounts to just under 65 per cent, and demand in Asia is showing dynamic growth. Most machine tools worldwide were purchased in China, representing a share of 43 per cent in world consumption."

Director General, CECIMO, (European Association of the Machine Tool Industries), Filip Geerts

"We are very pleased with the outcome of our maiden efforts to stage the first EMTE- EASTPO exhibition—a high quality showcase of innovative technology and practical solutions presented by leading names from around the world."

Vice Chairman, Starrag Group Holding AG and Chairman of the Economic Committee, CECIMO (European Association of the Machine Tool Industries), Dr Frank Brinken

"We have participated in the show to support CECIMO as this is for the first time CECIMO has joined hands with EASTPO for this exhibition. We will recommend the show to our members for the next edition upon the impressions we are carrying from the fair."

Membership & Events Director, The Manufacturing Technologies Association, Adrian Sell

we will participate in the next edition." Adding to this, Deputy General Manager, Mitsubishi Heavy Industries (Shanghai), Zhuang He Ting, pointed, "The exhibition has proven to be a high-quality platform that is well-supported by exhibitors and visitors. We were also pleased to have met and networked with several high-quality visitors here."

International delegation

The exhibition witnessed the presence of several overseas delegations such as Ludhiana Machine Tool Manufacturers Association from India, Philippine Die and Mold Association (PDMA), Metalworking Industries Association of the Philippines (MIAP), and Metals Industries Research Development Centre (MIRC). Additionally, present were also delegations from the Shanghai Institute of Mechanical Engineering, Anhui Association of Automobile Manufacturers, Zhejiang Institute of Mechanical Engineering, JiaXing Mould Trade Association and the Shanghai Instrument Industry Association. Impressed with the show PDMA, President, Philip Ang, commented, "We were able to see a wide variety of machinery and technologies for the manufacturing industry. The event provided a sourcing platform for our delegates to make on-the-spot purchases of tools and accessories."

Knowledge sharing

The exhibition also staged several knowledge-sharing activities and technical seminars. The CEO Summit was one of the key activities themed around, 'Profitable Growth through State-of-the-Art Manufacturing' held in conjunction with the show. The keynote presentation on global engineering trends and forecasts was delivered by Professor and Director, Laboratory for Machine Tools and Production Engineering, RWTH Aachen University, Germany, Dr Fritz Klocke. Among the distinguished speakers were Vice President, European Union Chamber of Commerce in China, Mats Harborn who spoke elaborately on the topic '2014 Business Perspectives: China's weight in the global outlook', and International Management, CEIBS, China, Prof Hellmut Schutte who highlighted the importance on 'Competing in China and beyond—the implications of automation on competitiveness'.

Also running alongside the event were panel discussions that highlighted the current trends and challenges faced in the industry. One of interest was the session titled 'Machine tools & Automation: 21st Century Global Trends and China's Rising Issues' which was moderated by President, Gardner Business Media, Richard Kline.

The show goes on…

The show having concluded on a positive note, CECIMO will continue to ensure the existence of good marketing platforms for European machine tool builders in China. According to Geerts, currently European machine tool builders want to more than ever put emphasis on technological improvements and encourage European-Asian technological collaboration. MMI

"The show has donned from primarily being distributor's platform to manufacturers showcasing their advanced products. For a show to be successful, it is very important to have manufacturers exhibiting their latest technologies in exhibitions, else the focus is completely lost."

Managing Director, WhizCut, Chris Schmidt

"Firstly, this show helps us to benchmark ourselves in terms of understanding the latest trends in the market. Secondly, it provides a platform to engage with our existing distributors and dealers and seek new ones."

General Manager, Micromatic Machine Tools (Shanghai) Co Ltd, Raguramachandran C R

"Automation in the field of sheet metal processing is becoming increasingly important. It addresses not only sheet handling but also the maintenance of the machines as well as data integration."

Senior Vice President Market Division Asia and Australia, Bystronic, Daniel Nauer

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Making Dreams a Reality!

AMTEX 2014 in its 9th edition was a platform that brought together a world-class showcase of technologies, networking opportunities and business prospects. The four-day exhibition spread across 18,000 sq mt of exhibition space provided an abode to all things concerning machinery and allied services.

AMTEX 2014 opened its doors at Pragati Maidan, New Delhi on July 25–28, 2014. Organized by Triune Exhibitors Pvt Ltd, the event offered a platform that witnessed a plethora of opportunities. The show commenced with the traditional lighting of the lamp ceremony followed by the cutting of ribbons by Chief Guest, Hon'ble Minister of Micro, Small & Medium Enterprises, Govt of India, Shri Kalraj Mishra; Guest of Honor, Chairman & Managing Director, NSIC, Dr HP Kumar; CEO, Micromatic Machine Tools Pvt Ltd, TK Ramesh; CEO, Bharat Fritz Werner Ltd, Ravi Raghvan; Executive Director, Sahajanand Laser Technology Ltd, Maulik Patel; Regional President, Reed Exhibitions, Dan Londero, and Regional Commercial Director, Reed Exhibitions, Brian Thomas.

Nedra Pereira
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Blueprint

Welcoming the audience, Mishra expressed his pleasure on the running of AMTEX since 2001 and stated that shows such as this one help further develop the manufacturing and tooling sector.

Speaking on the relevance the manufacturing sector has on all industries, Mishra averred, "The Indian machine tool industry currently stands 13th in production and 6th in consumption of machine tools. I thank the organizers for organizing AMTEX as it encourages Indian exhibitors to do better by staying up to date on the latest technology; this in turn will help us achieve the vision of becoming a manufacturing hub."

Mishra also welcomed all the foreign participants by saying the phrase 'Atithi Devo Bhavah' which means 'the Guest is God'. He further thanked them for bringing their technology and innovations to India. He hoped this show strengthened ties of friendship between the countries and offered a platform for exchange of ideas and expertise.

Display

Spread over 18,000 sq mt, the show highlighted the excellence of machine tool manufacturers from around the globe. Right from micro, small and medium enterprises (MSME) to global giants, every participant is showcasing the best of their technology under this roof.

Speaking about the display, Managing Director, Triune Exhibitors Pvt Ltd, Cyril Pereira said, "AMTEX is the place where one finds the highest level of innovation. This is where exhibitors can showcase their developments to prospective customers, arriving from every corner of the country."

Participation

Apart from Chinese and Taiwanese pavilion, visitors also had access to interesting presentations made by countries such as Japan, the US, the UK, Korea, Canada and many others. However, the prime feature of this edition of AMTEX remained MSME's participation.

Taking manufacturing to the next level

Pereira while offering the vote of thanks announced the joint venture between Reed Exhibitions and Triune. According to him, the collaboration would help bring advance technologies to the Indian manufacturing sector through trade shows. In alignment, Regional President, Turkey, India & Middle East Global Head – International Sales Group, Reed Exhibitions, Dan Londero apprised, that they are glad to collaborate with Triune as they wanted to leverage on the local capability, high quality and immense potential in the Indian market.

In the end, Pereira offered a vote of thanks to all the dignitaries for making the inaugural special. He also thanked all the invited guests, exhibitors, visitors for gracing the occasion by their solemn presence and wished everyone a happy and eventful show. MMI

Source: Triune Exhibitors Pvt Ltd

Managing Director, Triune Exhibitors Pvt Ltd, Cyril Pereira and Regional President, Turkey, India & Middle East Global Head – International Sales Group, Reed Exhibitions, Dan Londero announce the joint venture to bring international best practices in India through trade shows and conferences.

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Changing the Framework from Within

The Indian Machine Tool Manufacturers' Association (IMTMA) recently organized the National Productivity Summit 2014. The eighth edition of the series was held on August 20 – 21, 2014, at the Chennai Convention Centre, Chennai. As in its previous sessions, the event provided a platform for the best examples of increased productivity, in terms of people, product and management, to be showcased.

The Productivity Summit 2014 was held at the Chennai Trade Centre, Chennai after eight years. The two-day event, held on August 20 – 21, 2014, witnessed the presence of some of the renowned names in the industry.

The National Productivity Summit had a huge turnout of several manufacturing professions from the industry where over 400 participants actively participated. Another aspect to the summit was the plant visits organized by IMTMA.

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Plant visits

The plant visits were arranged to enable a firsthand view of demonstrations that focused on productivity improvements through low cost automation, TPM practices on shop floor, lead time reduction, flow manufacturing, energy savings, cost reduction techniques and productivity gains through quality improvements. Wabco India, Lucas TVS, Ford India and Rane TRW Steering Systems were the four factories visited by various staff members.

Each company has achieved its own mantra for enhancing processes and encouraging its employees to think out of the box. A small brief on each of the companies is as follows.

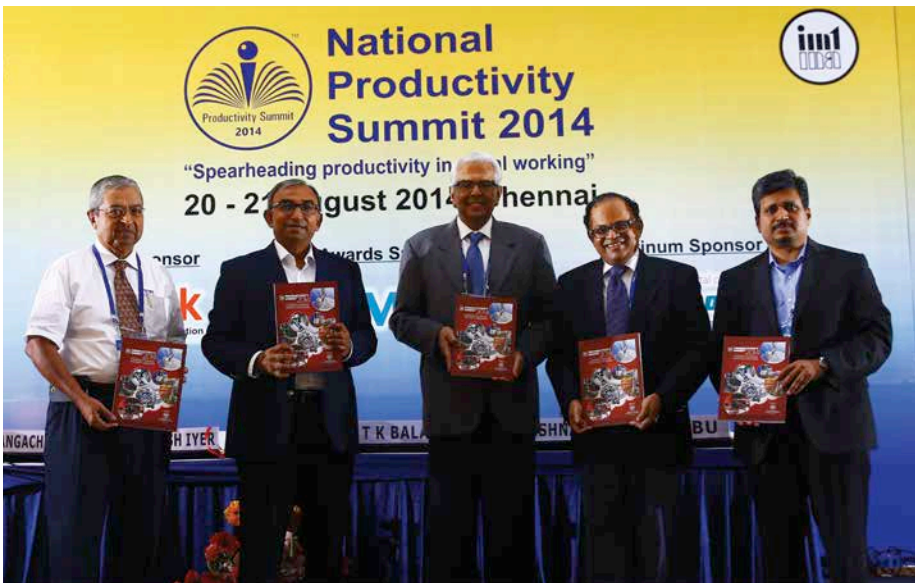
Ford India

Ford has pioneered several innovative automobile manufacturing techniques since its inception. Ford restructured its manufacturing operations in its efforts to induce more flexibility and enhance the efficiency of its automobile production systems. As part of Ford's ongoing commitment to environmentally-friendly manufacturing practices, the Ford India team has successfully become the first Ford plant to ensure zero solid waste discharge. In 2012, Ford India bagged the first ever Green award from the Government of Tamil Nadu for its green manufacturing practices.

Lucas TVS

Lucas TVS established in 1961 to manufacture automotive electrical systems. Four out of five vehicles rolled out daily are fitted with Lucas-TVS products. Lucas - TVS has bagged the Deming application price in 2004 from the Japanese Union of Scientists and Engineers (JUSE). The company believes quality is not just conformance to drawings or specifications but ensuring customer satisfaction. This forms the basis of its approach to Total Quality Management (TQM). Quality Assurance methods like Advanced Product Quality Planning, Statistical Process Control Techniques, Effective Tool Management System, Process

Source: IMTMA



(LtoR): Past President, IMTMA and Managing Director, Yuken India Ltd, CP Rangachar; Author of 'The Habit of Winning', Prakash Iyer; Chairman & Managing Director, Lucas-TVS and Delphi-TVS Diesel Systems, TK Balaji; President, IMTMA, and Managing Director, TaeguTec India Pvt Ltd, L Krishnan and Director General, IMTMA, V Anbu unveil the 'Productivity Digest 2014' at the inaugural ceremony of Productivity Summit 2014.

Source: IMTMA

1st Prize

Delphi TVS Diesel Systems

Case Study Presented: Productivity improvement in BDN Nozzle manufacturing line to meet the sudden increase in customer demand

2nd Prize

Bosch

Case Study Presented: Value Stream approach for enhanced productivity and profitability in 'Inline Value Injection Pumps'

Source: IMTMA

Capability Improvements, Preventive Maintenance, Producer Control and Small Group Activities form the backbone of the system approach adopted at Lucas TVS.

WABCO India

WABCO India Ltd, a majority owned subsidiary of WABCO Holdings Inc, has pioneered the manufacture of air-assisted and air brake systems for commercial vehicles in India. Wabco Research and Development Center facilitates design, development, simulation and testing of conventional and advanced braking systems for local and global markets. A team of professional engineers, powered by the best production facilities, gears up to translate design competence into excellence in manufacturing through concepts such as lean and cellular manufacturing. By devising innovation strategy from deeper understanding of diverse customer roadmaps, they develop and deliver technologies that increase fuel efficiency, reduce vehicle weight, optimize energy recovery and achieve other efficiency and environmental enhancements for commercial vehicles on a continual basis.

Rane TRW Steering Systems

Rane TRW partners with a wide spectrum of auto majors to provide concept to product solutions. This is made possible by well integrated design, manufacturing and testing facilities at each of the group companies. Being manufacturers of safety and critical components, technology development has been a focus area in all the Rane Group companies. Rigorous testing, continuous up gradation of in-house technology and support from strategic development partners has enabled the company to enhance technical competencies at all levels.

All four facilities provided active examples of how they believed in continually evolving their processes as per its need. The plant visits also included a Q&A session, allowing all who visited the plant a chance to extract more information on a process, function and idea. The visits only further confirmed the thought that change is the only constant.

The necessity of productivity

IMTMA sees the need for the industry to realize the gamut of opportunities available for further enhancing manufacturing facilities. Hence continually organizes events that focus on the necessity of always enhancing and improving processes.

At the inauguration ceremony of the summit, President, IMTMA, and Managing Director, TaeguTec India Pvt Ltd, L Krishnan addressed the gathering: "Going forward, productivity will continue to dominate the attention of all manufacturing strategies. Changing customer expectations coupled with continuous thrust on cost reduction has been throwing up new challenges in manufacturing. The answer lies in adopting highly productive manufacturing solutions through superior machining processes, alternative processes, automation, efficient machines and smart manpower. The National Productivity Summit is a platform for the companies to experience and cross-learn some of the best productivity practices that can be implemented in their own companies".

Prakash Iyer, Author of 'The Habit of Winning' delivered the keynote address titled Unleashing the Leader Within! He went on to expound on how in order to be successful, one should focus on how they can make a difference to someone else. He went on to quote American writer, publisher and artist, and philosopher, Elbert Hubbard: "One machine can do the work of fifty ordinary men. No machine can do the work of one extraordinary man." Furthermore, he shared four lessons from his experience and hoped that it would help everyone who attended the event to unleash their potential.

Chairman & Managing Director, Lucas-TVS and Delphi-TVS Diesel Systems, TK Balaji agreed with Iyer's point made and stressed on how India should use productivity as a tool for competitiveness. He further stressed on how we should work towards making the sector an organized one by understanding what is value and what is waste. Balaji gave examples from his experience on how companies have a starting point on where productivity can be enhanced. He said that most Indian companies have 'zero defects' as a target to be achieved, but how for some companies in Japan, zero defect was the starting point and enhancements are carried out to bring about changes in production times and reducing waste. He also stated, "Never miss an opportunity to learn," when talking about the importance of incorporating techniques for improving processes.

Director General, IMTMA, V Anbu thanked everyone who attended the event on behalf of him and all his colleagues at IMTMA. He further went on to thank all the speakers as well as the case study presenters who shared their experiences and success stories showcasing productivity enhancement.

Presentations galore

The event saw presentations on productivity improvement projects from

Source: IMTMA

Maruti Suzuki India

Case Study Presented: Energy savings in KB machine shop

Source: IMTMA

Mahindra & Mahindra (Automotive Sector)

Case Study Presented: Reduction of tool cost per piece in volume production

Source: IMTMA

Reliable Autotech

Case Study Presented: Capacity enhancement of Engine Plate by 76% through manufacturing system redesign

Source: IMTMA

Tata Motors

Case Study Presented: Weld shop productivity improvement through elimination of process, parts quality & equipment down time

companies like Ashok Leyland, Bajaj Auto, Bosch, Delphi TVS Diesel Systems, Hero MotoCorp, Lucas TVS, Mahindra & Mahindra, Maruti Suzuki, Reliable Autotech, Tata Motors and Wheels India. In addition to these keynote presentations were also made by the likes of Executive Director, Lucas TVS, Dr Ravichandran; Principal Advisor, Mahindra Group of Companies, Anjanikumar Choudhari, and Vice President - Operations, TAFE, S Kumaradevan.

These case study presenters who have excelled in achieving superior performance through sustained productivity improvements, were evaluated by the eminent jury and crowned as 'Productivity Champions' at the 'IMTMA - Siemens Productivity Championship Awards presentation ceremony which gives away cash awards worth ₹10 lakhs on the second day of the summit.

National Productivity Summit champions 2014

The summit ended with the The IMTMA-Siemens Productivity Championships Awards 2014. At the awards ceremony, Krishanan thanked the participants and hoped that the two day event had inspired all who attended. He averred, "Going forward, our emphasis in future will be to involve in a much greater manner our manufacturing SMEs in the competition process. SMEs are the backbone of India's manufacturing competitiveness and we need to bring to the fore their innovations and developments, which may not have got a platform so far." He congratulated everyone who participated and the results of the awards were announced shortly afterwards.

From the presentations made, the winners were as follows. The first prize was awarded to Delphi TVS Diesel Systems for their presentation on 'Productivity improvement in BDN Nozzle manufacturing line to meet the sudden increase in customer demand'. Two second prizes were awarded to presentations made by Bosch—Value Stream approach for enhanced productivity and profitability in 'Inline Value Injection Pumps', and Maruti Suzuki India—Energy savings in KB machine shop. Three Third prizes were awarded to presentations made by Mahindra & Mahindra (Automotive Sector) on 'Reduction of tool cost per piece in volume production', Reliable Attach on 'Capacity enhancement of engine plate by 76 per cent through manufacturing system redesign' and Tata Motors on 'Weld shop productivity improvement through elimination of process, parts quality & equipment down time'. Certificates of Merit were also awarded to Ashok Leyland, Bajaj Auto, Hero MotoCorp, Lucas TVS, and Wheels India.

Additionally, a Vox Populi Award was given to Delphi TVS Diesel Systems. This award was a special one as it was chosen by the attendees of the summit. MMI

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Source: IMTS

Visitors thronging the exhibition hall during the show

Platform for Strength, Vitality and the Push for Innovation in Manufacturing Technology

The 30th edition of IMTS – The International Manufacturing Technology Show 2014 had a remarkable array of new and emerging technologies that will continue to revolutionize the manufacturing world. It offered solutions to all manufacturers who seek increased productivity and lower cost.

The International Manufacturing Technology Show (IMTS) 2014 was the fourth largest IMTS in history and the largest six-day show ever with registration of 114,147 representing 112 countries. This was a 13.9 percent increase over IMTS 2012. IMTS covered more than 1.282 million net sq ft of exhibit space and hosted 2,035 exhibiting companies. IMTS 2016 will be held at Chicago's McCormick Place September 12-17, 2016.

The application of additive manufacturing in a large scale application stole the show. News of the world's first 3D-printed car is still sweeping the US. The Association for Manufacturing Technology (AMT), Local Motors, Oak Ridge National Laboratory, and Cincinnati Inc collaborated to 3D print and assemble the first-ever electric car onsite during the six days of IMTS. On Saturday, September 13, CEO and Co-founder, Local Motors, Jay Rogers and President, AMT, Douglas Woods drove out of IMTS 2014 in the newly finished 'Strati'.

The process started with a design competition within the Local Motors community, for which 207 entries were submitted. The winner was Italian Michele Anoe with his 'Strati' design, meaning 'layers' in his native language.

Printing began at the start of IMTS and only took 44 hours to complete. Made of carbon-fiber reinforced polymer, the same plastic as Lego products, the car was printed on a large-scale additive printer by Cincinnati Inc. The wheels and hubcaps were also 3D printed using the direct metal process.

The result is an electric car that drives at a top speed of 40 mph and only consists of about 40 parts, versus 20,000 parts in a regular car.

"During IMTS 2014 there was a universal vibe among exhibitors, visitors and even students, that manufacturing is now 'the' place to be," said Vice President – Exhibitions and Communications, AMT, Peter Eelman.

Significant orders booked during IMTS

The show had a remarkable display of new

Source: IMTS

and emerging technologies that will continue to revolutionize the manufacturing world. These innovations, including digital data integration, automation/robotics, in-line quality assurance additive manufacturing, and traditional equipment, offer solutions to all manufacturers who seek increased productivity and lower cost. Sold signs could be seen throughout the show.

Director-Marketing, Hydromat, Kevin Shults said, "We are ecstatic about the results we are seeing. We sold a $1 million plus twin spindle machining center during the show and left with a large number of quality leads to carry us into 2015. The community really came together in a big way."

Co-located shows enhanced the value of IMTS for both visitors and exhibitors

There were two co-located shows at IMTS: Industrial Automation North America (NA) and Motion, Drive & Automation North America (MDA NA). Deutsche Messe AG partnered with AMT to introduce MDA NA at IMTS 2014. Industrial Automation NA made its debut as a pavilion at IMTS 2012 and returned in 2014 as a co-located show.

Industrial Automation NA showcased the best in process, factory and building automation with products and solutions for production automation, metalworking and precision manufacturing. The inaugural MDA NA provided a networking hub of North America's power transmission, motion control and fluid technology sectors. At MDA NA, visitors had the chance to find the latest solutions and innovations in manufacturing, meet with key suppliers from all over the world, strengthen business network, and prepare and finalize purchases.

CEO, Hannover Fairs USA, Larry Turner stated, "Our two co-located trade shows highlighted the latest automation and motion drive technologies and trends. Many exhibitors across the show floor mentioned the noticeable increase in attendance, as well as attendee excitement about investing in the new technologies showcased specifically across our co-located events."

Source: IMTS

Today's Technology Center (TTC) presented offerings for the aerospace, automotive and medical sectors

Lighting the future

This year, the Smartforce Student Summit proved to be more successful than ever. During IMTS 17,767 students, educators, administrators and parent chaperones made their way through the event this year, almost double the number of students at IMTS 2012.

Students had the opportunity to see how much fun STEM (Science, Technology, Engineering, and Math) based learning can be in the Make It! area. There, students were able to try out new technologies and compete to see who could design and create the most effective 3D-printed wind turbine, courtesy of Rippl3D. The keynote speakers, including STEM celebrities like astronaut Captain Wendy Lawrence and Segway PT inventor Dean Kamen, shared insights on how these fun STEM experiences translate into careers. Once through the Student Summit experience, students were invited to visit the thousands of IMTS exhibits.

Conferences brought participants together for education

IMTS was highly focused on education and hosted six conferences:

Source: IMTS

Advanced Manufacturing Center (AMC) showcased manufacturing's solutions

Source: IMTS

Visitors viewing one of the various technology displays at the West Building, IMTS.

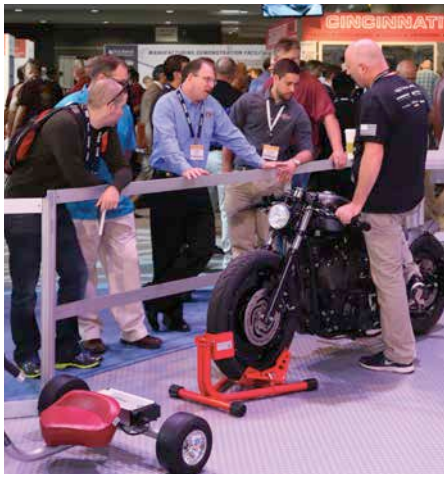
The IMTS 2014 Conference attracted 50 per cent more participants than the 2012 event, focused on bringing the industry together, under one roof and at one time, to discuss new opportunities. Attendees were able to network with a community of peers and experts within their industry and explore fresh ideas to enhance their business. Attendees left with different perspectives on overcoming day-to-day and long-range challenges.

TRAM (Trends in Advanced Machining, Manufacturing and Materials) had a successful debut at IMTS 2012 and continued to grow at IMTS 2014. The focus was on transferring advanced manufacturing technologies to the business leaders, managers and engineers who lead or play a key role in a facility that serves the aerospace sector.

MDA Forum, the second in its series, brought industry experts in to discuss best practices in motion control, power transmission and fluid power. Helping manufacturing professionals to increase efficiency and productivity, this year's program covered industrial communications, robotic control, guidance and inspection, linear actuators, 3D-printing and 3D-machining. The MDA Conference was co-organized by GIE Media and Hannover Fairs USA.

The Additive Manufacturing Workshop brought together manufacturing professionals who were interested in or who were already applying additive manufacturing as a production resource. More than a 3D-printing seminar, this workshop focused on industrial applications of additive technologies for making functional components and end-user production parts.

Source: IMTS



A display at the AMT's emerging technology center

Source: IMTS

Students had the opportunity to use STEM based learning at IMTS

Source: IMTS

The world's first 3D-printed car brought by the collaboration of AMT – The Association for Manufacturing Technology, Local Motors, Oak Ridge National Laboratory, and Cincinnati Inc.

EOS NAUD 2014 (EOS North America User Day) was open for the first time to both EOS customers and all attendees of IMTS. Those who came were able to learn about the latest developments in industrial 3D printing/additive manufacturing, including direct metal laser sintering (DMLS) and plastics laser-sintering directly from EOS - the world leader in laser-sintering solutions, our customers and partners.

The **Global Automation Manufacturing Summit 2014** at Industrial Automation North America and IMTS covered topics on industrial automation, mobility and modern maintenance practices. Speakers from McGladrey, Sur Seal Cincinnati, DMC, Molex and the Digital Manufacturing and Design Innovation Institute (DMDII) shared their expertise to help end-users increase their productivity and conquer their current and future manufacturing challenges.

Today's technology center

Today's Technology Center (TTC) presented by GIE Media featured technology from the aerospace, automotive and medical sectors grabbed the attention of many entering the West building.

Advanced manufacturing in aerospace was one of the central themes with a 1/3 scale model (10 foot long) of the Dream Chaser Space Utility Vehicle (SUV) being developed between Sierra Nevada Corp (SNC) Space Exploration Systems and Siemens PLM Software Group on display along with aerial target drones, built by Composite Engineering Inc.

Two all-American dream cars were featured, including a 2015 Chevrolet Corvette that pushes the boundaries of materials, engine and transmission technologies and Stewart-Haas Racing's, No 41 Kurt Busch Chevrolet SS, which can reach a top speed of over 200mph.

Aside from aerospace and cars, medical device technology as small as implants that are invisible to the naked eye or as large as an MRI machine were on display at TTC.

Visitors were able to see firsthand the Direct Metal Laser Sintering (DMLS) technology that makes it possible for manufacturers to economically produce complex components in smaller quantities.

A display and presentation by Rethink Robotics introduced visitors to the Baxter Robot. Rather than being a replacement for employees, robotics increase the value of an individual employee by freeing the person to focus attention on the work that requires human knowledge or human judgment. Baxter is unique in that it is a completely safe and interactive robot that can be trained through simple manipulations and push buttons.

Eelman concluded, "Plans are already underway for IMTS 2016. Most exciting is expansion of exhibit and Smartforce Student Summit space at the McCormick Place facility which promises to make IMTS 2016 perhaps the largest in history." MMI

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Schunk, a leading provider of clamping technology and gripping systems, has numerous innovative products in its portfolio. Here are some of its offerings:

Rotary Modules

SCHUNK has developed modules of the second PowerCube generation, placing greater focus on heavy-duty use in industry. With the PR 2, PDU 2 and PSM 2 high-performance rotary modules, the company has expanded its mechatronic program with three especially compact drives with compact performance. All regulating and power electronics have also been fully integrated into the new modules. This saves the need for an external controller, minimizes the cabling requirements and reduces susceptibility to errors. Equipped with standardized plug connections, the modules can be quickly and easily connected. Control can be provided via Profibus (up to 12 Mbit/s) or CAN-Bus (up to 1 Mbit/s).

Laser Machine Tool

High-precision SCHUNK linear and rotary axes give the PSM 400 Premium maximum precision and repeat accuracy. The welding lines generated are variably shifted and remain equidistant. This results in extremely constant and reliable material deposition. Thanks to the machine's sophisticated teaching and programming function, it is extremely quick to set up and program. User-friendly look-ahead controls and integrated teaching function for lines, curves, circles, and splines significantly reduce programming time. The user can also completely control the machine manually without programming. Individual parts and small batch quantities can be quickly and efficiently machined this way.

Lathe Chucks

With a change-over time of five seconds per jaw, the SCHUNK PRONTO quick jaw change system offers turbo-charged set-up times for all standard lathe chucks with fine serrations of 1/16" x 90° and 1.5 mm x 60°. The quick-change retrofit set from the competence leader for clamping technology and gripping systems consists of supporting and changing jaws.

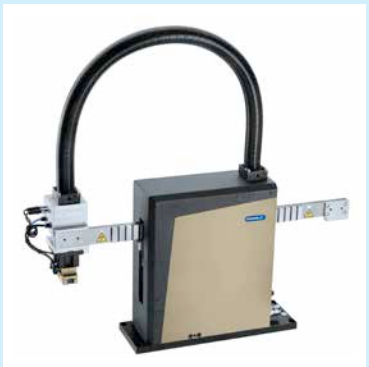
It is suitable for O.D. clamping of pre-machined and finished parts. Via the selection of the interchangeable insert, the clamping range can be extended by up to 16 mm, without having to re-set the supporting jaw, an increase of 300 per cent in comparison to conventional lathe chucks.

Profinet Module

The Profinet module DL5 from SCHUNK is particularly designed for heavy-duty handling systems of the SWS-L series. Due to its integrated safety technology, the module SIL 2 fulfills the requirements according to IEC 61508 and performance level d according to ISO 13489, and therefore meets the optimum requirements for use in the automotive industry. With an integrated fast startup, Ethernet switch and 5-digit coded tool identification, it allows fast tool change and a quick and process-reliable integration into the overall system. In order to avoid a contact fire during the changing process, the power supply contacts of the DL5 are protected with a special electronics (Arc Prevention Circuit). Power, signals and data are transferred via AIDA-compliant push-pull plug connectors.

Pick & Place Unit

The linear directly driven PPU-E series Pick & Place units from SCHUNK are one of the fastest pick & place units on the market currently. The largest size PPU-E 50, is an expert for dynamic handling of medium-weight masses up to 5 kg. For a complete cycle with a 280 mm horizontal and 150 mm vertical stroke the unit has a cycle time of 0.98 seconds with a tooling mass of 1.5 kg and 2 x 60 ms (for gripper). As the two smaller sizes PPU-E 15 and PPU-E 30, the PPU-E 50 is also moved via a wear-free direct drive, and not by a guidance transmission. This minimizes the maintenance effort, increases the continuous repeat accuracy, and simplifies programming. Since the unit is equipped with two stationary motors, and the unit does not require movable and therefore susceptible motor cable, there are no cable breaks or system malfunctions.



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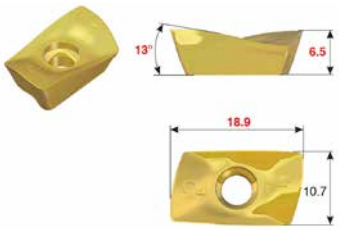
New ChaseMill Insert



TaeguTec has recently introduced the APKT 1706, a new insert in its ChaseMill series. The newly launched tool features a high positive helix angle cutting edge in a variety of grades. The new tool focuses on productivity due to its smooth machining on all materials used in general applications and heavy and automotive industries. The insert's higher positive helix angle of 13° achieves smoother machining than previous similar tools. Moreover, the APKT 1706 is compatible with the ChaseMill's current line of APKT 1705 cutters and holders making it the perfect choice as an upgrade without spending more money on additional tools.

▸ **TaeguTec India P Ltd**
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Micrograin Solid Carbide Milling Tools

DATRON India has recently launched micrograin solid carbide milling tools from 0.2 mm, drilling tools from 0.1 mm and thread milling from M1onwards in India. Using these micrograin solid carbide tools will help the user do the job with perfection and high precision. Materials such as aluminum, copper, brass, steel, composite materials, plastics, dental materials, gold, foam, wood, acrylic and other non-ferrous materials can easily be milled with the help of new tools.

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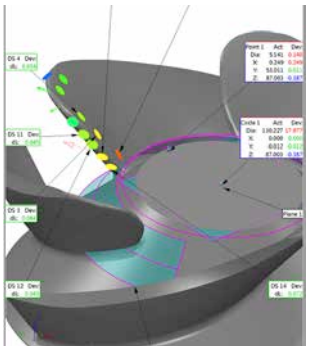
Inspection Software



Delcam presents PowerINSPECT inspection software with a new interface that features new icons. These icons make the software more intuitive and easier to use. Other enhancements in this version include the ability to create compound items and so speed up and simplify repetitive measurements. The software can now be used to take all types of simple measurements and to inspect a growing variety of geometric features, as well as offering more tools for analyzing complex 3D surfaces.

▸ **Delcam India**
T: +91 (20) 30613900, E: vseth@delcam.com
www.delcam.in

Self Centering Vice

Fresmak ARNOLD Precision Engineering Pvt Ltd offers self centering vice in the Indian market. This vice achieves centering accuracy within 20 microns. On the other hand, it attains clamping accuracy of 10 microns. Other features of the vice include interchangeable jaws and compact size. Due to its advanced features, the vice is best suited for 5-axis machine.

▸ **Fresmak ARNOLD Precision Engineering Pvt Ltd**
T: +91 (80) 67654250, E: info.india@fresmak.com
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Cleaning Technology

Finishing and cleanliness level requirement in engineering and auto industries is becoming challenging due to stringent quality control norms. To meet these quality norms, an innovative approach is important to explore new methods to achieve desired results. Gala Precision Engineering has come up with a unique methodology to clean precision parts by combining finishing and cleaning technology. With this technology users can get clean part from all types of contamination with superior surface finish.

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Horizontal Machining Center

High speed, high performance 4-axis horizontal machining center, HMC-560, is equipped with electro-spindle, which can easily perform variety of operation starting from heavy roughing to precision finishing work. Heavily ribbed structure provides excellent balancing while machining operations, enabling the center of gravity of moving mass to remain always within driving points of slides. The machine comes with choices of alternates spindles, ATC and palletization.

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Gera Honing Process

The gear honing process with FÄSSLER - DAETWYLER HMX-400 is one of the most economical ways for hard finishing gears in mass production for the car, truck, motorcycle and aerospace industries. These machines are intended for the green or hard finishing of spur and helical gears, shaft type pinions, cluster gears and internal gears. The 9-axis machine with the Siemens SINUMERIK 840D control system is particularly distinguished by its compact design, outstanding productivity, and efficiency and versatility, which allows for conventional double-flank honing, synchronous single- or double-flank honing, as well as internal and combi honing.

▸ **Matchless Machines & Technology**
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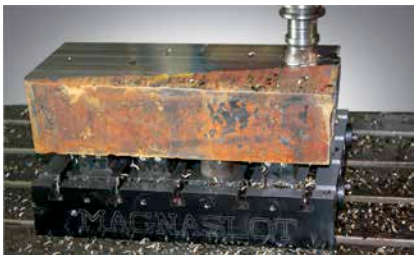
www.matchlessmachines.in

Magnetic Machine Bed



Mangaslot, a complete magnetic machine bed, is made to be used for heavy duty milling operations. Tee slots in the working face of the chuck enables clamping magnetically and/or mechanically all types of jobs be it ferrous or non-ferrous. It can clamped magnetically. The operating voltage is 440 VAC for all chucks. Moreover, it features rigid and robust construction and is 100 per cent leak proof.

▸ **Sarda Magnets Pvt Ltd**
T: +91 (33) 24431042, E: info@sardamagnets.com
www.sardamagnets.com

New Grooving Line

VARGUS Ltd has recently introduced its new Groovical line of grooving solutions. The new line provides an impressive range of high-performance and cost-effective solutions for general applications in a variety of different profiles: square, round and specials. The new series is suitable for internal and external grooving and parting off applications. Moreover, the new line includes two distinct tooling systems designed for different groove widths and depths. The GV26 is made for groove widths from 0.5 to 2 mm and groove depths up to 5mm while GV29 is suitable for groove widths from 2 to 6 mm and groove depths up to 6.5 mm.

▸ **Vargus Ltd**
T: +91 (2135) 654748, E: info@vargusindia.com
www.vargusindia.com

Contour Measuring System

Mitutoyo Contracer CV-3200 series contour measuring system combines speed, ease of use with best-in-class accuracy -Z1 axis (detector) = ± (1.6 + | 2H | /100) µm, X axis (drive) = ± (0.8+0.01L) µm. This machine offers significantly increased productivity by combining fast traverse speeds, with many time saving and accuracy enhancing innovations. Moreover, this machine features a precision arc-scale built into the detector allowing the arc trajectory of the stylus tip to be read directly, thus minimizing error.

▸ **Mitutoyo South Asia Pvt Ltd**
T: +91 (11) 26372090, E: delhi@mitutoyoindia.com
www.mitutoyoindia.com

Fiber Laser Machine

Sahajanand Laser Technology Ltd recently launched fiber laser machine, Brahmastra Infinity that comes with a power option of 400W & 500W fiber laser. With an intelligent power management system, the power consumption at the full and idle load is far less compared to that of an equivalent CO_2 laser cutting system. The nesting software, SLTL TechNest, syncs well with the machine offering more sheet utilisation compared to that of other software.

▸ **Sahajanand Laser Technology Ltd**
T: +91 (79) 23287461, E: info@sahajanandlaser.com
www.sahajanandlaser.com

Machine for Medical Devices Production

Team Technik offers its compact RTS production system, which is made for assembly and testing. Its design makes it ideal for GMP-compliant production of medical devices. Even when running at high output, the production system platform runs quietly, with very little vibration. Up to 120 cycles per minute and an availability of 98 per cent can be achieved. Moreover, the system achieves positioning accuracy of +/-0.05 mm and run-out accuracy of +/-0.03 mm, making it the perfect base system for production systems in precision applications such as joining and function testing processes or ultrasonic welding.

▸ **Team Technik**
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