



MODERN
MANUFACTURING
INDIA

WWW.MMINDIA.CO.IN

The Official Magazine of



Indian Machine Tool
Manufacturers' Association

In Association with

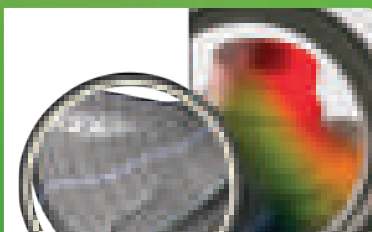


WHY ENTREPRENEURS MUST KEEP LEARNING?



COUNTRY FOCUS:
INDIA-UK

32



MATERIAL IDENTIFICATION TECHNOLOGY:
KNOW YOUR MATERIAL WELL

40



JAMSHYD GODREJ
Chairman, Board of Godrej & Boyce Mfg Co
Ltd and Chairman — Exhibitions,
Indian Machine Tool Manufacturers'
Association

30



TURNING SERIES

High performance linear motion roller guide ways in both X and Y axis aimed at achieving high productivity.



OC - CNC GRINDING SERIES

Palmary CNC Grinders with hydrostatic guide ways are the right choice for highly precise grinding operations. Palmary and S&T jointly offer this technology for the first time in India.



EXPANDED STM FACTORY WITH A NEW BAY

STM range of machine are a result of a co-production venture between S&T, India and Manford, Taiwan.



DIE MOULD SERIES

Compact high speed machines for fine finishing requirements of the Die Mould Industry 15,000 rpm Direct Drive Spindle.



VF 700 / VF 1000

The Gantry machine frame with rigid dual wall castings ensure low vibration machining performance during high speeds and results in superior surface finishes and increased tool life.



DOUBLE COLUMN SERIES

DL should be double column ranging from 2 meter to 5 meter in x axis and 1.25 meter to 3.5 meter in y axis, in place of specifying one spec.

Table Size : 2000 x 1200

Travel X / Y / Z Axis : 2100 / 1220 / 600



To know more about STM's range of machining centres call us at **98652 33855**, E-mail : info@stmnc.com or visit us at www.stmnc.com



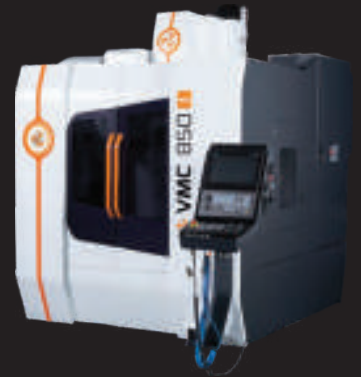
EXPERIENCE
nvu
THE NEXT-GEN



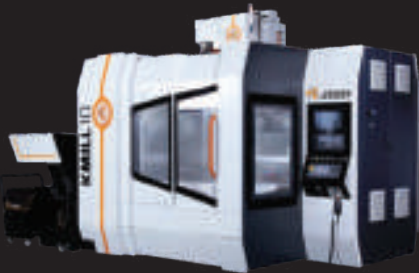
DX 200 Series nvu
CNC Turning Centers



PX Series nvu
CNC Vertical Machining Centers



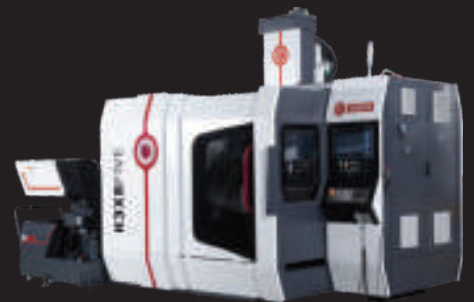
VMC Performance Series nvu
CNC High Performance Vertical Machining Centers



KMILL Series nvu
CNC Bridge Type Vertical Machining Centers



NX Series nvu
CNC Double Column Machining Centers



K3X85 Five Series nvu
CNC 5-Axis Bridge Type Machining Centers



We are what we repeatedly do.

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

Aristotle

CONTENTS

VOL 1, ISSUE 5, JANUARY 2018



06	FOREWORD
08	PUBLISHER'S NOTE
10	EDITORIAL
12	IMTMA'S DESK
14	PANORAMIC PERSPECTIVE
16	NEWS
18	INDUSTRY TIPS Guiding Principles that Spell Success
20	COVER STORY Why Entrepreneurs Must Keep Learning?
26	MARKET INSIGHT
30	THE BIG INTERVIEW Jamshyd N Godrej, Chairman, Board of Godrej & Boyce Manufacturing Company Ltd & Chairman Exhibitions, IMTMA
32	COUNTRY FOCUS India-United Kingdom: Collaborating to Succeed
34	IMTEX PREVIEW Spurring Innovation
38	COMPANY PROFILE Committed to the Craft



40	MATERIAL IDENTIFICATION TECHNOLOGY Know Your Material Well
44	METROLOGY Measures that Matter
48	SUSTAINABLE MANUFACTURING The Wave of the Future
52	MANUFACTURING SOFTWARE Unleashing the CAM Potential
54	FIBER LASER A Cut Above



57 **INDUSTRY ACADEMIA**
Empowering the Engineers of Tomorrow

60 **EVENTS CALENDAR**

64 **EVENT SNAPSHOT**
Scaling the Ladder of Success

66 **EVENT SNAPSHOT**
Great Time for Great Beginnings

68 **PRODUCT**

70 **ADVERTISER & COMPANY INDEX**

IMPRINT

**PUBLISHER &
DIRECTOR GENERAL & CEO, IMTMA**
V Anbu

EDITORIAL
Editor-in-Chief
Soumi Mitra

Chief Copy Editor
Poonam Pednekar

Senior Correspondent
P K Chatterjee

Correspondent
Arunima Nath

Design
Manesh Bajaj

SALES & MARKETING
Indian Machine Tool Manufacturers'
Association (IMTMA)

Murali Sundaram, Magic Wand Media Inc

Published and Printed by V Anbu on behalf of Indian Machine Tool Manufacturers' Association. Printed at Pentaplus Printer's Pvt Ltd 20/1, 4th main, 5th cross, Industrial Town, Rajaji Nagar, Bangalore-560044, Karnataka and Published from Indian Machine Tool Manufacturers' Association; Head Office : 10th Mile, Tumkur Road, Madavara Post, Bengaluru - 562123, Karnataka. Editor: Soumi Mitra

Publishing frequency: 6 times per year

Manuscripts: No liability is accepted for unsolicited manuscripts. They will be returned only if accompanied by sufficient return postage.

All rights reserved. Reprints, digital processing of all kinds and reproduction only by written permission of the publisher. Any views, comments expressed are the sole responsibility of the respective authors, IMTMA and Modern Manufacturing India and its partners do not undertake any responsibility, implied or otherwise.

Disclaimer: Every effort has been taken to avoid errors or omissions in this magazine. In spite of this, errors may creep in. Any mistake, error or discrepancy noted may be brought to our notice immediately. It is notified that neither the publisher, the editor or the seller will be responsible in respect of anything and the consequence of anything done or omitted to be done by any person in reliance upon the content herein. This disclaimer applies to all, whether subscriber to the magazine or not. © All rights are reserved. No part of this magazine may be reproduced or copied in any form or by any means without the prior written permission of the publisher. All disputes are subject to the exclusive jurisdiction of competent courts and forums in Bangalore only. While care is taken prior to acceptance of advertising copy, it is not possible to verify its contents. IMTMA cannot be held responsible for such contents, nor for any loss or damages incurred as a result of transactions with companies, associations or individuals advertising in its newspapers or publications. We therefore recommend that readers make necessary inquiries before sending any monies or entering into any agreements with advertisers or otherwise acting on an advertisement in any manner whatsoever.



CRUISING TOWARDS **VIBRANT MANUFACTURING**

Dear Readers,

Wish you a very happy 2018!

We are at the beginning of a promising year. The Reserve Bank of India has forecast an economic growth of 6.7 percent for 2017-18. Even the rupee is gaining on the US dollar which bodes well for indigenous manufacturing. With the effects of demonetization and GST firmly put behind, the country can march forward with renewed vigour.

A sustained revival of economy is on the cards with manufacturing PMI rising to 54.7 in December 2017.

The Government of India's reforms have boosted India's medium term outlook. While Moody's report upgraded India's credit ratings, World Bank gave India a 30 place jump on its Ease of Doing Business ranking. As per Central Statistics Organisation and International Monetary Fund, the country is expected to be one among the top three economy giants in the world over the next 15 years.

With fresh investments in sectors such as aerospace, defence, railways, infrastructure equipment and so on, machine tool industry can look to expand its horizons towards serving these niche industry segments which will lead to long-term growth.

We begin the year with our flagship event, 'IMTEX FORMING 2018 and Tooltech 2018' scheduled from 25-30 January 2018 at Bangalore International Exhibition Centre (BIEC), Bengaluru. The show will feature participation from 23 countries. Coinciding with the event, IMTMA is organizing an International Seminar on Forming Technology on 24 January 2018.

In this edition of MMI, you will get to read more about our flagship exhibition. I firmly believe that these exhibitions will be a great platform for knowledge sharing and business development.

I am confident that 2018 will usher in a new era for manufacturing.

See you all at IMTEX FORMING 2018 and Tooltech 2018 at BIEC, Bengaluru.

P RAMADAS
President, Indian Machine Tool Manufacturers' Association

- ◆ Advanced Technologies for the Next Generation
- ◆ Solid Support for Day-to-Day Comfort
- ◆ Optimum Solution for the Future

MITSUBISHI ELECTRIC CNC Solution The Best Partner for Your Success

Our single goal is to minimize the downtime while maximizing the productivity of every Mitsubishi Electric product. The more time you spend using our products, the better your business runs.



This is the MITSUBISHI CNC business philosophy. All the staffs who are committed to MITSUBISHI CNC business wish to be “the best partner for customers aiming at global and future-oriented development”. We will continue our efforts with the aim that our CNCs be great help to the customers.

Contact

Mitsubishi Electric India Pvt. Ltd.

CNC Technical Centre, Plot No. 56, 4 Main Road, Phase 3
Peenya Industrial Area, Bangalore-560058, Karnataka.
Tel.: +91(80)465 52121, Fax.:+91(80)465 52147



Dear MMI Readers,

The year 2017 was a new beginning for Modern Manufacturing India (MMI) as the magazine was rebranded under the leadership of Indian Machine Tool Manufacturers' Association (IMTMA). The Manufacturing industry has welcomed the new-look magazine with an overwhelming response.

IMTMA has been able to consistently customize the publication according to the needs of the readers looking for insightful and informative articles on manufacturing. We now have an online version as well which enables us to reach out to a larger audience across the globe. Our subscriber base is also increasing.

This month's edition contains a mix of articles, news and statistics on Metal Forming industry. Read on for a quick peek into an article on 'IMTEX FORMING 2018 & Tooltech 2018'. India's Metal Forming sector is still evolving and IMTEX FORMING exhibition will give a boost to this segment.

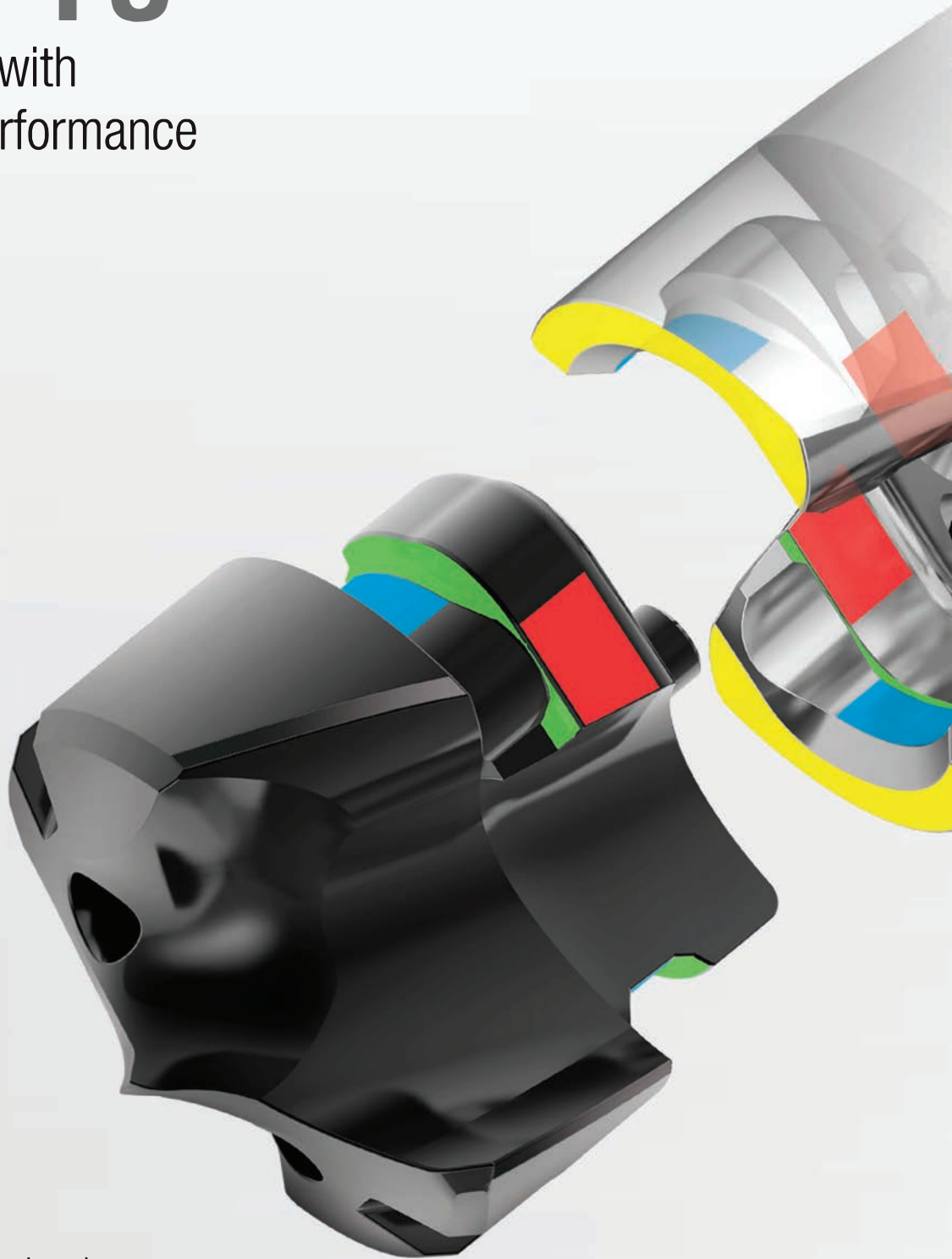
Readers, as you know that a publishing process is not complete without a feedback from readers, we solicit your valuable inputs to make MMI the best magazine on manufacturing in India and help to mature in stature.

I wish you all a very happy and prosperous year ahead. Thank you very much once again for your support.

V ANBU
Director General and CEO, IMTMA

KenTIP™ FS

Modular Drilling with
Solid Carbide Performance



- Taper interface uniquely designed for highest rigidity clamping.
- Retention lock prevents insert pullout.
- Large face contact surface.



Soumi Mitra

SOUMI MITRA
Editor-in-Chief
Modern Manufacturing India
soumi.mitra@magicwandmedia.in

THERE IS ALWAYS **ROOM AT THE TOP**

My profession comprises unearthing stories that must be told for a range of reasons that include inspiring myself before they reach others. One such story fell on my lap while visiting one of India's biggest Grinding Machine Manufacturer's facility at Bangalore. Lost in machines and processes, I was woken up from the stupor by a group of young R&D engineers who impressed me with their resolve to be in the manufacturing sector despite its various odds.

A girl from the group narrated her life-changing experience at IMTEX in the project "Jagruti" organized by Indian Machine Tool Manufacturers' Association. An alumna from a reputed engineering college in Coimbatore, she already had her career planned, which was to move on to a 'white collar' job. But as fate would have it, the project gave her a chance to interact with the industry insiders and that was all she needed to get a clarity on what her heart desired for professional fulfilment.

*"Chase Down Your Passion
like it's the Last Bus of the
Night."*

Today, with the hands-on experience at complex live industrial projects, she is being thoroughly groomed by her mentors in the company to join the next generation of entrepreneurs in the manufacturing sector.

This is precisely why the industry must join the academia in building an industry-ready skilled workforce, an imperative for any industry to progress. IMTMA, through IMTEX, is working towards the same goal with 'i2 Academia Pavilion'. The program will provide an opportunity to Indian Academic / R&D Institutions to showcase their R&D capabilities in metal working field. Around 43 institutes have been selected so far.

MMI, being IMTMA's initiative, our endeavor also is to bring forth in each issue the contribution of the manufacturing companies towards nurturing the young talent and transforming them into the entrepreneurs of tomorrow.

Read on the present issue that is woven around the theme of IMTEX FORMING 2018 & Tooltech 2018 and share your stories that are yearning to be heard!

We wish you all a great show and await your feedback.

India's Premier International Machine Tools Show



An AIEMA Initiative
21 - 25 June 2018
CHENNAI TRADE CENTRE, CHENNAI, INDIA

ORGANISED BY



TITLE SPONSOR



Now

Exclusive Industrial Robotics and Automation Pavilion

www.acmee.in

PLATINUM SPONSORS

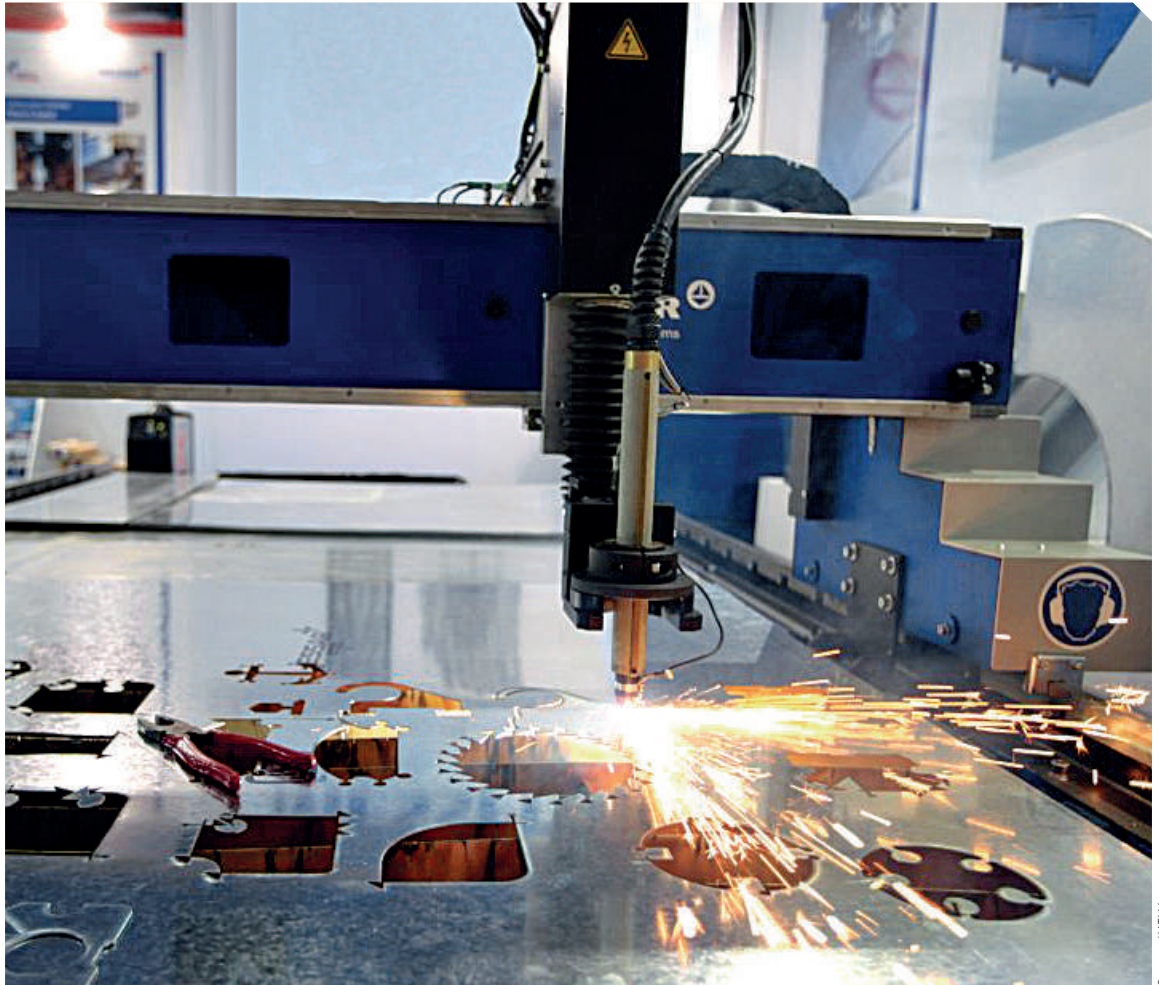


GOLD SPONSORS



SILVER SPONSORS





Source: IMTMA

IMTEX FORMING 2018 & Tooltech 2018: IN SYNC WITH TODAY'S **MANUFACTURING NEEDS**

Leaders in manufacturing technologies such as China, Japan, and Germany have built their brands on the back of their machine tool sector. India, with a firm gaze on its target of becoming a manufacturing hub, is soon to catch up with them.

Today technology is changing the landscape of manufacturing. The challenges are numerous but manufacturing industry in India is bracing up well to these. Manufacturing is turning 'smart' as industry adopts Industry 4.0 standards and practices which is

the current trend of automation and data exchange in manufacturing technologies. Industry 4.0, Industrial Internet of Things, Big Data, Cloud, cost-effective Automation, Artificial Intelligence among others are the key buzzwords for manufacturing solutions

that we see in every exhibition of international standards. Companies, having realized the potential of these technologies to catapult the manufacturing industry, are willing to put these into practice. Usage of these technologies will increase the efficiency of

manufacturing and increase its share in the country's GDP.

Machine Tools play significant role

Machine tools can pivot Indian manufacturing to make India a global hub. Countries which are leaders in manufacturing such as China, Japan, and Germany have built their brands on the back of their machine tool industry.

As the machine tool industry brings forth high technology and cost-effective machines for sectors such as Automobile, Defence,

Aerospace, Energy, Infrastructure, Consumer goods and other strategic sectors, the domestic base will get strengthened.

Innovations at IMTEX FORMING


Exhibitions such as IMTEX FORMING act as a catalyst by creating a market for the Metal Forming sector by showcasing latest technologies for the business community, Government, and others. Innovations in metal forming technologies, robotics and

automation, welding and joining, wire-forming and drawing, presses, die casting, hydro forming, sheet metal forming machines, presses for special applications, dies and moulds, hydraulic and pneumatic systems and elements, testing machines, and so on will be at display.

Machine tool companies will use 'IMTEX FORMING 2018 & Tooltech 2018' to be held at Bangalore International Exhibition Centre (BIEC), Bengaluru from January 25 - 30, 2018 as a platform to launch a number of new products into the Indian market.

Several companies will introduce new technologies to suit many user industries such as aerospace, defence, automobiles, auto components, capital goods, white and brown goods, electrical and electronics, earth moving and construction, food processing and dairy equipment, pharmaceuticals, and many more. High-level delegations from public and private sector industries will take part in the exhibition as trade delegations.

IMTEX FORMING matches up well with international shows organized elsewhere in the world such as Euroblech, Lamiera, MF-Tokyo, MetalForm China, etc. by showcasing the most advanced manufacturing techniques under one roof at BIEC in Bengaluru. The show which will feature machines in 'live' action will be a virtual treat for visitors as it will enable them to take quick decisions to procure the technologies.

Visitors can register online to get a quick entry through the website at www.imtex.in. The online platform for registration will enable them to connect with exhibitors, pre-fix their business meetings and print their own badges. For more details, visitors can write to imtex@imtma.in 

Show Highlights

- Around 500 exhibitors
- Participation from 23 countries including India
- Group participation from 3 countries: China, Taiwan and Germany
- Exhibition hosted in a gross area of 33,000 sq mt
- Connect (an awareness program on machine tool industry for students visiting the exhibition)
- Reverse International Buyer-Seller Meet (an interaction platform for machine tool manufacturers and international buyers)
- i2 (Industry-Institution) Academia Pavilion (an event for academia to showcase their research and interact with industry players to make their research commercially available in the market).



International Seminar on Forming Technology 2018

Coinciding with IMTEX FORMING 2018 & Tooltech 2018, IMTMA is organizing a one-day International

Seminar on Forming Technology on January 24, 2018 at BIEC, Bengaluru.

Renowned national and international companies and research institutions such as Fraunhofer IWU, AIDA, Schuler, AP&T + ISGEC, Dieffenbacher, Laserline, Trumpf, Electropneumatics & Hydraulics, and MJC Engineering & Technology, among others will discuss the latest trends in metal forming.

The seminar will broadly focus on:

- Changing trends in metal forming processes with the advent of increasing use of composites, electric vehicles and light-weighting;
- Maturing of hot forming, tube hydroforming, roll forming and flow forming;
- Evolution of superlative performance improvements, automation and Industry 4.0 ready features in sheet forming equipment;
- Refinements and innovations in predictive processes;
- Developments in materials, tooling design and processing capability.

Experts from Germany, Italy, Sweden, the USA and India will also share their expertise and latest developments in Metal Forming.

MACHINE TOOL COMPANIES WILL USE 'IMTEX FORMING 2018 & TOOLTECH 2018' TO BE HELD AT BANGALORE INTERNATIONAL EXHIBITION CENTRE (BIEC), BENGALURU FROM JANUARY 25 - 30, 2018 AS A PLATFORM TO LAUNCH A NUMBER OF NEW PRODUCTS INTO THE INDIAN MARKET.

TO SELL JUST A MACHINE OR TO SELL VALUE OF THE SOLUTION USING MACHINES?



Are you puzzled when a machine with ample specifications and features fails when it hits the market?

Is it more baffling when you are not able to decipher the codes for this technological catastrophe? Was it a flaw in technology or in the adaptability to technology? Was it the cost? Here, one needs to dive deeper to realize that the fault may not necessarily be in the machine – it could be in the market mechanics also.

What drives the market today?

Today, you don't just sell a machine; you have to sell the value attached to the machine. Gone are the days of conservative market economy where the manufacturer dictated the market trends. The industry is seeing a clear shift from the sellers' to the buyers' market. The machine manufacturer has to understand customer needs and undertake market-oriented manufacturing and create a market-centric manufacturing ethos. Going forward, only market-driven companies will be the order of the day. This does not just stop at manufacturing what your customer wants, but also what extra can you provide. Yes, we are talking about value-added propositions that would attract customers. However, the challenge is that customers today do not readily see value in machine performance, specifications and features. These are things that competition can easily bring out. Customers see value only in terms of profit/loss – can your machine reduce cost? How much can it help increase the revenue?

Do the reality check

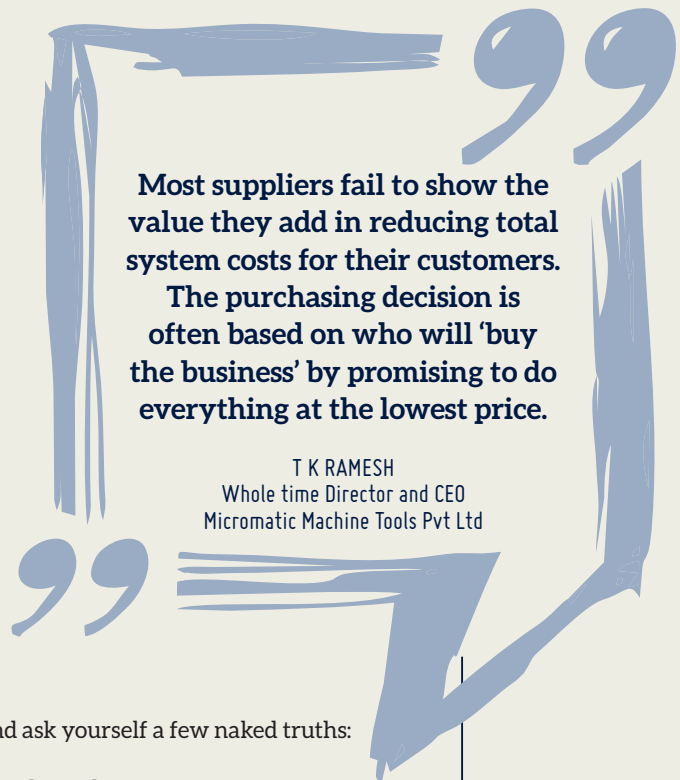
Document the value you provide to meet stringent customer demands. And before going out full throttle to face the market, it becomes imperative to assess yourself and ask yourself a few naked truths:

Why should customers buy from me?

Do I bring the value that customers can't find anywhere else?

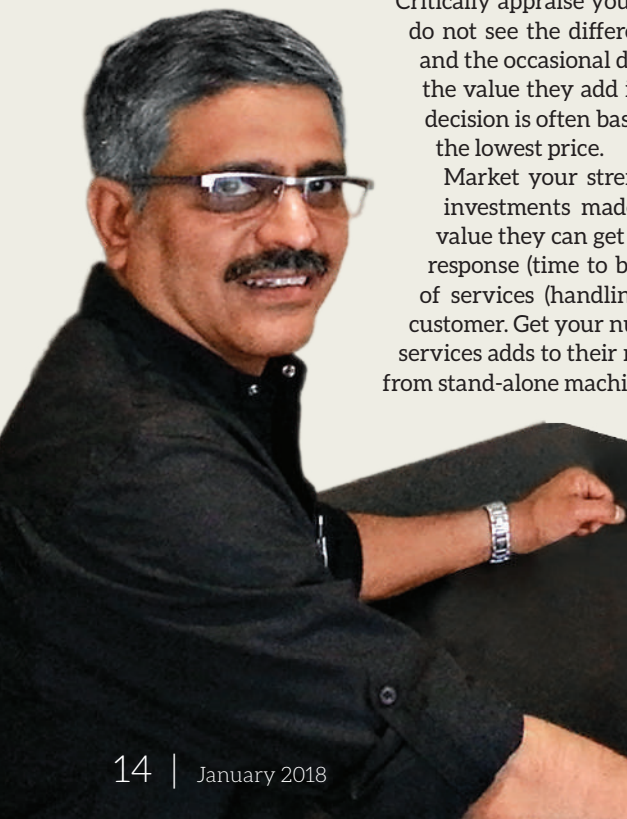
Critically appraise yourself before you encounter your market because many customers do not see the difference in the total cost impact between suppliers, other than price and the occasional difference in service. On the other hand, most suppliers fail to show the value they add in reducing total system costs for their customers. The purchasing decision is often based on who will 'buy the business' by promising to do everything at the lowest price.

Market your strengths. Show your customers what they stand to gain from their investments made with you. Make them look beyond the machine and see the value they can get through your services, which include everything from emergency response (time to bring back machine on line), MTTR to MTBF. Build the ecosystem of services (handling, logistics, finance, consumables, etc.) that are needed by your customer. Get your numbers right, do the arithmetic and prove to them that the value of services adds to their net profit. This way, you can influence the purchase decision away from stand-alone machine price only.



Most suppliers fail to show the value they add in reducing total system costs for their customers. The purchasing decision is often based on who will 'buy the business' by promising to do everything at the lowest price.

T K RAMESH
Whole time Director and CEO
Micromatic Machine Tools Pvt Ltd



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

BEMATO®

STRIVING FOR SERVICE
AND SATISFACTION

SINCE 1976

www.e-bemato.com



HIGH SPEED PRECISION LATHE
BMT 1740G



BENCH TYPE DRILL PRESS
BMT 20BT



BANDSAW
BMT 712A



VERTICAL MILLING MACHINE
BMT 4500V



EDM (ELECTRIC DISCHARGE MACHINE)
BMT 430SEDM-ZNC



SURFACE GRINDER
BMT 1545M



2/3/4-JAW H.S. HOLLOW /
SOLID POWER CHUCKS



POWER MACHINE VISES
ADJUSTABLE TYPE



CNC TILTING
ROTARY TABLES



PUNCH FORMER
(VERTICAL / HORIZONTAL)



RECHARGEABLE
LED WORK LIGHT



END MILL

TROLLEYS
(LT25+W61)



MULTIPLE FUNCTION
GAUGES



BENIGN ENTERPRISE Co., LTD.

SUITE 4, 5F., NO. 20, TA-LONG ROAD, TAICHUNG, TAIWAN

TEL: +886-4-23233016

FAX: +886-4-23232826 / +886-4-23238341

E-mail: service@e-bemato.com

Laser Marking Machine Market to grow

Warsaw, Poland - Increasing use of laser systems in a wide range of industries including automobile, packaging and machine tools as permanent embossing solutions can lead to the global laser marking machine market size reaching \$ 3.38 billion by 2024.

Industries such as automobile and machine tool provide permanent alphanumeric details on their products in terms of brand name, batch number and other details. The engraving helps in identification and security of the products which can be achieved through laser marking.

Asia Pacific constitutes one of the largest machine tool industries which is expected to drive the market at a CAGR of 8.3% over the period. Emerging economies including China and India are expected to witness growth in automobile, packaging, and electronics manufacturing, which in turn, will impact the regional laser marking equipment market positively.

Manufacturing ups India's factory output

New Delhi, India - An exponential rise in the manufacturing output lifted India's factory production by over 8 percent in November from a rise of 1.99 percent in October and a 5.1 percent growth during the corresponding period of 2016-17.

On a year-on-year basis, the manufacturing sector expanded by 10.2 percent, while mining sector's output inched up by 1.1 percent and the sub-index of electricity generation increased by 3.9 percent.

The General Index for the month of November 2017 stands at 125.6, which is 8.4 percent higher as compared to the level in the month of November 2016, according to the CSO report on the "Quick Estimates" of Index of Industrial Production (IIP) for November. The cumulative growth for the period April-November 2017 over the corresponding period of the previous year stands at 3.2 percent.

Mindset change for Predictive Maintenance

Pune, Maharashtra - At the recently held CII Industrial Maintenance Expo 2017, industry leaders emphasized on the need for Predictive Maintenance in the industry. Shishir Joshipura, Expo Chairman & Managing Director, SKF India, stressed on its need to curb breakdowns and losses.

Farhad Forbes, CEO & Director, Forbes Marshall, opined that spending on maintenance is as important as on facilities and infrastructure. He stressed that there must be a cultural change for embracing it, which needs a shift in the mindset.

Sidhartha Panda, General Manager (Institute Lube Sales), Indian Oil Corporation, highlighted that now is the time to explore new methods of maintenance.

Rajeev Gupta, General Manager, Jindal Steel Ltd, was of the view that if the material is upgraded it will increase the life cycle of the product and there will be less loss.



Shishir Joshipura, Chairman, Industrial Maintenance Expo 2017 & Managing Director, SKF India Limited; Farhad Forbes, CEO & Director, Forbes Marshall Pvt Ltd; Sidhartha Panda, General Manager (Institute Lubes Sales), Indian Oil Corporation; J Shankar, General Manager, CII; Rajeev Gupta, General Manager, Jindal Steel Ltd, at the opening of the show.

Losma India inaugurates its new plant

Pune, Maharashtra - Losma India Pvt Ltd, a subsidiary of Losma S.p.A. Italy, recently inaugurated its new plant at Shindewadi, Pune. The plant was inaugurated jointly by the Chief Guest Dr Mauro Mariani, Director of the Italian Trade Agency of Mumbai; Giancarlo Losma, President of Losma S.p.A. and Claudia Tovaglieri, UCIMU representative.

Losma India started its operations in 2010 at Pune as a production subsidiary to offer specific and technologically advanced solutions to the local market at competitive prices. Presently, it has a customer base in several sectors including Automotive, Aerospace, Defence, Machine Tools, Steel and General Engineering. The company has recently also made a foray into the Metal Forming sector with its Fume Extraction Systems in Welding and Plasma Cutting operations. The new plant of Losma India houses state-of-the-art facilities for manufacturing, testing and quality control of products, and is geared up for scaled up operation owing to the rapid growth of the company and demand in the market for its products.



The opening ceremony of the new plant of Losma India that houses state-of-the-art facilities for manufacturing, testing and quality control of products.



Over three decades, we honed our strengths in Super Abrasives, to set bench marks for quality, performance and reliability. Catering to Customer's diverse requirements, we grew to offer a comprehensive range of Super Abrasives covering almost every conceivable application.

We harnessed our knowledge of grinding to deliver high performance, precision Grinding Machines for niche applications. Collaborating with world leaders Delapena, we developed a range of equally precise, highly dependable honing machines... both in vertical and horizontal versions.

Talk to us, we will provide the grinding and honing solution you are looking for.

Leaders in Total Grinding, Dressing and Honing Solutions

WENDT (INDIA) LTD.

69/70, Sipcot Industrial Complex, Hosur-635 126, Tamil Nadu.

Ph: +91-4344-276851, 276852, 276254, 405500, 405501.

Fax: +91-4344-405620, E-mail: wil@wendtindia.com

ISO 9001 | ISO 14001 | BS OHSAS 18001 | SA 8000 | TS 16949

For more information contact:
E-mail: SundariyaS@wendtindia.com
DKHotta@wendtindia.com



GUIDING PRINCIPLES THAT SPELL SUCCESS

Shops, to improve and prosper, must create a culture conducive for growth and instil a sense of doing more than routine tasks in their employees. Below are the pointers to help job shops kick-start the practice.

PATRICK TARVIN
VP - Global Lean
Manufacturing
Tecomet Inc.
Patrick.targin@gmail.com



As I travel to my company's manufacturing locations in various states and countries, it is apparent that our business model and machining operations vary based on each location's customers, volume, product mix and other factors. Yet, there are similar, overarching guiding principles

that ensure success over the long term, regardless of the differences among shops. I have collected 10 of these principles and share them here. I hope this list spurs debate in your shop.

1. Look for similarities, not differences. Engineers, machinists and other technical

people are conditioned to notice dissimilarities or differences. But when it is time to standardize, implement lean manufacturing cells, design new components, develop fixtures or write CNC programs, it is time to shift gears and find similarities. Why design a new component when one already exists that

will fulfil the requirements? The volume of a component may not be high enough to justify a lean cell, but other parts may be processed on the same workcenters, creating a value stream with enough aggregate demand to warrant a cell. When components are 80 percent similar, take advantage of these traits to utilize existing fixtures, tooling, processes, programs, metrology and so on, and then address the remaining 20 percent. The difference between an engineer who wants to create something new and fancy, and an engineer who uses an existing design is unmeasurable.

2. You are running a sprint and a marathon. Employees seek to achieve customer satisfaction and to optimize metrics, but who is planning for long-term results? Who is ascertaining future customer needs and developing the people, equipment, software and processes to meet these needs before the competition? Many organizations are so focused on the short term that they wake up after several years to discover that their equipment and processes are outdated and unproductive.

3. Quality is productivity. Scrap and rework directly subtract from the bottom line. Borderline quality consumes resources and lowers productivity. Robust processes combined with quality at the source allow machinists to optimize their time and, in this way, perhaps operate multiple machine tools.

4. Go right before you go fast. It is beneficial to have a sense of urgency. However, when there is a new process, a new machine, a new program

or just a new setup, things must be “right” before they can be fast. Machines and people make bad parts as fast as they make good parts. Having to make them twice is a lot slower and more expensive than making sure you are right first. Standard work and validations are tools that allow this.

5. Learn and train. Firms that learn faster than their competition will eventually outperform their competition. Train, cross-train and train a little more. Whether the person is a machinist, engineer or inspector, the transfer of knowledge is simultaneously an investment and an insurance policy.


6. Make progress, not perfection. Wars are not won by winning a single battle with no setbacks. When the expectation is that a new machine or new process will deliver maximum results immediately (or else), then the culture becomes risk-averse and not innovative. On the other hand, when progress is recognized and appreciated, the team will soar past the original goals.

7. Inspection must be swift and precise. Inspection should not give away tolerance through measurement or fixture error. There will be naturally occurring variation in machine positioning, tool wear and such. So, it is imperative to eliminate the measurement variation, which should be low-hanging fruit. Inspection also must be swift, not only for productivity, but also so the inspector can operate more equipment and collect more data. More data via more parts sampled yields better control of inputs and better centering

of the dimension within the tolerance zone. Swift also means timely in terms of the information controlling inputs prior to more parts being produced.

8. If you are not making chips, you are not making money. Whether it is grinding, EDM, turning or another type of machining, the specific goal of the entire organization, from the receptionist to the engineer, is to support operations so that the machine tools will be making chips. It is a simple concept, but there are times that people in the organization lose perspective on the tasks that truly generate the revenue.

9. Operate multiple machines. Set an expectation for engineers, programmers and machinists to automate and innovate workholding, tooling and metrology requirements to achieve unattended machining for as long as possible. This goal likely requires machine accessories for closed-loop machining. This expectation is necessary to win against competitors in economies with lower labor costs.

10. Push decisions to the lowest level. This advice is multi-faceted. You cannot have employees waiting for Oz behind the curtain to tell them what to do. For employees to develop and grow, they need to make decisions. Will they make mistakes? Sure. But their mistakes will be less costly than the apathy and delay resulting from waiting on a senior manager to make a decision. When employees must seek approval at every step, they cannot act with speed and are likely to not act at all. 

WHEN THERE IS A NEW PROCESS, A NEW MACHINE, A NEW PROGRAM OR JUST A NEW SETUP, THINGS MUST BE “RIGHT” BEFORE THEY CAN BE FAST.



Professionals in every field must constantly equip themselves with the latest skills to achieve new solutions for process problems. Being adept at ‘transformational skills’ and ‘system thinking’ constitutes a lifelong learning strategy for them to survive and succeed in the 21st century economy.

WHY ENTREPRENEURS MUST KEEP LEARNING?

Professionals, including the ones in manufacturing, use their knowledge to solve problems or develop and implement new solutions. Increasingly they feel that they can leave their knowledge at home as they are asked to follow rules or standard operating procedures (SOP). These rules and practices are based on standardization of the tasks already known. These “replication solutions” based on IT tools and applications leave little room to think. The

solutions also require lower or no skills at all.

Who exactly are ‘intrepreneurs’?

At the same time, we hear a constant drum beat for professionals to be entrepreneurial, capable of handling a variety of jobs and problems. This is in total contrast to the standardized and de-skilled task-oriented replication activities. There are many opportunities to integrate knowledge from various sources - from other workers,

knowledge available across departments, with the suppliers as well as with the customers or end-users. The advent of smart phones, Facebook, Google and other search engines also augment this ability to aggregate information from across the globe and convert them into new knowledge. The result is a “new solution” of high added value. They are heralded as “entrepreneurial”. The new term used for such entrepreneur working inside a company - as opposed to a startup operation - is “intrepreneur”.

DR K SUBRAMANIAN
(SUBBU)
President
STIMS Institute Inc., USA
subbukdg@gmail.com



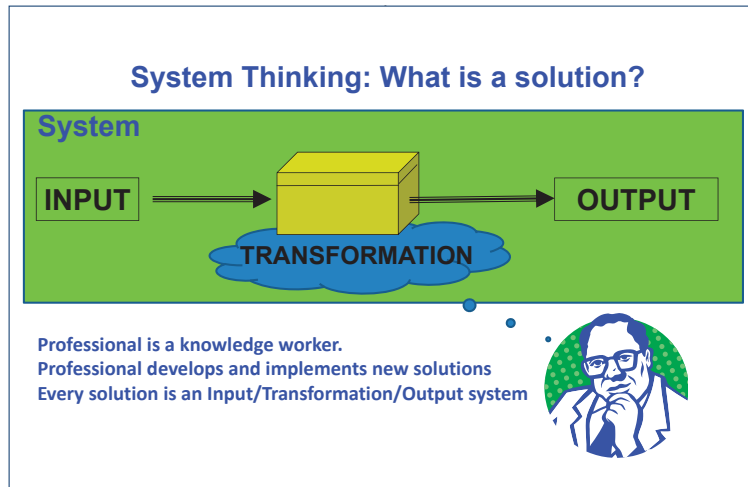
These two modes of working – replication solutions vs. new solutions – are creating a pull in the opposite directions. The net result is a rupture in the middle. In other words, there is no demand or value for those who operate in the middle level of skills or capabilities. Whether you fall in the low wage and low skill category or lost in the “middle” or in the high wage, high demand new solution providers can be judged by your PE Score.

What is your Professional Efficiency (PE Score)?

The work of all professionals falls into one of the three categories: Knowledge work, Information work and Physical labor (A, B and C respectively). Professional’s output is judged by these three categories. They earn their wages as a reward through a combination of these three categories of work.

Knowledge work (A) results in identifiable new products (leading to new sources of revenue), new processes required to conceive and realize such new products, as well as applications/use of these products (which in turn leads to additional revenue for the employer). Every company, employer or investor is judged by their ability to develop and deploy new streams of solutions in terms of Product, Process and their application/use.

Information work (B) is what you do, when you are browsing your mail, replying to them, generating reports, making presentations, attending those endless meetings listening to someone. Jobs with high content of information work can be seen in call centers, on-line tech. support workers, those who write codes or implement and administer software support solutions for

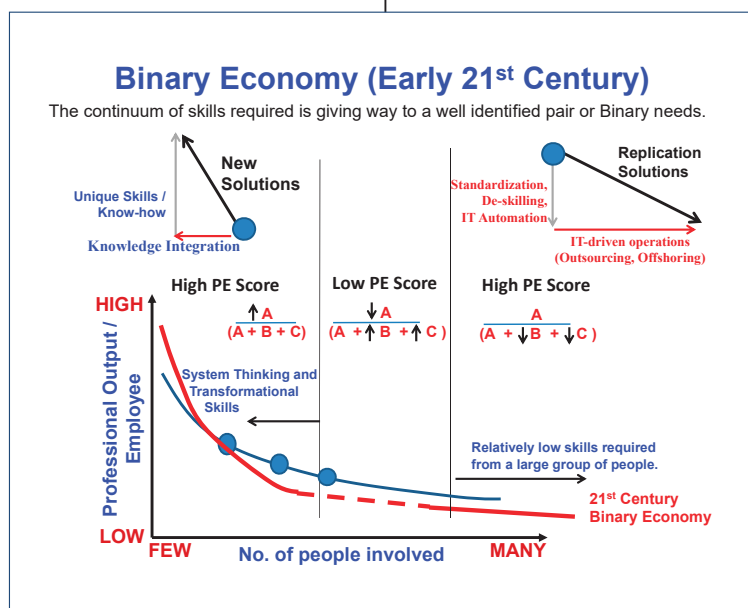


Source: STIMS Institute Inc., USA

Who is a professional?

a variety of applications. While these can be seen in the low wage IT jobs, every professional in every company and at every level spends inordinate amount of time doing “information work”. Much of the front end and back end operations and all of the ERP activities in the factory are all information work. Engineer who spends hours at a time to get the paper work through is spending all that time in information work. Physical labor (C) is the last category of work by everyone. While it is easy to recognize the

physical labor in the shop floor, it is prevalent in all jobs and at all levels. Professionals who constantly travel contribute through their physical labor. Long commute to work is another category of physical work by most professionals. Of these three categories of work, the knowledge work and the solutions as a result of that is most valuable. The information work and the physical labor are merely means to that end. Hence, we can configure an efficiency factor i.e. Professional Efficiency or PE Score.



Source: STIMS Institute Inc., USA

New Solutions vs. Replication Solutions

PE Score = A / (A + B + C)

In our informal survey of many companies and organizations the PE Score ranges from 15 to 30 percent. Most of the time entrepreneurs and people who work in startup operations work with high PE Score. In most standardized operations or jobs, the professional outcome (A) is small; the job itself is made more efficient through highly efficient means to execute information work (through IT solutions) and decreased labor (Automation) i.e., reducing the denominator in the PE score formula. Those who contribute some combination of small knowledge work, but inordinate effort through information work and labor have a small numerator, with increasingly large denominator. They fall in the middle of the population with decreasingly smaller PE score.

System Thinking

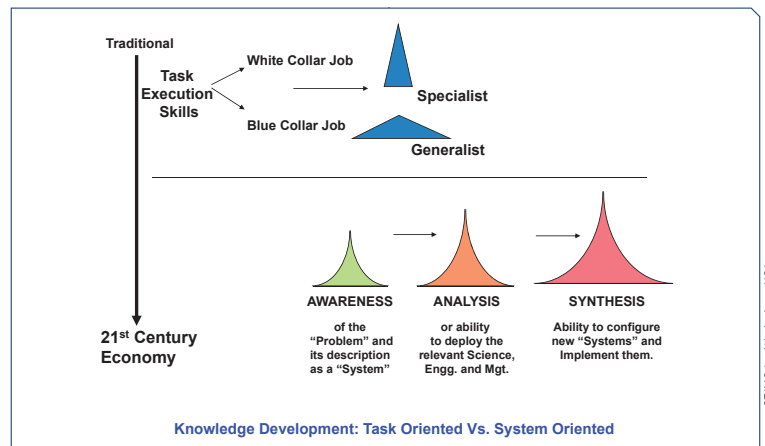
Can you imagine yourself as a professional operating at high PE Score through a series of new solutions? This will require first defining who is a professional and what is a solution?

Every professional is a knowledge worker. They develop and implement new solutions. Every solution requires a collection of inputs. When brought together in a logical and orderly manner the inputs change into outputs of use to someone for something. Meeting such needs of someone by transforming the inputs into outputs is what we call as a "solution".

Every solution is an "Input/ Transformation/ Output system". Keeping this point of view relentlessly in everything we do is the beginning of system thinking, which brings with it certain unique capabilities:

- Are you looking at the big

Levels of System Thinking skills



Source: STIMS Institute Inc., USA

WITH THE ADVENT OF CONTINUOUS IMPROVEMENT TOOLS, PROFESSIONALS ARE TAUGHT TO SOLVE PROBLEMS USING FISH BONE DIAGRAM.

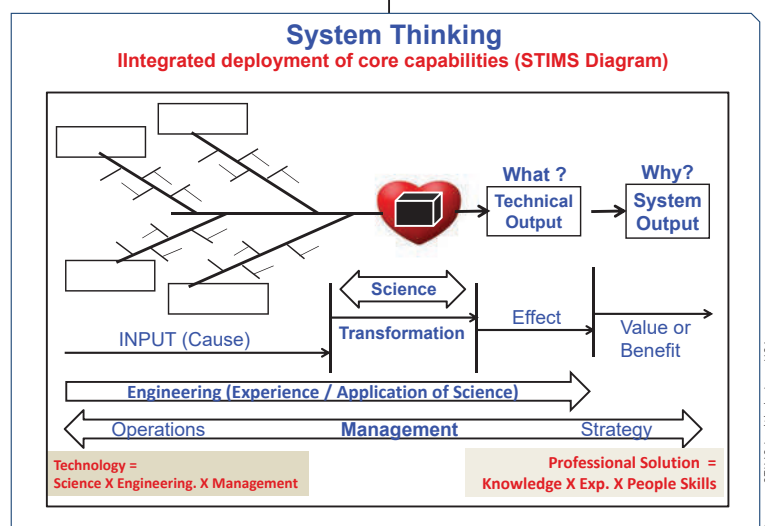
picture (the solution) or blind folded? Are you able to focus on the picture on the screen as a whole (the solution) or are you fixated on the pixel?

- Do you look before you leap? Do you have a comprehensive view of the problem (or solution) as an input/transformation/ outputs system? (See the STIMS Diagram) - Awareness level of system skills.
- Are you driven by data and its analysis or by opinions and "rules of thumb"? Remember, a good carpenter measures twice and cuts once? - This is the Analysis level of system skills.
- When asked "what is 2 + 2?", do you instinctively

answer 4 or say "Why is this question? Value or benefits? What goes into the 2 and the other 2?". Then follow up on the questions until a new solution is developed and implemented? - This is the highest (Synthesis) level of system skills.

STIMS Diagram

WiththeadventofSPC,TQMand other continuous improvement tools, professionals in every field - especially in the manufacturing world - are taught to solve problems using "Fish bone diagram". Any fish bone diagram consists of listing all possible causes through the skeleton leading to the effect as the head of the fish.



Source: STIMS Institute Inc., USA

STIMS Diagram

Parts of the STIMS Diagram (System Thinking)		Any process or project (General)	Industrial Process (e.g.). Machining	IT Project or process
INPUT		Investment	Machine Tool	Hardware
		Expenses	Tooling and Consumables	Software
		Need to be full filled	Component to be processed	Application
		Constraints	process parameters	Specifications
Transformation		Core capability	Microscopic Interactions at the cutting zone	Algorithm
Output	Technical	Tangible outcomes	Finished part; Quality	Software tool or "App."
	System	Value or benefits	Total cost/part; Added value; New capabilities	Commercial, economic and social benefits.

Source: STIMS Institute Inc., USA

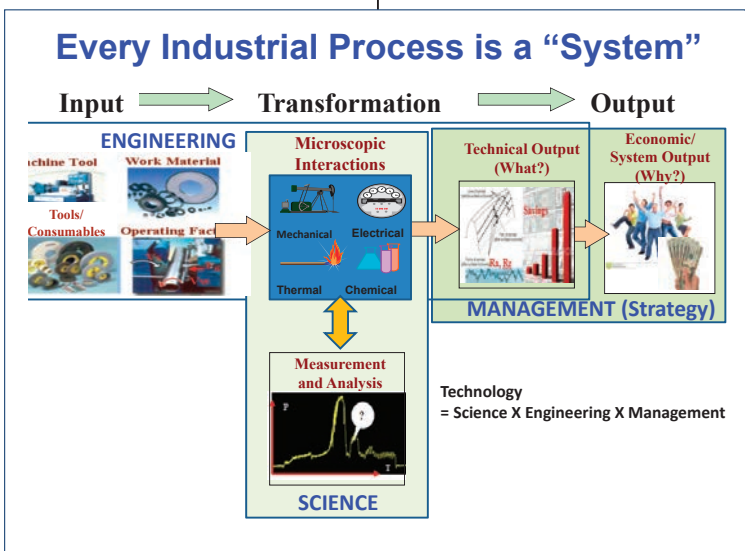
Table.1. Components of any process (in the STIMS Diagram) viewed as a system.

There are a few problems with this method. First of all, the causes by themselves do not change into effects. For example, the machine tool, work piece, tools and operating methods are all the causes. But they do not automatically result in the effect i.e. good quality part or poor tolerances and finish, etc. There is something - phenomena (machining) - that connects the cause and effect, which we can call as "transformation". Also

effect by itself is not important to us as much as the value or impact of that effect. Hence, to describe a problem completely - as a system - we need a few more additions to the fish bone diagram. This comprehensive description of the problem or solution is the STIMS Diagram. The listing of inputs clarifies all the stakeholders in the process. They also identify the various sources of knowledge accessible to address the process problems or improve the process to

THE MACHINE TOOL, WORK PIECE, TOOLS AND OPERATING METHODS ARE ALL THE CAUSES. BUT THEY DO NOT AUTOMATICALLY RESULT IN THE EFFECT.

achieve new solutions. These input groups are also the stakeholders interested in the process outcomes i.e. System Outputs. As an example, the successful execution of the industrial process is of interest to the company (investors who bought the machine tool) as well as to the machine tool company that sold the machine. Tooling and Consumables are brought together by the process engineering (and the purchasing) department. But this category of input also represents the range of suppliers whose knowledge is critical for the success of the process. The design and product department has a stake in the "component to be processed" as much as the raw materials suppliers. The process parameters are managed by the maintenance people as well as by the production floor staff. The technical outputs are the physical or tangible outcomes of any process such as a machined part or welded component, etc. Technical outputs are critically watched by the production staff as well as the QC people. The System Output is ideally the benefit to all stakeholders mentioned above. However, it is generally viewed as the economic benefit to the investors or general management or the accountant. This narrow view of the system output will be questioned by the System Thinker. Instead optimizing the benefits to all stakeholders will also be in the best interest of the process and to gain maximum long-term value out of the solution. While we have described the many stakeholders in the process - both on the input as well as the output side - the process always happens as a result of certain physical phenomena, which we call



Source: STIMS Institute Inc., USA

STIMS Diagram, illustrating system thinking for industrial manufacturing processes

Transformational Skills

- Develop a Common Language
- 3-D View of Core Capabilities
- System Thinking and Knowledge Integration
- Emphasis on Science and Mobile Diagnostics
- Build Ecosystem for Core Technology Platforms
- End-to-End Innovation
- Emotional Intelligence for New Solutions

Discover / Define



Develop



Deploy

Transformational Skills are a set of necessary skills to Discover, Develop and Deploy / Exploit a stream of New Solutions.

Each Transformational Skill is an opportunity to foster innovation and realization of New Solutions.



Source: STIMS Institute Inc., USA

Three sources of learning for the 21st century economy

as the “Transformation”. Quantitative as well as intuitive knowledge of the transformation is the “Science” behind the process. Ability to measure and analyze the in-process signals that occur as a result of the transformation using mobile diagnostic tools brings the science to shop floor manufacturing.

Use of the transformation and fine tuning it through the various inputs to achieve the desired output is the engineering behind the process. Establishing the limits for the technical outputs - e.g. tolerance or part quality - as they reflect on the overall economics - e.g. total cost/part - is the management strategy behind the process.

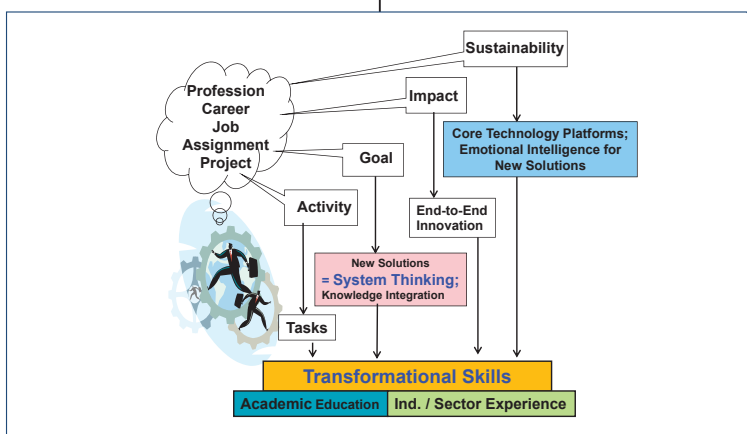
Thus, every manufacturing process and the technology behind it is the integration of relevant science, engineering and management pertinent to that process. We can teach manufacturing technology as a system. Such education helps manufacturing professionals capable of handling a wide array of problems (with common engineering and management tools) and also dive deep (using the science) as and when required.

Treatment of the process or solution as a system has many dimensions. We call them as the Transformational Skills. They help to find ways to shift away from task-oriented replication solutions. Instead they help to steer

MANUFACTURING PROFESSIONALS HAVE TO SHIFT FROM THEIR CURRENT TASK-ORIENTED JOBS AND FUNCTIONS TO UNDERSTAND THE GOAL UPFRONT.

manufacturing professionals towards highly skill intensive new solutions. Together with their academic education and industry experience, the transformational skills form the third leg for lifelong learning strategy for any professional to survive and succeed in the 21st century economy.

Manufacturing professionals have to shift from their current task-oriented jobs and functions where they merely carry out a collection of activities based on “what they are asked to do?” Instead they need to understand the goal upfront. It is easier said than done. How often do you go ahead and start your work before asking your boss or supervisor “Why are we doing this? Who are the stakeholders? How are their benefits addressed comprehensively?” This requires a passion for system thinking. This also promotes our ability to integrate the knowledge from every available resource. Buyers and suppliers are part of the team to add maximum value, not adversaries spiralling downwards the lowest price. With the goal (System output) clarified upfront, these professionals are also committed to the entire innovation chain: Discover, develop and deploy/ implement. This end to end innovation is also called as Concept to Commercialization (C2C). Finally, building a team of like-minded professionals with true knowledge and commitment also requires high levels of care and consideration for everyone in the team. This capability to build the necessary ecosystem together with emotional intelligence will be the highest evidences of success in the 21st Century manufacturing professionals.



Source: STIMS Institute Inc., USA

Lifelong learning strategy for professional success and career management

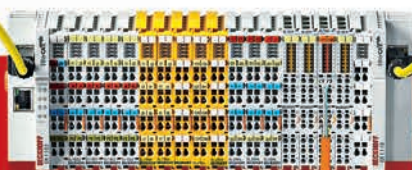
From compact to complex: The scalable Beckhoff CNC.



Industrial PC



I/O system



Servo drives



www.beckhoff.co.in/cnc

PC-based controllers from Beckhoff cover the whole range of high-precision CNC applications, from compact to complex.

- Highly scalable: the TwinCAT software platform for engineering and runtime
- Highly scalable: the Industrial PC range with processors from Intel® Atom™ to many-core
- Highly scalable: the I/O system for all signals and fieldbus systems
- Highly scalable: the highly dynamic servo technology for all performance classes
- Highly scalable: the safety solution, from system-integrated I/Os to drives



POWERING YEAR 10

Beckhoff Automation Pvt. Ltd.
Pune – 411 006, India
Phone: +91 20 40 00 48 00
info@beckhoff.co.in

New Automation Technology

BECKHOFF

BAVARIA:

A PROMISED LAND FOR HI-TECH BUSINESS

With a bouquet of industry-friendly initiatives and backed by a favourable ecosystem, Bavaria, the largest state in Germany has been attracting businesses and investors from around the world dealing with hi-tech products, including Internet of Things. Indian firms too have been cashing in on the opportunities offered by Bavaria. However, there are still numerous more windows of growth waiting to be opened.



Source: BAYERN TOURISMUS Marketing GmbH

India and Bavaria – the economic powerhouse of Germany – share a close relationship, which has been growing steadily over the years. A great number of Indian companies have operations in Bavaria as it gives them easy access to the entire European region. The firms, including Zee Entertainment Enterprises Ltd, Samvardhana Motherson, Quest Global Engineering, TCS, Infosys Consulting, L&T Infotech, Cipla, Glenmark, Dr. Reddy's Lab, and several others, are among the

more than 1,500 international hi-tech firms who have set up business in the South-German state. Meanwhile, over 350 Bavarian firms have opened branch offices or production plants in India. Some of the big names among them are: BMW, Siemens, Audi, MAN, Adidas, Allianz AG, Munich Re, EADS, Infineon, Wacker Chemie, Osram, Linde etc.

So, what makes Bavaria such a happening place in the international business scene? A host of factors, primarily an

ideal geographical location with the perfect environment for cross-industry innovation, turns Bavaria into a perfect platform for developing future markets. The southernmost and largest Federal State of Germany is one of the most advanced and strongest economic regions in Europe with a GDP of € 568 billion in 2016.

Advantages galore

Bavaria, located right in the heart of Europe, offers excellent factors like a highly skilled, well-trained and educated workforce,



invest
in
bavaria

Welcome to Bavaria!

Are you ready for new
successful ventures?

Made in Germany.

© Audi AG

We are Germany's driver of growth.

Bavaria is home to global players including Audi, BMW and MAN. Launch your business venture in Europe's powerhouse – home of the digital future.

As the Business Promotion Agency of the State of Bavaria, we will support you in selecting a location and establishing contacts with potential partners – in a personalised and confidential way, at no charge.

We are happy to be there for you:

State of Bavaria | India Office
John Kottayil – Executive Director
Telefon +91 80 40965025
john.kottayil@invest-in-bavaria.in

www.invest-in-bavaria.com

state-of-the-art infrastructure, an advanced R&D base and unmatched opportunities in the B2B sector. It, thus, provides an ideal springboard for Indian tech companies to address the EU market.

However, Bavaria is mostly known for its global players and brands - often broadly associated with Germany. The backbone of its economy are a myriad of innovative, tech-savvy small and medium-sized enterprises, many of which are world leaders in their business area, especially in industries like Automotive, Aerospace & Satellite Navigation, ICT, Mechanical and Process Engineering. Bavaria enjoys a leading position internationally in these key technology sectors. It is also a world leader in Life Science and Medical Technology, Energy & Clean technology, Optronics, Nanotechnologies and Industrial & Automation technologies. The state has excellent logistics systems, airports and public transport system which make it ideal for international companies to start their operations.

Bavaria acts as a gateway to the large South East and East European markets with its 500 million consumers. The state offers enormous resources in terms of development synergies, customer base potential and excellent government support.

With its multifaceted and conducive industrial climate, Bavaria attracts a wide spectrum of competitive suppliers, potential customers and cooperation partners which could be a win-win situation for any trading partner. Major cities of Bavaria - Regensburg, Wurzburg, Greater Nuremberg and Augsburg - are all centers providing hi-tech services.

The 'Bavarian Cluster Initiative' is a key feature of the modernization and innovation strategy designed

A HOST OF FACTORS, PRIMARILY AN IDEAL GEOGRAPHICAL LOCATION WITH THE PERFECT ENVIRONMENT FOR CROSS-INDUSTRY INNOVATION, TURNS BAVARIA INTO A PERFECT PLATFORM FOR DEVELOPING FUTURE MARKETS.

to enhance Bavaria's role as a top location for business and research all over the state. The cluster policy concentrates on seventeen branches and technologies with high importance for Bavaria's key industries. Clusters have the mission to promote and support the co-operation between first of all SME/Mittelstand companies and research institutions and thus foster innovation and growth.

The Mechatronics & Automation cluster provides a network for mechatronics companies orientated towards all of Bavaria. This now includes many traditional and future-orientated sectors such as Automotive engineering, Machine Tool building, Electrical and Electronics industry, Medical and Environmental technology, and Aerospace. Mechanical engineering in Bavaria focuses on drive technology, general ventilation technology, power systems (engines and turbines), and pumps and compressors, and is concentrated in the districts of Swabia, Lower Franconia and Upper Bavaria.

Innovation leader in IoT & AI

Traditionally, Bavaria is well-known for its breweries and car manufacturers. However, the State is now at the forefront of Europe, especially in the field of ICT. To drive forward digitalisation, many companies are investing in technological progress. The numerous IoT labs that have been created in Bavaria during the past few years reflect this trend.

Among the prominent ones is the global IoT headquarters of IBM in the form of the Watson HQ in Munich's Highlight Towers. Microsoft's IoT & AI Insider Lab also at Munich, is another similar facility in the vicinity. Here, the objective of the lab is to place new digital products from startups as well as large

companies on the market more quickly. Volkswagen, which is among Munich's IoT pioneers, has already opened the first data lab of an automobile group in 2014 and SAP with SAP IoT.

Bavaria beckons India

The State of Bavaria India office, 'Invest in Bavaria' opened its office in Bangalore in 2001 to offer first-hand service for Indian investors in setting up and expanding business operations in Bavaria by providing market and expansion process information, location analysis, data support and a professional network in the business and government area.

In 2002, India opened a Consulate General in Munich. In 2016, close to 98,000 Indians lived in Germany and represented more than 22 percent of the blue card holders. The Indian community in Bavaria has access to a large infrastructure of business and social associations. There are a multitude of Indian restaurants, markets and cultural associations catering to Indian needs in Bavaria.

'Invest in Bavaria' is a special division within the department of the Bavarian Ministry of Economic Affairs and Media, Energy and Technology and the single-stop point of contact for all companies interested in setting up and expanding business in Bavaria. 'Invest in Bavaria' invites Indian companies to utilize the excellent business opportunities and the support that Bavaria can offer in expanding their business horizon. Being a public funded Government Agency, all our services are free of charge and confidential. 

For more details contact:
John Kottayil
Executive Director
State of Bavaria India Office - Invest in Bavaria,
Prestige Meridian 2, 12th Floor, Unit 1201,
30 MG Road, Bangalore - 560001
Phone: +91-80-40965025/26
Email: director@invest-in-bavaria.in
Website: www.invest-in-bavaria.com
@investinbavaria.indiaoffice, @investinbavaria
@indiaoffice2001

#1

Manufacturer

Mean time to respond
< 4 hrs. (95% of all calls)

Mean time to repair
< 4 hrs. (83% of all calls)

Best in class Service

MTBF
217
DAYS

45,000+
CNC Machines

55 offices
across India

300+ Service
experts

MTTR

"MTTR less than 4 hrs for 83% of all calls" Historically, 83% of all breakdown cases have been fixed within 4 hours of registering the service call. This ensures that the uptime of the m/c is maximized, enabling higher m/c availability to the customer.


Meantime to respond <4 hrs for 95% of calls

MTTR

Best in class MTBF of 217 days through MMT's largest service network of 55 offices across India, coupled with adequate local stocking of spares has ensured that MTBF of our CNC machines considering 3 shift running.

 www.acemicromatic.net

 [/acemicromaticgroup](https://www.facebook.com/acemicromaticgroup)

 [/user/acemicromatic](https://www.youtube.com/user/acemicromatic)

 [/goo.gl/TlPMQT](https://www.linkedin.com/company/acemicromatic)

THE LARGEST MACHINE TOOL GROUP IN INDIA

Wish you, your family and colleagues
Happy, Healthy and Prosperous 2018

LEADING FOR GROWTH

The Indian manufacturing sector is riding on a high growth trajectory. While it is busy setting benchmarks in the international sphere with regard to its manufacturing quality, we take the opportunity to speak to the industry doyen, Jamshyd Godrej, Chairman, Board of Godrej & Boyce Mfg Co Ltd and Chairman – Exhibitions, Indian Machine Tool Manufacturers' Association for an expert view on the present scheme of things.

Team MMI



Source: IMTMA

“The way to improve manufacturing is through bringing innovation and increasing our technical capabilities as well as process building of organizations through their people.”

Jamshyd Godrej, Chairman, Board of Godrej & Boyce Mfg Co Ltd and Chairman – Exhibitions, Indian Machine Tool Manufacturers' Association

How can the Indian manufacturing sector become self-sustainable through innovation and increasing technological capabilities?

Jamshyd Godrej: There are far too many interdependencies to pay heed to before we head toward the concept of self-sustainability. We should first concentrate on the areas we are competitive in and where our value additions can really matter. The way to improve manufacturing is through bringing innovation and increasing our technical capabilities as well as process building of organizations through their people. Incorporating productivity philosophies and good practices like Kaizen and so on to bring in constant, continuous improvement is yet another method. In my view, there are numerous areas to bring in internal improvement of an organization to make it better and more competitive as they make a meaningful difference in manufacturing. The idea of self-sustainability should be seen through this lens.

Is Industry 4.0 applicable

for the Indian manufacturing sector and what is its usability in today's manufacturing phase and in future?

Godrej: This is a fair comment that Industry 4.0 is not something that is universally good for everything and everyone. There is going to be a small segment of manufacturing where Industry 4.0 will make a significant difference in the way things are done. But it is not going to affect more than 5 percent of the Indian industry. May be in five years, it could be 10 percent. The concept will slowly evolve in terms of its value and applicability. To deploy Industry 4.0 properly, one must be able to bring in effectiveness in the manufacturing processes in terms of productivity, quality, output etc. Although it is an important aspect for the growth of manufacturing, its applicability is quite limited at the moment.

How is e-mobility to affect the machine tool industry?

Godrej: It's good to have an ambitious plan for electric vehicles due to the various benefits of using them in the city by reducing the tailpipe emissions. However, it's still

an open question whether we really will get great benefits from e-mobility from the economy perspective as coal-based power plants are being used to charge the electric vehicles. Until we have understood the holistic benefits of e-mobility, it is difficult to say how beneficial will it be for the economy. We, today, do not have the capability for the essentials that go in e-vehicles such as electronics, software, and batteries. These are meant to be imported. Hence, we are needed to yet evolve in that area.

However, the machine tool industry is not likely to be impacted for the next 10 years. But at the same time, it should understand the effect of e-mobility on various parts of the supply chain in the automobile industry. The machine tools that go to make engines, transmissions and other parts of the automobile and e-mobility supply chain will be impacted. The share of internal combustion may come down slightly, but since we have a lot of growth at the same time, the machine tools industry will not see any major impacts for the next decade. But we should study the effects after that term on the machine tool sector.

How are emerging sectors such as Defence, Space, Aerospace, Railways, Medical equipment adding value to Indian manufacturing and can these emerging sectors change the overall outlook of the Indian machine tool industry?

Godrej: Sectors such as Defence, Space, Aerospace and Medical are much more specialized and hence, they increase the capability needs of machine tools. With the rise of these hi-tech areas, the capability of the type of machines needed for them will also change a lot. Undoubtedly, there will

have to be a better policy to meet these segments. There are two parts to railways: the traditional and the high-speed railways. There is a big shift in the technology needed for meeting the machining requirements for high-speed trains. Hence, the demand from machine tools industry for that will be quite significantly different from what it is today.

These emerging sectors are to become increasingly important in the economy. Clearly, the capability requirement of the machine tool industry will have to be in line with the needs of these emerging sectors. If we are meeting the needs of different sectors which may be more relevant from a global perspective, then clearly our position and outlook from a global point of view should be much better.

Largely, the Indian machine tools sector is dominated by small and medium enterprises (SMEs). What should be done to empower them so they can contribute majorly to the Indian economy?

Godrej: There are two parts of the SME sector. One is part of the supply chain and other is involved in making complete solutions for the SME sector in manufacturing. Where they are involved as a part in the supply chain, the demands on them are going to change very quickly because, in my opinion, the supply chain will demand a lot of changes to meet the emerging markets we just spoke about. The part of the SME which takes care of the SME manufacturing sector will also change rapidly but it will have to concentrate more on the solution aspect as opposed to the supply chain.


There are not enough suppliers of equipment in the SME sector who really look at the full solution

for the SME manufacturers. They are suppliers of different things but not integrated solutions. The manufacturers who cater to the SME sector, the discreet manufacturers, need to change their outlook in order to provide solutions.

Which means that there should be more technology upgradation and, presently, technology acquisition is the biggest challenge in the Indian manufacturing sector.

Godrej: Oh yes! New technology acquisition comes through a variety of ways. One can either buy, or be part of the consortium, or can develop their own, or can work in conjunction with universities and other R&D institutes. There are many ways for that to happen. It is not possible for any industry including the machine tool industry to not keep on improving technology.

IMTMA has been in the forefront of connecting the industry with academia. Many R&D projects are being undertaken with the support of IIT Madras. Should Government create similar opportunities for many other sectors within manufacturing so that Indian manufacturing industry moves towards excellence?

Godrej: One of the major thrusts of the academia like IITs should be to work jointly with the industry. IIT Madras has created an incubation center and is working closely with the industry. This kind of activity is required to be replicated by all engineering institutes that deal with manufacturing. The Government's role should be to encourage the academia to be more industry-oriented and create incubation centers for R&D that the industry can use. 

THE GOVERNMENT'S ROLE SHOULD BE TO ENCOURAGE THE ACADEMIA TO BE MORE INDUSTRY-ORIENTED AND CREATE INCUBATION CENTERS FOR R&D THAT THE INDUSTRY CAN USE.

INDIA-UK: COLLABORATING TO SUCCEED



Source: Magic Wand Media Inc

With UK businesses getting increasingly bullish about India and the latter being equally keen to strengthen their trade ties, it gets easier to estimate the immense potential benefits such an engagement entails. A look at the current status of their give and take, particularly in the machine tools sector that points to a bright future.

The frequency of the recent ministerial visits between India and the UK is reflective of the concentrated efforts that are underway to further strengthen the bilateral trade relationship between the two countries. During 2015-16, the UK ranked 12th in the list of India's top 25

trading partners and has been the largest G20 investor in India since 2000. India, at the same time, is the third-largest investor in the UK; Indian companies invest more in the UK than the rest of the EU combined. There are more than 800 Indian companies operating in the UK that employ more than 110,000 people.

Import-Export of machine tools

According to James Selka, CEO, Manufacturing Technologies Association (MTA), India is a significant market for UK machine tool manufacturers, and in 2016 it was the 7th largest destination with shipments worth £14.7 million (3.4 percent of total UK machine tool exports)."

"The latest data, which covers the period from January to September 2017, shows a small fall in exports, but this trend could easily be reversed by a good end to the year as the fall we saw in 2017 was largely because of strong start to 2016 and the underlying trend for 2017 has seen a general improvement over recent levels," added Selka. However, the imports of machine tools from India to the UK are not significant, amounting to only £1.5 million in 2016 and £1.1 million for the first 3 quarters of 2017.

Trade in other parts of the industry is not significant either, although India did have a small trade surplus with the UK for cutting tools in 2016 with imports from India valued at £2.1 million, while exports from the UK to India were worth just under £1 million. This is partly balanced by a small surplus for the UK in trade in tool/work-holding equipment - here UK exports to India were worth £1.4 million in 2016, while imports were valued at £0.7 million.

Knowledge sharing

When asked about the latest technologies in the metal forming sector in the United Kingdom that could help the Indian customer to enhance its productivity, Selka illustrated some of the research being undertaken in the UK right now. "There are many institutions and companies within the

P K CHATTERJEE
Senior Correspondent
Magic Wand Media Inc
info@magicwandmedia.in



UK working on the latest metal forming technology, the Advanced Forming Research Centre (AFRC) in Strathclyde are leading the way in this. They cover the whole lifecycle from material testing and characterisation to testing final products. Some of their recent projects around forming include new lubrication systems for hot forming, investigating new technology for hydro-forming and developing new test techniques to rapidly assess shear formability," he informed. "The University of Nottingham are also doing excellent work, they are developing new forming processes for 'hybrid' materials. They are also doing work around modelling and simulation and

can be a benefit when trying to establish a presence for the first time. Making sure the partners understand each other and are both clear about what they want to get out of the process is very important as is ensuring that the ownership of the intellectual property created by the deal is distributed fairly.

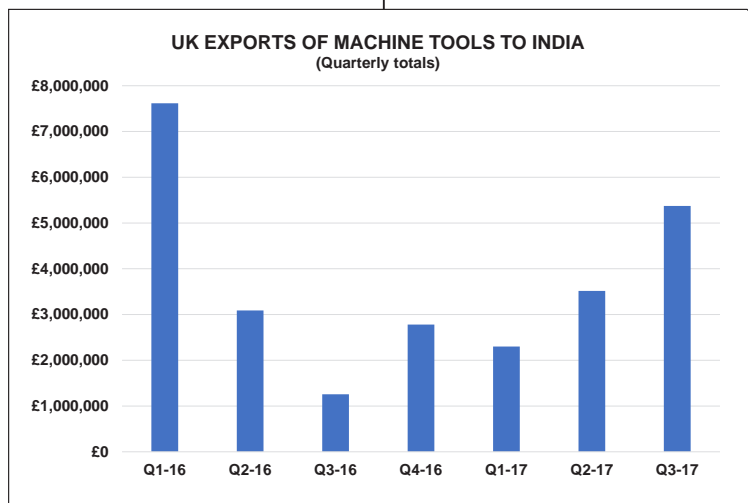
MACH 2018 and what India should expect of it

Organized and hosted by MTA, MACH is the UK's premier event for engineering-based manufacturing technologies. Taking place from April 9-13, 2018, the show is poised to be the destination of choice for engineers and manufacturers, bringing together the best of UK



"We understand the cost constraints that SME businesses face; it is important to let companies know that Industry 4.0 technology is accessible to them."

**James Selka, CEO
Manufacturing Technologies
Association (MTA)**



Source: MTA

process optimisation of forming processes and around material characterisation (i.e. the better you understand your material the better you can simulate it)," added Selka.

Indian-UK collaboration in machine manufacturing


According to him, manufacturing in a joint venture can often make sense for companies looking to access new markets. Bringing local expertise and knowledge

manufacturing under one roof, to see live working equipment. The MTA and the University of Sheffield Advanced Manufacturing Research Centre (AMRC), have partnered to put together a unique feature to demonstrate cost-effective adaption of Industry 4.0 Technologies at MACH 2018.

"We think this feature will be of great interest for visitors from all over the world. The two of us are staging a joint showcase

of cost-effective solutions for the adaption and integration of Industry 4.0 technologies into SME manufacturing businesses," said Selka.

"We understand the cost constraints that SME businesses face; it is important to let companies know that Industry 4.0 technology is accessible to them. You can take an outdated machine and retrofit sensors to it allowing you to get real-time data and to detect through-put fault. It will be really useful to businesses to be shown some of the things you can do to the installed base that can make a difference," he explained.

These solutions could be of major help to the Indian manufacturing sector since SMEs account for over 95 percent of establishments and over 80 percent of jobs. Major thrust is being to strengthen the SME sector, it being the backbone of the Indian economy. The sector's exposure to advanced global trends and the cost-effective ways to adopt them can, therefore, be of high importance to India. 

DURING 2015-16, THE UK RANKED 12TH IN THE LIST OF INDIA'S TOP 25 TRADING PARTNERS AND HAS BEEN THE LARGEST G20 INVESTOR IN INDIA SINCE 2000. INDIA, AT THE SAME TIME, IS THE THIRD-LARGEST INVESTOR IN THE UK.

SPURRING INNOVATION

Indian Machine Tool Manufacturers' Association (IMTMA) is all set to organize its highly awaited flagship event for the Indian metal forming industry, IMTEX FORMING 2018 at the Bangalore International Exhibition Centre (BIEC), Bengaluru from January 25-30, 2018. A must-have sneak peek into the mega show before you head for it.



Source: IMTMA

Machine Tools sector plays the significant role of being the backbone to the manufacturing industry. It is, therefore, of high importance that its progress is ensured for the latter's growth. Having realized this, IMTMA has taken the initiative of organizing IMTEX FORMING & Tooltech 2018, a premier exhibition for South and South-East Asia, showcasing the latest

trends as well as technological refinements from India and other global players from the metal forming sector. The event is expected to be a greatly expanded fair which would feature all aspects of forming technologies, predominantly sheet metal forming. The show will attract visitors from a wide spectrum of manufacturing and ancillary industries including key decision

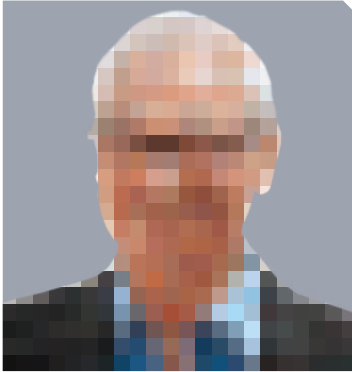
and policy makers as well as industry captains who are keen to source latest technologies and manufacturing solutions for their product lines.

Exhibitors' offerings

Organized in a gross area of 33,000 sqm, this edition of the exclusive business-to-business event hosts 500 Indian and foreign exhibitors offering a range of technologically innovative

POONAM PEDNEKAR
Chief Copy Editor
Magic Wand Media Inc
poonam.pednekar@magicwandmedia.org





“The whole idea of IMTEX is to have a solution in place where you can demonstrate an actual working system to people for them to closely observe its working, see what it can do for their business and how it can make them more competitive.”

Jamshyd N Godrej
Chairman, Board of Godrej & Boyce
Manufacturing Company Ltd &
Chairman - Exhibitions, IMTMA

manufacturing and engineering products and applications. The show has participation from 23 countries: Austria, Belgium, China, Czech Republic, France, Germany, India, Indonesia, Italy, Japan, Korea, Malaysia, Netherlands, Poland, Singapore, Sweden, Switzerland, Taiwan, Thailand, Turkey, the United Kingdom, the United Arab Emirates and the United States of America; and group participation from 3 countries: China, Taiwan and Germany.

The six-day affair serves as an important platform for the machine tool industry by showcasing innovations in metal forming technologies, robotics and automation, welding and joining, wire-forming and drawing, presses, die casting, hydro forming, sheet metal forming machines, presses for special applications, dies and moulds, hydraulic and pneumatic systems and elements, and testing machines.

More to look forward to

Apart from the display of path-breaking products and technologies, various other



“I firmly believe that IMTEX FORMING 2018 & Tooltech 2018 exhibitions will provide a great platform for knowledge sharing and business development.”

P Ramadas
President
Indian Machine Tool Manufacturers’
Association (IMTMA)

programs have been lined up to make the visitors aware of the global trends in the field and their applications.

TOOLTECH 2018

Tooltech will be held concurrent to IMTEX FORMING 2018, showcasing tools for Metalworking machine tools, Measuring machines and instruments, CAD/CAM etc.

INTERNATIONAL SEMINAR (January 24, 2018)

With a view to highlight, inspire and infuse adoption of the evolving trends in Forming technology, a one-day “International Seminar on Forming Technology 2018” has been organized. The seminar focuses on Metal Forming Processes, New Materials, Tooling & Design and Emerging Technologies and brings together renowned national and international companies and research institutes from Germany, Italy, Sweden, the USA and India to share their expertise and latest developments in the field of Forming technology.



“India’s Metal Forming sector is still evolving and IMTEX FORMING exhibition will give a boost to this segment.”

V Anbu
Director General & CEO
Indian Machine Tool Manufacturers’
Association (IMTMA)

CONNECT (January 26 - 29, 2018)

It is an awareness programme for imparting knowledge on the machine tool industry to young engineers during the event. Students from both mechanical and electrical engineering streams can avail of this opportunity to gather more knowledge of the opportunities in store for them in the manufacturing industry.

i2 ACADEMIA PAVILION

IMTMA provides an opportunity for Indian Academic / R&D Institutions to showcase their R&D capabilities in Metal working field. Around 43 institutes have been selected so far.

REVERSE BUYER SELLER MEET (January 26 - 29, 2018)

This is an interaction platform for machine tool manufacturers and international buyers.

Exhibitors’ plans for the show

IMTEX, with its far and wide reach, is a no-miss event for the

IMTEX FORMING 2018 IS EXPECTED TO BE A GREATLY EXPANDED FAIR WHICH WOULD FEATURE ALL ASPECTS OF FORMING TECHNOLOGIES, PREDOMINANTLY SHEET METAL FORMING.

WITH THE ORGANIZERS' DEDICATION AND COMMITMENT TOWARDS THE GROWTH OF THE SECTOR AND THE PARTICIPANTS' ENTHUSIASM, THE SHOW WILL CERTAINLY RECEIVE AN UNPRECEDENTED RESPONSE.



"The Indian market is favorable in accordance with the various initiatives by Indian Government. It's encouraging that IMTEX FORMING 2018 is happening at this crucial period of positive shift in Indian Economy."

Anil Bhardwaj
Managing Director
Yamazaki Mazak India Pvt Ltd

exhibitors and visitors looking for relevant exhibitors to source the products of their choice. Hence, the event has dedicated regulars who await the event being certain of its benefits. One among them is Sahajanand Laser Technology Ltd (SLTL) for whom participation in IMTEX exhibitions is a yearly exercise to unveil its latest laser machines. "For this time, we have emphasized on segment-oriented enhancement and tried to deliver integration with cutting-edge system and latest features at each level. To be specific, material handling and storage solutions are being added, keeping sheet metal industry in account," reveals Maulik Patel, Executive Director, Sahajanand Laser Technology Ltd.

For Sanjay Kulkarni, Managing Director, Bystronic Laser India Pvt Ltd, IMTEX FORMING is one of the most important exhibitions of sheet metal processing industries since it provides the company an ideal opportunity to present its latest offerings in Fiber Laser Cutting technology. It is all set to showcase its Bystar 3015



"MFRC would like to meet and interact with the Indian community and forgers as IMTEX is an exhibition specifically for the metal forming industry."

Prof Dr Man Soo Joun
CEO & President
MFRC

3 KW Fiber Laser, Bending Xpert 40 Press Brake and a preview of BySoft Software Innovations. AFDEX, the multi-purpose metal forming simulator has been the backbone of many forging companies for around 25 years. "At IMTEX 2018, MFRC looks forward to fostering meaningful relationships with Indian forging companies," says Prof Dr Man Soon Joun, CEO & President, MFRC.

According to Anil Bhardwaj, Managing Director, Yamazaki Mazak India Pvt Ltd, the major role player for Sheet Metal industry will be new technologies like Direct Diode laser, Fiber laser, and 3D laser which comprises the company's strong product range to cater for the emerging requirements in Indian sheet metal industry.

Goals to exceed last edition's success

IMTEX FORMING 2016 was a huge success and, understandably, the plans are to surpass it. The past edition catered to over 475 exhibitors from 239 overseas and 246 Indian companies who displayed over 500 live machines




"IMTEX FORMING extends opportunities in abundance. With its visitors hailing from different states of the country and overseas, it helps us reach the ones relevant to us."

Maulik Patel
Executive Director
Sahajanand Laser Technology Ltd



"IMTEX FORMING is an important exhibition of sheet metal processing industries. The event provides an ideal opportunity to present our latest offerings in Fiber Laser Cutting technology."

Sanjay Kulkarni
Managing Director
Bystronic Laser India Pvt Ltd

to over 40,000 visitors. The event recorded confirmed business orders to the tune of ₹ 456 crore and generated a high potential of business enquiries to the tune of ₹ 4,304 crore. With the organizers' dedication and commitment towards the growth of the sector and the participants' enthusiasm, there is absolutely nothing to doubt that the show will be receiving an unprecedented response. 

3D Measurement and Imaging

3D CAD viewing gets mobile

The solution enables large, complex 3D CAD (computer-aided design) data to be transferred to an iPad and then used for mobile visualization and comparison to real world conditions.

FARO's Visual Inspect is a true next generation solution as it moves 3D CAD viewing away from the traditional desktop PC to a mobile 'in hand, on demand' solution. The 3D CAD data is stored locally on the iPad through an innovative, compressed, mobile format which provides an exceptional degree of flexibility and mobility that together drive increased productivity. It comes in two options:

- **Visual Inspect:** enables intuitive mobile viewing, verification and documentation of complex 3D data with a three-step process of downloading the iPad application from the Apple Apps store, calibrating the iPad and activating the application with the calibration file.
- **Visual Inspect AR:** enables complex 3D data to be overlaid and compared to actual data in real time. The integrated iPad camera supports it as a more cost-effective alternative to other Augmented Reality (AR) products that require expensive cameras.



FARO Business Technologies (I) Pvt Ltd
www.faro.com/en-in
Hall & Stall: 3A / B-102

Laser Marking Solution

Bearing Automation System

Dual side laser marking system, 3G marking with vision system and marking on flinger shield are some remarkable features this system offers.

Sahajanand Laser Technology Ltd (SLTL), an Indian laser solution company, has introduced customized technologies for the bearing industry that include marking, cone measurement, oil slusher system and others. This technology enables solutions for bearings of any type, width and diameter. The rotary and x-y solutions come really handy while marking the larger bearings.

The system is capable of simultaneously marking the brand name, the serial number along with the indexing mechanism. Thanks to these features, the downtime becomes negligible, while the productivity is maximum. Along with automation features dedicatedly engineered for bearing industries, the company makes machines with inbuilt 3G marking with Vision System and Systems integrated with Poka Yoke Mechanism. That's how the laser system is extending the identity to the bearings, the component that is used in countless things - right from the bicycle to the rocket.



Sahajanand Laser Technology Ltd
www.sahajanandlaser.com
Hall & Stall: 2A / B-106

Advanced Technology

Data analysis for real-time improvement

Real-time data from presses are captured from machines through smart sensors and are sent to a centralized location on the web for the analysis.

The last couple of years have witnessed smart technology entering into every corner of our life. ISGEC being a frontrunner in offering advance technology solutions to the industry, has launched REACH 4.0.

In REACH 4.0, the real-time data from presses like temperature, pressure, vibration, strokes, status message and many more parameters are captured from machines through smart sensors and are sent to a centralized location on the web. This data is then analyzed

by well-defined algorithms developed by ISGEC team to improve the machines' productivity, reliability and uptime information on real-time basis. Following are the major tangible advantages to the customer:

- Real-time visualization of press parameters
- Real-time remote visualization of production data
- Online health monitoring
- Preventive maintenance information system

- Online fault monitoring
- Prompt video-based maintenance support.

ISGEC Heavy Engineering Ltd
www.isgec.com
Hall & Stall: 2A / B-102



COMMITTED TO THE CRAFT

Aided by state-of-the-art infrastructure and triggered by the objective of providing optimum quality components such as die sets, die springs, cam units, rotary tables etc., Pune-based Fibro India Precision Products Pvt Ltd has achieved an enviable position in Indian industry. Compact design and longer functional life with competitive pricing constitute added factors that have given the company an edge over others.



Source: Fibro India Precision Products Pvt Ltd

Fibro India's plant in MIDC Phase II, Chakan.

With a tag line – 'German Precision, Crafted in India', one gets a clear understanding of the self-assured persona of Fibro India Precision Products. In fact, way back in 2007 when Fibro India let its roots grow in Indian soil and flagged off operations from a rented production space, its management knew that arrangements would soon have to be made to cater to a quickly rising growth curve. And that, precisely, has been the company's story so far. Engaged in the production of Rotary Tables and Die Sets, Fibro India started its operations with the manufacturing of guide pillars for the domestic and export markets. But then as market expectations increased, the company kept adding new products every year

to widen its product portfolio. Subsequently, in 2015, its Rotary Table division in Germany also decided to join Fibro India to manufacture Rotary Tables of 'FIBROTOR' series for the automation industry. Providing a more elaborate background about the company's inception and journey over the years, Vivek Nanivadekar, Executive Director, Fibro India Precision Products, says, "Fibro GmbH was established in 1958 and subsequently was taken over by the Läßle Group in 1978. Fibro entered the Indian market in the year 2000 through an agent. Having carried out a market study, the management decided to set up a manufacturing base to cater to the local market as well as clients in Europe." Subsequently, Fibro India moved

from its rented premise to its own plot of 4000 sq mt in MIDC Phase II, Chakan in March 2013 and in 2017, started the construction of its second plant adjacent to the existing one. Its journey in the Indian market so far has been quite interesting with several ups and downs but each of them treated as a learning experience. "We have been growing at an average CAGR of 30 percent. Our strategy has been to work closely with our customers to understand the problems or challenges they face and offer them the right solutions. Based on the market feedback we have kept on adding new products every year. And we are positively responding to the government's initiative of 'Make in India' so that we are fully equipped to face the rapid changes in manufacturing trends," he adds.

P K CHATTERJEE
Senior Correspondent
Magic Wand Media Inc
info@magicwandmedia.in



Focused reach

Fibro India's main customers have been OEMs and their Tier I and Tier II vendors for the supply of Sheet Metal components or tooling for standard parts division. Whereas, for Rotary Tables, the company's main market segments have been automation and SPM builders. "So far, our standard parts division gets us the large volume and the revenue but in years to come the Rotary Table business is likely to take over," informs Nanivadekar. Admitting that the Indian market is certainly volatile, he says that in this digital edge, the target is not restricted to the Indian customer but to manufacturers across the globe. "Today, 35 percent of our turnover comes from the export market. In the coming years, it could be 50-50," he reveals.

The whole business equation revolves around the matrix of product and market. Therefore, Fibro India works closely with all its customers to understand their dynamic requirements, according to which it keeps changing its offerings. "In today's highly changing and competitive world of business, one has to be on their toes and keep the eyes and ears open while being flexible to adapt to the requirements of the market," says Nanivadekar. Admittedly, what gives Fibro India an extra edge over its competitors is the backbone of its German engineering, which is well-accepted not only in India but all over the world. The

company being highly cost-competitive constitutes another reason. "Nowadays, it's not just about the cost; more important is the lead time, i.e. how fast one can launch the new product," he adds.

The right mantra

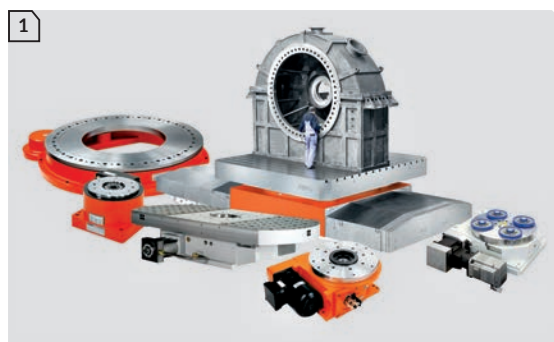
The company has adopted a simple equation as the means to its success: If the toolmaker has to deliver the tool to his customer within a committed timeframe, he prefers to use quality standard parts that are generally available ex-stock or has the advantage of shorter delivery times. "One has to concentrate on their core competence, and manufacturing standard parts is our core competence. Similarly, designing and manufacturing Automation Systems are not our core competence areas but manufacturing Rotary Tables is," Nanivadekar explains. In the Indian economy, the contribution of manufacturing is only 15 percent that needs to be increased to 25 percent as targeted by the government.

Standard and customized solutions

For Fibro India, in the offering of standard parts, the customization is around 10 percent. Over a period of more than 50 years, having worked with a majority of the leading automotive makers, the company has been able to standardize its range of offering. Yet, specific standardization is undertaken if a client has such a specific request for any part.

IN THE INDIAN ECONOMY, THE CONTRIBUTION OF MANUFACTURING IS ONLY 15 PERCENT THAT NEEDS TO BE INCREASED TO 25 PERCENT AS TARGETED BY THE GOVERNMENT.

- 1 Manufacturing Rotary Tables is the company's core competence.
- 2 Fibro India's range of Standard Parts.



Source: Fibro India Precision Products Pvt Ltd



Source: Fibro India Precision Products Pvt Ltd




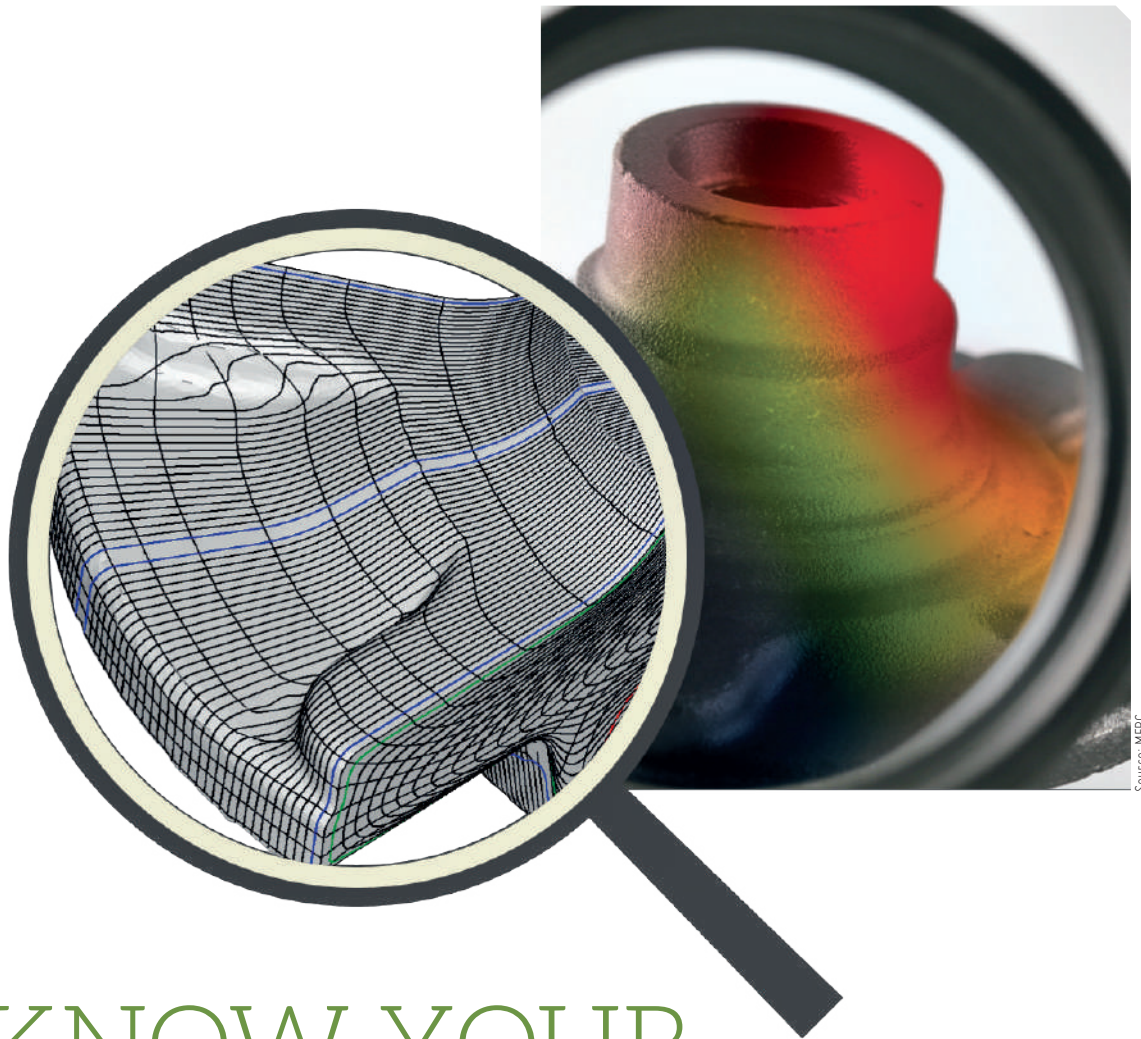
"In today's highly changing and competitive world of business, one has to be on their toes and keep the eyes and ears open while being flexible to adapt to the requirements of the market."

Vivek Nanivadekar
Executive Director
Fibro India Precision Products Pvt Ltd

As for the Rotary Table business, customization may go up to 40 percent. In fact, based on the market feedback, Fibro India has recently introduced a highly efficient indexing ring table - the FIBROTOR RT.0750 - for assembly automation in automotive, electronics and consumer goods industry. This table offers shorter indexing time, soft acceleration, higher indexing accuracies, etc.

Sustainable manufacturing

With digital manufacturing and the practices related to the adaptation of Industry 4.0 being the buzz trends of recent times, Fibro India understands only too well that this is going to be a continuous process and cannot be achieved in a short period. "We will be doing it in a phased manner and are in the process of challenging the current processes and redefining them so that it gives us the desired output, including productivity and quality. In Germany, for instance, we are working on implementing Industry 4.0 in Rotary Tables. In short, we have a long way to go to achieve digital manufacturing but we are certainly getting there," concludes Nanivadekar. 



Source: MFRC

KNOW YOUR MATERIAL WELL

Accurate prediction of frequently encountered material fracture during the forming process is vital in everyday applications. An insight into the methods to identify the material that help successfully deal with the fracture phenomena.

PROF DR MAN SOO JOUN
 Professor, Gyeongsang
 National University
 CEO, President, Metal
 Forming Research
 Corporation
 msjoun@afdex.com



Material at room temperature is largely dependent on its pre-work including mechanical and metallurgical treatment. Therefore, the material properties are different from situation to situation even though their chemical compositions are the same. It should be emphasized

that the material properties, especially the strain-hardening effects have a profound influence on the predictions of cold metal forming processes and that it is sometimes needed to reveal the material properties by users, which are unique due to their specific pre-works including drawing or heat treatment.

Identification of material at the room temperature

Material properties, including the true stress-strain curves, are known to be indispensable to process design engineers in the field, as the quality of simulation results directly depends on the accuracy of the material properties involved.

A true stress-strain curve needed for metal-forming process simulation is affected by the various conditions of manufacturing history, metallurgical treatments, and the chemical composition in the material as well. Metal-forming simulation engineers are hence in desperate need of the true stress-strain curves that reflect in a fruitful manner the peculiar conditions of the materials at hand. It is, however, rather a demanding thing to obtain such material properties from the experiments, while very restrictive amount of information about true stress-strain curves can be found in the published literatures. A lot of simulation engineers may helplessly stick to the material properties supplied by the software companies, which tend to be given in a quite limited way and are sometimes unverified.

Validity of the conventional methods

Most of the conventional material identification methods applicable to the tensile, compression and twisting tests do yield true stress-strain relations only valid for the range of strains less than 0.5. However, the maximum strain often exceeds 1.0 in bulk metal forming, such as in forging, extrusion, and rolling. It further reaches 3.0 sometimes in the multi-stage automatic cold forging, the so-called cold former forging easily seen for the product of fasteners, as annealing cannot be applied between stages.

In a tensile test, the true strain reaches its maximum value at the smallest cross-section in the necked region, and it may exceed 1.5 just before a ductile material fractures. Therefore, one should be able to obtain the

Figure 1: Engineering and true stress-strain curves of SCM435 and PHTS.

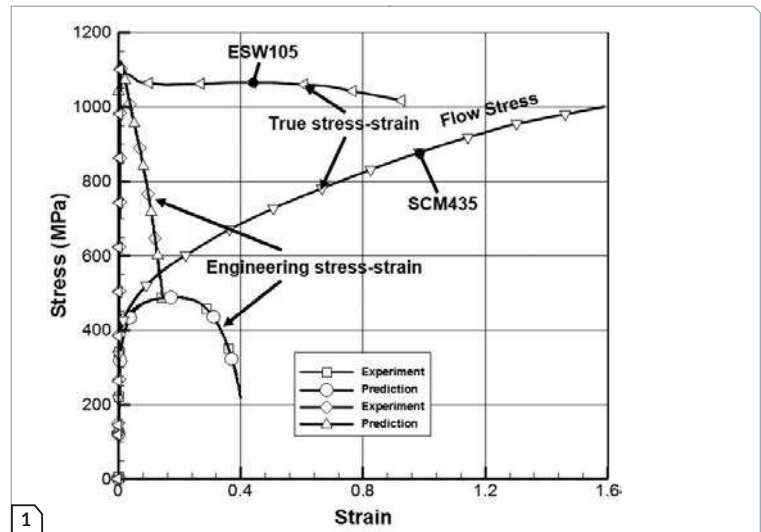
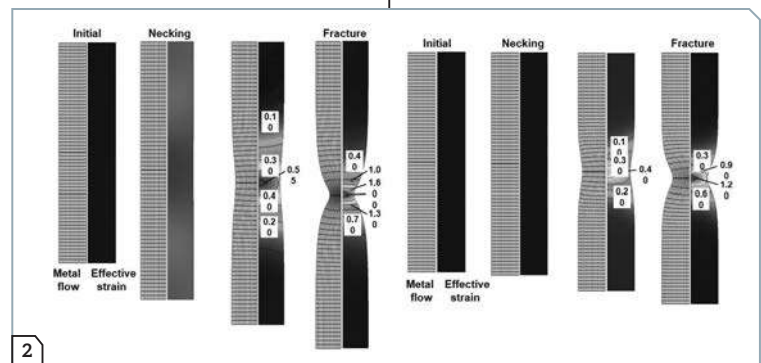


Figure 2: Deformation history of the tensile tests of SCM435 and PHTS.



A TRUE STRESS-STRAIN CURVE NEEDED FOR METAL-FORMING PROCESS SIMULATION IS AFFECTED BY THE VARIOUS CONDITIONS OF MANUFACTURING HISTORY, METALLURGICAL TREATMENTS, AND THE CHEMICAL COMPOSITION IN THE MATERIAL AS WELL.

flow stress of materials at a large strain if finite element methods are used to predict the localized deformation behavior during the tensile test. AFDEX/MAT, one of AFDEX modules, uses this fact to obtain the flow stress at the large level of strain, based on an iterative error-reducing scheme from the localized deformation behavior in the necked region.

AFDEX/MAT module

AFDEX/MAT is now applied to two materials - PHTS and SCM435 - which show quite different behaviors in terms of strain hardening. PHTS is a pre-heat-treated steel of ESW105 and SCM435 is a typical strain-hardening material, and their resulting plastic flow stress curves are shown in Figure 1. With the flow

stress information, the related tensile tests are simulated, and the predictions are compared to the experiments in Figure 1, indicating that the flow stresses accurately reflect actual phenomena occurring in tensile test. The maximum error is less than 0.3 percent. The tensile test to obtain the flow stress is then conducted according to ASTM E8. The initial yield stress of PHTS is 2.8 times larger than that of SCM435, while difference in the yield stress at the failure point between the two turns out to be small enough to be neglected. This behavior is the result of both the high initial yield stress and negligible strain-hardening performance of PHTS, as seen in Figure 1. The deformation history of the tensile tests of SCM435 and PHTS is shown in

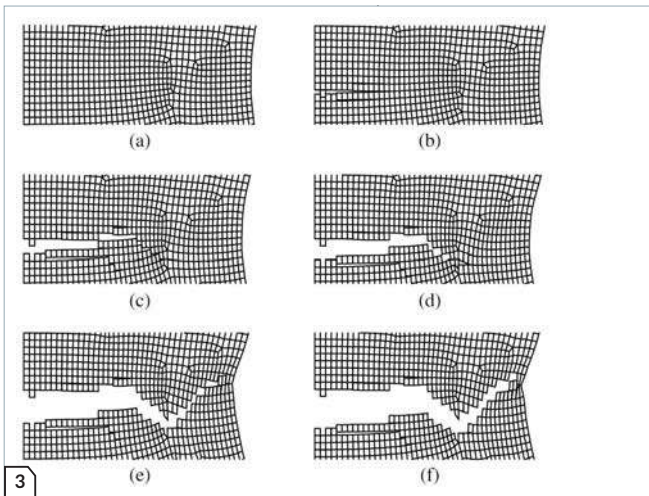


Figure 2, which shows distinct difference between the two materials. PHTS specimen starts to neck in the early stroke and its necking region is quite insignificant compared with SCM435, resulting in a relatively small elongation before the fracture point.

Fracture prediction of a tensile test

Fracture prediction of a tensile test is now conducted using a crack propagation scheme of predicting fracture and Brozzo et al. damage model. Critical damage value of the material tested was obtained from comparison of the experiments with predictions just before the fracture point in its tensile test.

Figure 3 shows the history of the fracture formation, indicating that the early crack propagates horizontally up to two thirds of the radius of the material. The crack growth is then finalized in the inclined direction. Figure 4 shows the tensile load-elongation curve, with emphasis on the fracture region. It should be emphasized that the slope predicted by AFDEX is very stiff and closer to the experiments, when compared to other predictions which can be found from the available literature.

Prediction of chevron defect occurring in forward extrusion

A typical forward cold extrusion process is chosen to reveal the

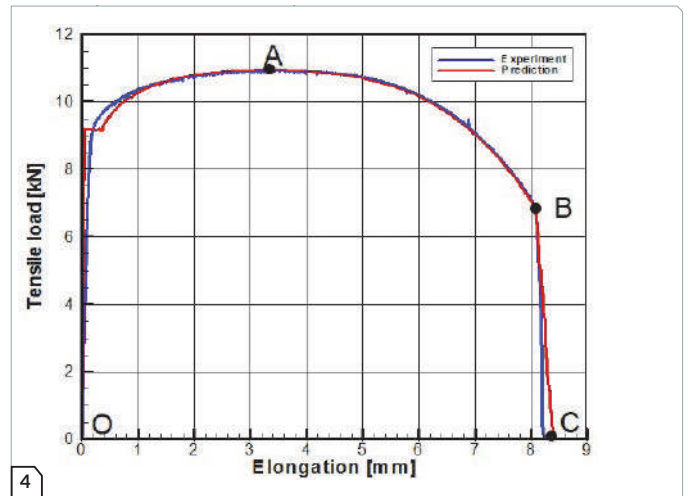


Figure 3: History of fracture formation by the Brozzo et al. damage model.

Figure 4: Comparison of tensile load from the initial point to the final fracture point.

mechanics of chevron crack. The radius and height of the material is 6.995 mm and 28.7 mm, respectively. The critical damage is assumed to be 0.20, which is quite minor compared to the critical damage values of normal low or medium carbon steels. The small critical damage value is adopted to invoke the central bursting defects on purpose because they do not occur when the standard commercial materials for the structural parts are used.

To determine the effect of the die conical angle, a central bursting defect formation is simulated for four different die conical angles under the fixed conditions R.A. = 25% and $\mu = 0.03$. The predictions are shown in Figure 5.

Compared to the predictions found from related literatures, AFDEX provides more realistic shape predictions for central bursting defects (i.e. an obtuse V-shape, which is quite typical). It can also be noted that the maximum normalized diameter predicted by AFDEX is of quite a larger value compared to the other research works. Note that a crack propagation approach is hired in AFDEX, while most other researchers adopt a simpler approach of the element deletion approach.

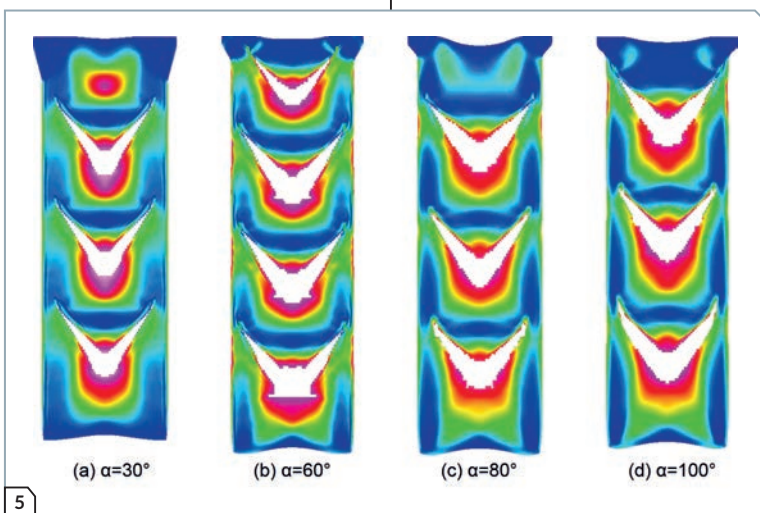


Figure 5: Effects of die conical angle on formation of central bursting defects.

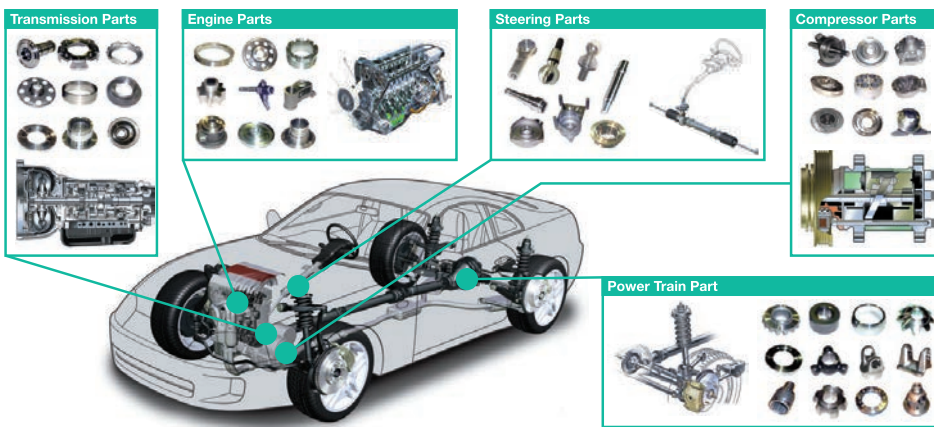
MURATEC Automated Turning Solutions

To meet the expanding global supply market requirements, Muratec has been a global leader in supply of Turning machines with advanced automation solutions. It is fully prepared to provide the most appropriate level of automation solution to meet the growing demand in India for medium to high volume global supply market combined with high-precision Standards. It also caters to the rapidly increasing volume requirements of the domestic Indian automobile industry.

Our MW/MS Series Twin and Single spindle automated turning machines and MD series turning centers have more than 10,000 installations worldwide. We are proud to say that, "MURATEC MOVES YOUR CAR".

MURATEC machines are available in a wide range of chuck sizes: capacities ranging from 6" to 15" chuck size. These advanced, precision turning machines come with highly reliable, integrated, intelligent CNC 3 axis servo controlled gantry loader for smart, fully automated, flexible workpiece load/unload operations.

Globally Proven Solutions, Abundant Experience in Automotive Parts Production



MURATEC Solutions for Sheet Metal Punching

Muratec, world's first manufacturer of servo driven ram turret punch press introduces leading innovation in sheet metal industry MOTORUM 3048TG. MOTORUM series does more than to achieve high reliability and high speed processing. This machine enhances overall productivity through process integration of bending, forming, tapping and other processes, together with reduction of time needed to set-up and program.

MOTORUM

MOTORUM series punch presses are available in various models to meet diversified needs of sheet metal industry. These machines are worldwide popular for its design features, rigidity, high speed productivity, environment friendly design features of minimum power consumption, low noise and high profitability to customers. Motorum series machines have more than 1,350 installations worldwide. MURATEC the leading name in automation is fully prepared to offer sheet metal automation solutions to meet the growing production demands in India.

Muratec Ball Screw Press Brake BB4013 is driven by AC servo motor & ball screw mechanism.

The New 300kN Solution Latest Technology from the Inventor of the Electric Turret Punch Press



Ball Screw Press Brake
BB 4013



Visit us at:
HALL: 4
STALL: C101



CNC Servo Motor Driven Ram Turret Punch Press
M3048 TG



The ScanArm features unparalleled non-contact measurement capabilities.



Source: FARO India

MEASURES THAT MATTER

In order to streamline its decade-old manufacturing process, Perfect INC. resorted to FARO's ScanArm, a seven-axis measurement solution that offers maximum data handling, highest accuracy, and optimum efficiency for users.

Source: FARO India

One of the largest industries globally, the construction sector provides employment to millions of people and continues to be a key driver for many world economies today. For India, the construction industry is one of the largest contributors to its economy. With the rapid infrastructure development projects commissioned by the Government of India, the construction equipment sector is expected to generate revenues of up to \$5 billion by 2020. As a result, demand for construction

equipment in India is expected to continue rising in the next few years.

Quality crucial in construction

The importance of high-quality construction tooling and materials cannot be overlooked as it helps avoid complications like the corrosion of embedded steel reinforcements and poor resistance to natural elements including fire, wind, and flood. Perfect INC. has always believed that quality matters in construction tooling and, hence,

has a strong focus on developing one of the highest calibre. "The foundations of a building cannot be compromised, and construction components provide critical support. Our manufactured components undergo rigorous testing and inspection to ensure that each tool is of the highest quality, before they are delivered to our customers," commented Amitoj Singh, Head of Marketing, Perfect INC.

Knowing Perfect INC.

The company specializes in

manufacturing high-quality construction equipment such as scaffolding, pillars, and structures through methods such as stamping, forging, machining and tooling. Since its establishment in 2005, it has meticulously monitored its measurement, calibration, and inspection processes. Each construction component is carefully measured by employees before production and after final-inspection stages using vernier caliper, height gauges, and fixed coordinate measuring machines (CMMs). In its production facility, the company manufactures equipment of varying sizes – small tools of 100 mm and larger pieces of up to



Source: FARO India

Challenge :

To improve and accelerate the calibration and inspection process of its construction components, Perfect INC. needed an advanced measurement solution complete with an accuracy of 0.5 mm to 1 mm, to provide support throughout its calibration, inspection, installation, and dimensional calculation stages.

Solution:

Faro's ScanArm, a seven-axis measurement solution that offers maximum data handling, highest accuracy, and optimum efficiency for users. It is able to scan even the most complex shape, and is ideal for measuring the different sizes of Perfect INC.'s construction equipment.

3 m – with a maximum weight of 15 kg. These tools are then combined to create different construction assemblies.

Besides exporting its construction equipment to customers in Canada, Europe, Germany, and the USA, the manufacturer also supplies its

components to multinational companies with subsidiaries in India. It is also the parent company to Perfect Group and Perfect Forgings, and the three corporations are located in Ludhiana, India.

A decade since its inception, the team at Perfect INC. continues to rely heavily on hand tools for measurement. "Our employees are accustomed to using traditional tools and do not experience major issues," Singh shared. "However, we wanted to improve and accelerate the calibration and inspection process of our construction components. This drive for perfection was the push factor that encouraged us to source for advanced measurement solutions."

Implementing portable 3D CMM

The team needed measuring equipment complete with an accuracy of 0.5 mm to 1 mm, to provide support throughout its calibration,

An employee demonstrates how a FARO ScanArm can be used.

THE SCANARM IS NOW A KEY COMPONENT OF AN IMPORTANT MONITORING SYSTEM AT PERFECT INC., AND IS USED WEEKLY TO DETECT ERRORS BEFORE AND AFTER THE PRODUCTION STAGE.

inspection, installation, and dimensional calculation stages. After comparing the technical capabilities of different portable 3D CMMs, Perfect INC. identified FARO as its preferred choice, as its solutions fit the former's needs for calibration.

The ScanArm is a seven-axis measurement solution that offers maximum data handling, highest accuracy, and optimum efficiency for users. Adding unparalleled non-contact measurement capabilities to the FaroArm, the ScanArm is able to scan even the most complex shape, and is ideal for measuring the different sizes of Perfect INC.'s construction equipment.

Streamlining for perfection

Since acquiring the ScanArm, Perfect INC. regularly utilizes the device to calibrate and inspect the construction equipment and tools that are manufactured in-house. The ScanArm is now a key


component of an important monitoring system and is used weekly to detect errors before and after the production stage. With the ScanArm stationed on the shop floor, the team also achieved unprecedented savings in time and labor, as components do not have to be physically moved to a separate measurement room with controlled temperatures for taking accurate measurements. The company can now generate calibration data reports easily, without the hassle of filing manual reports. The ScanArm also delivers reliable, repeatable, and reproducible measurement data with every scan. Before the FARO ScanArm, Perfect INC. had trouble obtaining data with similar reliability and consistency using other metrology solutions. As an added bonus, the ScanArm is used to calibrate



Source: FARO India

the company's 1D machine, a four-meter long vernier caliper. Since the team continues to rely on the conventional method

The portability feature of the ScanArm allows employees to conduct measurements easily on the shopfloor.

to inspect smaller components, the ScanArm has also indirectly provided the manufacturer with better results on that front. 

YOU deserve the BIGGER pie of the MARKET!



For Advertisements Contact:
Murali Sundaram: +91 9740048390
murali.sundaram@magicwandmedia.in

Connect with the RIGHT audience through the TRENDSETTERS!



Indian Machine Tool
Manufacturers' Association



MODERN
MANUFACTURING
INDIA

www.mmindia.co.in

International Machine Tools & Industrial Trade Fair

18th Edition



6 to 10 JUNE 2019
CODISSIA Trade Fair Complex
Coimbatore, INDIA

CONCURRENT EVENTS



ORGANISED BY



CODISSIA
Intec Technology Centre

INTEC 2019

P: +91 422 2222396 / 397
E: intec@codissia.com

www.intec.codissia.com



Source: Magic Wand Media Inc

The Smart Factory is the perfect integration of high-tech tools and high-tech workers working together in a quiet harmony to deliver maximum productivity.

THE WAVE OF THE FUTURE

Industry 4.0 introduces the Smart Factory which aims at increasing efficiencies through a way that minimizes the damage to resources. Disruptive business models and processes are being thought of every day, which ensures that not only is it Smart, but is also Sustainable.

Sustainable Manufacturing has been defined as “a systematic approach to eliminating waste by optimizing use and selection of resources and technologies, thereby lessening the impact on the environment.” While there is no such thing as the ultimate sustainable factory, the goal should be to constantly upgrade and improve the current practices to ensure environmental and social responsibility. Most companies are already familiar with the Triple Bottom Line Concept. According to this concept, besides economic performance, organizations must also focus on its environmental

and social performance and be held accountable to various stakeholders, to be truly sustainable.

The time is now

With cleaner production, there are many opportunities for cost savings and other financial benefits for companies. Sustainable manufacturing is a gradual process but only if companies begin to implement it today, will there be a significant improvement for the future.

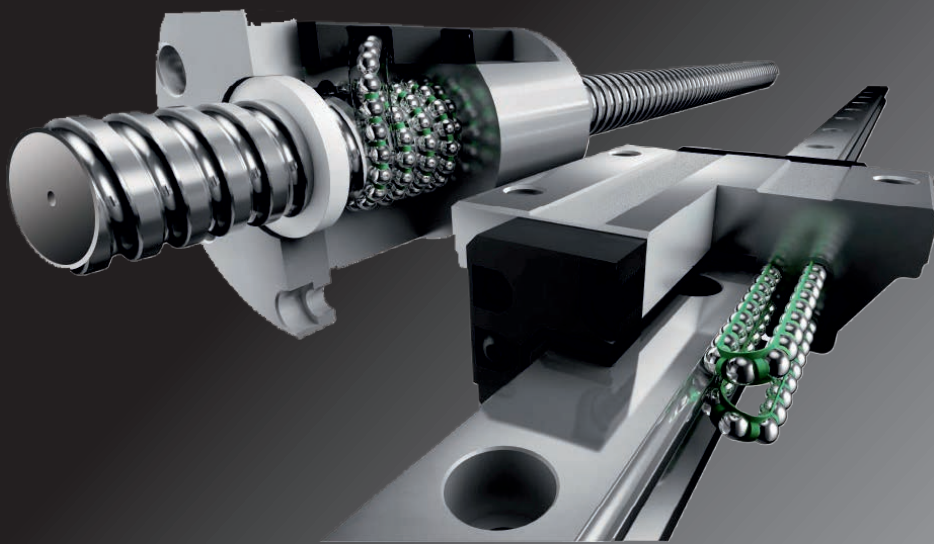
- **Basic changes:** It begins with improvements in work practices and maintenance. These could be as simple as

better inventory management, better monitoring and scheduling of the production process, reducing loss from leaks, spillage, and drag-out, and proper maintenance of equipment.

- **Process optimization:** The next step would be to make adjustments to processes and increase efficiency. Process optimization involves changing manufacturing process to minimize waste, conserve raw materials, and capture and reuse waste materials
- **Raw material substitution:** This is a challenging step, go back to the drawing board and

KALYAN SRIDHAR
Country Manager
PTC India
sumalik@ptc.com

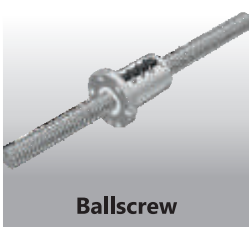




THK
The Mark of Linear Motion



LM Guide



Ball screw



Cross Roller Ring



LM Bush



LM Spline



Grease



Cam - Roller Follower



Rod End - Link Ball



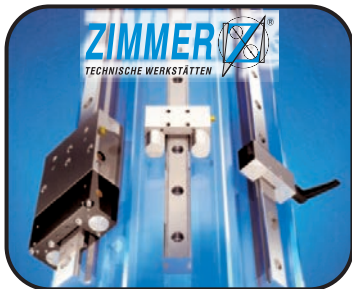
Cross Roller Guide



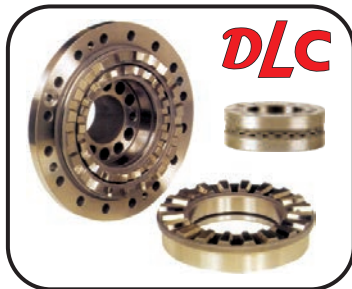
Ball screw & Belt Linear Actuators



OUR OTHER PRODUCTS



LM Guide Clamp



Curvic Coupling



Gear, Rack & Pinion



Ball Transfer Unit



Mist Cleaner



Large Diameter Ballscrew



Precision Planetary Gearbox



Locknut + Locking Element

APEX[®]
PRECISION

Amcats Pvt. Ltd.
Apex Precision Mechatronics Pvt. Ltd.

303 - 308, Krishna Bhuvan Annexe, 22-B, Govandi Station Road, Deonar, Mumbai - 400088
Tel: +91 22 6146 4444 Email: sales@apexprecision.co.in URL: www.apexprecision.co.in
MUMBAI BANGALORE CHENNAI HYDERABAD AHMEDABAD



shift to more environmentally sound inputs. Find ways to substitute hazardous materials, chemicals with high environmental or health impacts, materials that are non-renewable, or those that are scarce with greener materials. Eliminating materials that are considered hazardous can also help avoid regulatory costs associated with storage and disposal of materials.

- **New technologies:** Understand and upgrade to current systems and processes. Incorporate more environmentally responsible technologies and equipment that enable lower resource consumption, waste generation, and emissions. This would involve certain capital investments which would showcase return on investment gradually.
- **New product design:** This is the most difficult step of the process. It is time to redesign the product to be greener from the ground up. This helps minimize impacts throughout the product lifecycle.

Predictive maintenance

The two key elements associated with Sustainable Manufacturing would be Elimination of Waste and Optimal Utilization of Resources. These two elements resonate with the Smart Factory, as the two biggest advantages are Predictive Maintenance and Asset Utilisation. A true smart factory integrates data from the network of physical, operational, and human assets, and drives the manufacturing process from inventory tracking, digitization of operations to maintenance. It usually comes together with the right integration of Internet of Things (IoT), Machine Learning (ML) and Artificial Intelligence (AI). The Elimination of Waste translates to Predictive Maintenance. Analysts have

found that downtime can cost an average factory between 5 and 20 percent of its productive capacity. Unscheduled maintenance and repairs on assets can send ripples throughout the supply chain. Sometimes, when there is one machine failure, the others connected in the process also become idle. This involves extra man hours to be put into this process, which may also cause delays in other processes. There is also a possibility of wastage of resources. Faulty machines also lead to faulty output which adds to the waste. Essentially, being able to prevent downtime or the need for maintenance would eliminate all these issues.

With predictive maintenance, significant reductions in unplanned downtime can save millions of dollars and ensure that there is no wastage of time, man-hours or resources. It eliminates the need to shut down for service on a periodic basis, enabling technicians to monitor things like vibration, heat and energy usage to understand what's going on deep inside complex machinery.


Asset utilization

The second element is Optimal Utilization of resources. For a Smart Factory, this translates to Asset Utilization. Factories rarely function at 100 percent productivity. Through continuous improvement of systems and processes, there can be a momentary boost in productivity, which usually declines due to wear and tear of the machine. A business achieves economies of scale when it is able to work efficiently for a long period of time. This can only happen when assets are being utilized effectively, which could be machinery or human resources. Sometimes, not all machines are used all the time which means there is an idle machine consuming electricity

and resources to maintain just to be kept in the factory for when it is required. Here, monitoring the asset and assigning tasks accordingly will ensure that it can function at the highest level of productivity.

Asset Utilization and monitoring can be done on a real-time basis with IoT application. Copious amounts of data can be mined to understand to what extent each machine is being used, which machines are being overused and which ones are lying idle at times. This information is holistic as it is aggregated from across all systems in every geographical location. Using this information, Machine Learning can identify relationships and patterns between machines and provide solutions to the issues. Certain monotonous tasks in a process done by one machine can be automated and transferred to others while the more complicated tasks can continue to be done by the original machine, thus reducing the burden. Besides that, ML can also inform the decision maker on which machines are idle for certain hours in the day, which can either be used to ease an existing process or even rented out to continue to generate revenue.

Resources are precious

Every industrial revolution is faced with the challenge to meet the continuously growing worldwide demand for resources. However, it cannot be detrimental to the future generations. Industry 4.0 introduces the Smart Factory which aims at increasing efficiencies through a way that minimizes the damage to resources. Disruptive business models and processes are being thought of every day which ensures that not only is it Smart, but is also Sustainable. 

SUSTAINABLE
MANUFACTURING
IS A GRADUAL
PROCESS
BUT ONLY IF
COMPANIES
BEGIN TO
IMPLEMENT IT
TODAY, WILL
THERE BE A
SIGNIFICANT
IMPROVEMENT
FOR THE FUTURE.

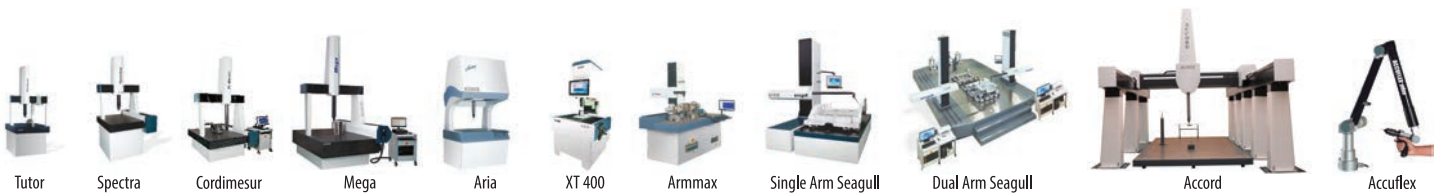


Made in India, Delivered Globally



Complete 3D Coordinate Measuring Solutions

CMM Range available up to 10 meter



Applications: • Power train • Sheet metal & BIW • Engineering • Locomotives & Rail Bogies • Aerospace • Dies & Moulds • Gears

ACCURATE

Partnering Quality

3D CMM, Precision Measuring Instruments & Services

ACCURATE SALES AND SERVICES PVT LTD

Gauge House, 67, Hadapsar Industrial Estate, Pune-411 013, Maharashtra, India.

T: +91-20-66039000, 66039204 | E: sales@accuratesales.co.in

Branches: Ahemdabad, Bengaluru, Chennai, Coimbatore, Gurgaon, Hyderabad, Kolkata, Mumbai & Nasik

www accurategauging.com

UNLEASHING THE CAM POTENTIAL

An insight into the myriad improvements in hardware and software capabilities that have led to a substantial increase in CNC manufacturing productivity without sacrificing quality.

BRIAN SUMMERS
Vice President
CNC Software, Inc.
marketing@mastercamindia.com



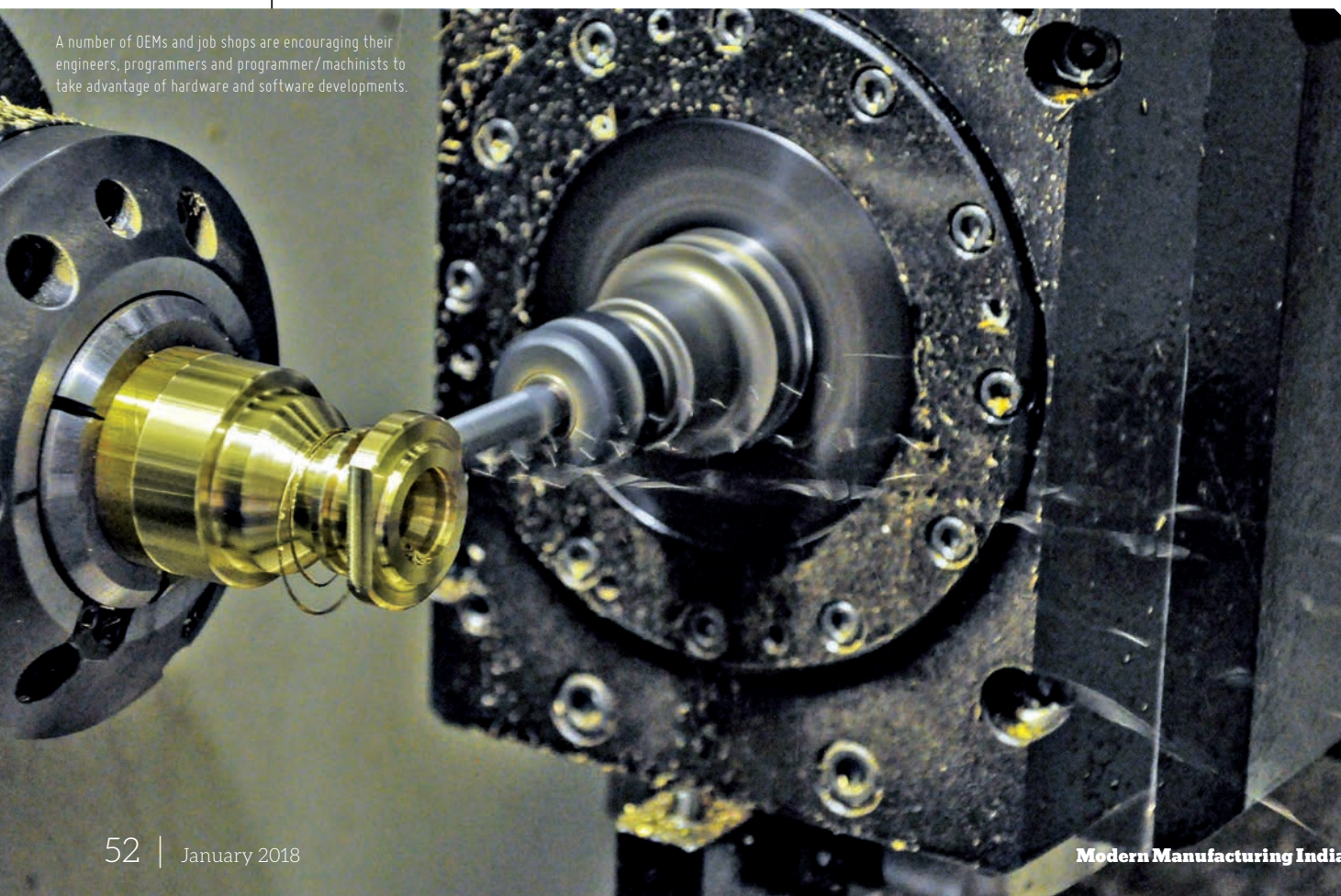
Machine builders, cutting tool vendors, workholding solutions designers and many others have been stepping up to the plate to deliver CNC manufacturing solutions capable of delivering substantial increases in productivity without sacrificing quality. CAD/CAM software developers have been working in tandem with these suppliers to integrate these emerging hardware

capabilities into their CNC programming environments. A number of OEMs and job shops are encouraging their engineers, programmers and programmer/machinists to take advantage of these hardware and software developments. Where these improvements have been installed, shops frequently realize increases in CNC manufacturing productivity ranging from 25 to 300 percent.

3+2 machining

The use of 5-axis equipment for 3+2 machining springs quickly to mind. Many manufacturers still shy away from purchasing 5-axis mills because of the perceived complexity of this manufacturing process and the fairly steep learning curve for becoming a competent 5-axis programmer. This is a justifiable concern for those contemplating the manufacturing of parts that require continuous 5-axis

A number of OEMs and job shops are encouraging their engineers, programmers and programmer/machinists to take advantage of hardware and software developments.



Source: CNC Software, Inc.

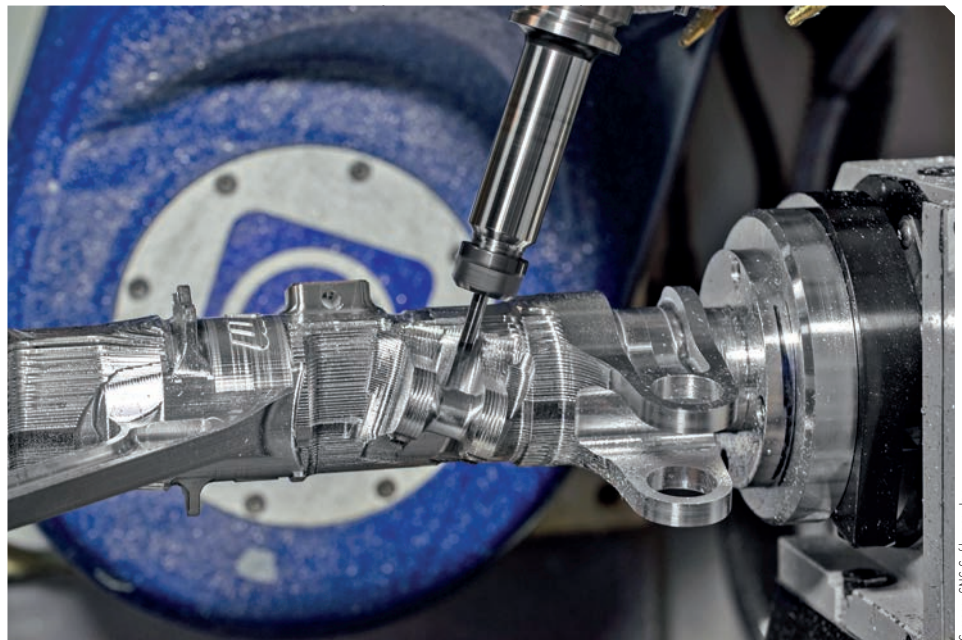
machining, but not the case for the majority of shops that only need to produce prismatic parts with features on multiple sides. Many 3-axis programmers find it easy to make the transition to 5-axis 3+2 work because these programs are essentially a compilation of 3-axis routines written in various work planes that are readily defined within the CAD/CAM environment. The 3+2 approach makes it easier to visualize the complete part for more accurate tool presentation, eliminates the creation of multiple workholding solutions, eliminates the time and stacking errors of multiple setups. Best of all the work of multiple machines can be performed many times faster and more accurately within the compact footprint of a single machine.

C-axis lathes

Employing C-axis lathes to make prismatic parts is an analogous situation. The 3D milling capabilities of today's CAD/CAM software for lathes is so comprehensive that C-axis lathes can be a superior choice for making a range of small parts that have only a small amount of turning content or none at all. The rotary axis is used for positioning so that multi-sided prismatic parts can be produced from continuously fed bar stock. This application, with a very low CNC programming learning curve, can produce spectacular productivity improvements.

Constant chip load machining

Then there is the case of constant chip load machining. Conventional CNC machining strategies constrain productivity based on worst-case conditions. Programmers dial back feeds and speeds to keep the tool from becoming buried in the corners. This approach



Source: CNC Software, Inc

sacrifices enormous amounts of productivity compared with strategies incorporating modern roughing toolpaths adjusting tool movements based on material conditions immediately ahead of the cutting tool. These CAM programs keep the tool cutting safely and rapidly based on a few simple cutting parameters, the most important of which is the cutting tool manufacturer's chip load recommendation for the material in question. Keep the chip load constant and the tool will cut safely at any speed or stepover.

It usually takes an experienced programmer about an afternoon of tutoring and experimenting to learn the basics of this strategy. Then a little more time may need to be invested making some test cuts as the constant chip load toolpaths are adapted to new applications and materials. The RoI on these time investments typically occur within days and the payback continues unceasingly.

Finding solutions despite challenges

Unfortunately, far too many

Due to the developments in hardware and software, shops now realize increase in CNC manufacturing productivity ranging from 25 to 300 percent.

THOSE WHO HAVE ADOPTED 'YOU CAN'T GET THERE FROM HERE' POINT OF VIEW WILL ALMOST CERTAINLY PROVE THEMSELVES TO BE RIGHT. ON THE OTHER HAND, THOSE WHO WANT TO FIND A BETTER WAY CAN TAKE ENCOURAGEMENT FROM THOSE WHO HAVE ALREADY SET OUT ON THIS PATH.

manufacturing businesses remain on the sidelines of the productivity improvement game because their managers find themselves faced with too many day-to-day challenges coupled with insufficient manpower resources. While this problem is widespread and one we can all relate to, the fact remains that some companies that are equally constrained are finding the time to improve their CNC manufacturing productivity anyway.

Those who have adopted "you can't get there from here" point of view will almost certainly prove themselves to be right. On the other hand, those who want to find a better way can take encouragement from those who have already set out on this path. They also will discover that there are many machine builders, cutting tool vendors and CAD/CAM representatives who are ready, willing and able to help. Each discipline has the characteristics when combined appropriately with each other offers the maximum efficiency for your job. All you need to do is ask.



A CUT ABOVE

A wide range of advantages offered by fiber laser cutting technology renders it the preferred choice over CO₂ for flat sheet metal processing.

Source: LVD-Strippit India Pvt Ltd



Source: LVD-Strippit India Pvt Ltd

Fiber laser technology is more flexible than ever before. Today's fiber laser cutting machines can efficiently cut a broad range of material types and thicknesses.

Fast processing speeds, high process quality, high wall-plug efficiency, superior reliability and minimal maintenance requirements are key reasons fabricators turn to fiber laser cutting technology for sheet metal processing. As fiber laser cutting machines become even more flexible – able to cut a wider range of material types and thicknesses using higher power laser sources and with larger sheet carrying capacity – the advantages are amplified. For flat sheet metal cutting, the fiber laser is the technology of choice.

A better edge

In its infancy, fiber laser cutting was best suited for thin materials (6 mm thick or less). While fiber was able to cut stainless and aluminum,

the quality of the cutting edge was inferior to CO₂. As fiber technology has matured, so has its capability. Today, fiber lasers can match or outperform conventional CO₂ lasers on thick materials, including mild steel, stainless steel and aluminum. The fiber laser is also able to process non-ferrous materials such as copper and brass as its shorter wavelength is better absorbed by these highly reflective and conductive materials. The modern-day fiber laser is suited to cut both thin and thick materials and a range of material types.

Auto focus/zoom

Advancements in cutting head design help make the fiber laser more flexible. The machine controlled and automated independent

adjustment of focus position and focus diameter (so called, “zoom focus”) is one such advancement. Available on certain models of fiber lasers, zoom focus control can dramatically improve piercing times, cutting speeds and cut performance in all material types and thicknesses, increase throughput and reduce the need for operator intervention. To make zoom capability possible, a collimator was introduced in the area above the cutting head, using two additional optics. Both optics are motorized and can move independently, much like a zoom lens in a camera, allowing the focal point to be expanded or decreased. The focus position changes by moving the collimation lens. The focus diameter can be changed by varying the focal length of the collimation. Independent/automatic control of the focus position and diameter makes it possible to cut different sheet thicknesses without manual intervention.

Machine controlled adjustment of focus position and focus diameter will maximize productivity no matter the material or material thickness. However, zoom focus provides a clear advantage when cutting thick material (20 mm). While both conventional and zoom focus laser cutting heads can achieve fast cutting speeds in light-gauge materials, only a zoom head design is recommended for thick plate processing.



Source: LVD-Strippt India Pvt Ltd

An advanced optical design features motorized adjustment of focus position and focus diameter.

Piercing optimized

Piercing is also better handled by zoom technology. A significant challenge when cutting thick mild steel is to create a fast and stable piercing process. The machine-controlled focus adjustment (zoom focus) optimizes the piercing process by enhancing piercing stability and quality.

Piercing times are significantly reduced in thick mild steel versus CO₂ technology. In part, this is because the absorptivity of metal surfaces is higher for the shorter wavelength fiber laser radiation compared to the longer wavelength CO₂ laser radiation. Another factor is the improved (zoom focus) technology in the fiber laser cutting head. By increasing the magnification (spot size), the half angle divergence decreases. This enables a reduced amount

TODAY, FIBER LASERS CAN MATCH OR OUTPERFORM CONVENTIONAL CO₂ LASERS ON THICK MATERIALS, INCLUDING MILD STEEL, STAINLESS STEEL AND ALUMINUM. THEY ARE SUITED TO CUT BOTH THIN AND THICK MATERIALS AND A RANGE OF MATERIAL TYPES.

LVD will exhibit the Lynx FL 3015 at IMTEX 2018. Lynx makes entry into the world of fiber laser technology easy in a machine that's capable, easy to use, and an investment that is within reach for most shops.

of molten material and hence results in faster processing. It takes a high-powered CO₂ laser 10 to 15 seconds to make a small pierce hole in 20 mm thick mild steel. Using a zoom focus cutting head, we can now pierce in only two seconds. Considering an average of 500 holes/plates, the resulting savings can be significant.

Higher power

Laser manufacturers are developing more powerful fiber laser sources and optical systems, driven by the end-user need to cut a broader range of materials in varying thicknesses. When cutting steel with nitrogen, a 6000 W fiber laser offers significantly more versatility than 3 kW and 4 kW systems. For example, using nitrogen to process 6 mm steel, a 6 kW fiber laser can cut at 5200 mm/min compared to 2800 mm/min for a 4 kW fiber laser. The higher power level opens the door to cutting a wider range of sheet metal thicknesses, which in turn makes more design and engineering opportunities possible.


LVD recently introduced the 8 kW Electra fiber laser. The machine incorporates a "smooth lead-in" feature, which guarantees a much faster but stable lead-in after fast piercing when cutting thicker material (greater than 6 mm) with Nitrogen, resulting in an average gain of up to 15 per cent on part cutting times.

Upgraded

The latest fiber laser cutting machines, like LVD's Phoenix 4020 and Phoenix 6020 models, feature upgraded drive systems able to deliver dynamic cutting performance when processing large format sheets (4000 x 2000 mm; 6000 x 2000 mm). High cut quality is maintained across the entire length of the workpiece at high processing speeds. The ability to process large sheets allows the user to maximize material usage, making the cutting process more cost competitive.

Lower costs

Since its introduction, fiber laser has had the advantage of reducing variable costs in electricity, laser gas and consumables. A 6 kW fiber laser uses significantly less energy than its 6 kW CO₂ counterpart, making it more cost-efficient to operate. In one example, the maximum energy consumption of a 6 kW CO₂ was 81.5 kW. In comparison, the same configuration of 6 kW fiber laser had a maximum consumption of 21.1 kW - a dramatic 74 percent lower energy usage rate.

A fiber laser is also low-maintenance, having no mirrors and a simple beam delivery system. In fact, fiber laser sources can be virtually maintenance free, providing consistent power delivery for thousands of hours without the need for any maintenance intervention. 



Source: LVD-Strippt India Pvt Ltd



TECHNOLOGY @ work



19th Indian Metal-Cutting Machine Tool Exhibition with International participation



21st International Exhibition of Cutting Tools, Tooling Systems, Machine Tool Accessories, Metrology & CAD / CAM

24 - 30 January 2019, Bangalore, India

Celebrating 50 years of **IMTEX**

Organiser



Indian Machine Tool
Manufacturers' Association

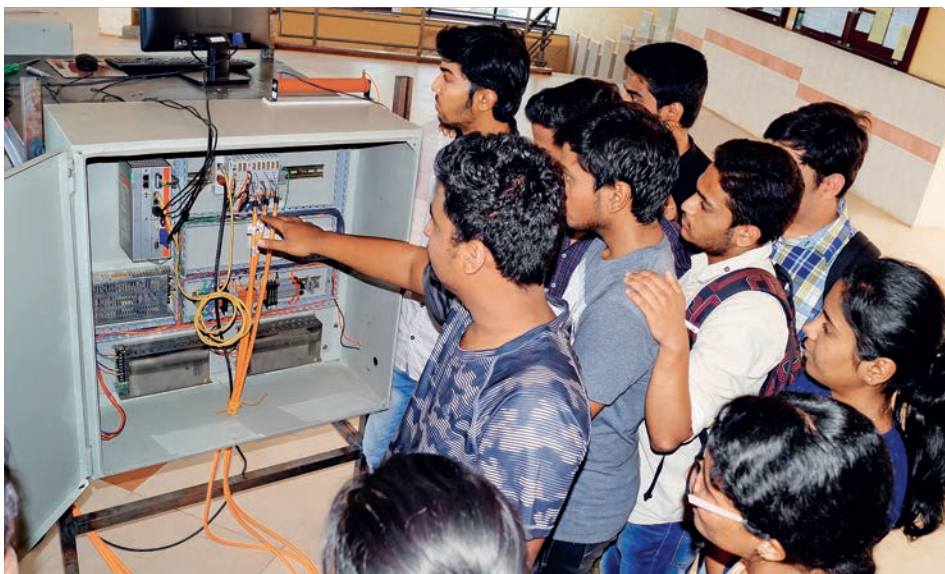
Venue



www.imtex.in

EMPOWERING THE ENGINEERS OF TOMORROW

Beckhoff Automation Pvt Ltd has joined forces with the academia to help put Research & Development on the forefront and drive the technological advancements in the industry, opening new business opportunities for economic growth. Learn about its initiative that has to motivate others to follow suit.



Source: KJ Somaiya Institute of Engineering & Information Technology

The use of computers for Automation for machine control is a highly efficient manufacturing process. Since it is a new concept, the immediate need is to get young graduates exposed to the latest technologies that involve IT, ITES and Core engineering.

Beckhoff has extended support

In the attempt to bridge this gap between the industry and the academia, Beckhoff Automation Pvt Ltd, the Indian subsidiary of Beckhoff Automation GmbH - Germany, has taken a small step towards building talent in a few selected engineering institutes to make engineers ready for the industry.

Beckhoff technology is proven in industry for its high-performance automation using Industrial PCs, Fieldbus I/Os and the Windows-based Control Automation Software.

30 years ago, Beckhoff envisioned the Software PLC and Motion functionality on a single powerful PC hardware platform which has today become a global industrial standard. The company has been continuously investing in R&D for innovative technologies in the field of Automation be it Compact IPC or DIN Rail mounted Embedded PC or 36 Core Server IPC or Slice I/Os in Bus Terminal format or Real Time Ethernet fieldbus EtherCAT or One Cable Technology for Servo Motors, 12 mm Compact Servo Drives, One

Beckhoff Automation (India) has taken a small step towards building talent in a few selected engineering institutes to make engineers ready for the industry.

The relationship between the industry and the academia in industrially progressive nations has evolved and sustained, which is evident from their technological developments and industrial growth.

However, in India, the scene is quite different despite we having a large number of engineering institutes that produce an equally large number of engineering graduates every year. The onus is on the industries and not on the academicians. R&D is still restricted to premium institutes like IITs and IISc. The quality of engineering graduates available for employment is again dubious, which keeps them poorly employed or even unemployed. This has resulted in the engineers working in

fields other than their core engineering for monetary gains. Since 2014, the Government of India has been aggressive about 'Make in India', 'Skill India', and other employment generating progressive reforms that also require trained engineering manpower which the institutes are failing to deliver.

Automation is the need of the hour

This applies more to Automation Industry which needs creative thinking for overcoming challenges in manufacturing sector. Automation is an integrated engineering that needs multiple branches like Mechanical, Electrical, Electronics, Communication, Instrumentation Mechatronics, Bioelectronics, and Information Technology etc.

POONAM PEDNEKAR
Chief Copy Editor
Magic Wand Media Inc
poonam.pednekar@magicwandmedia.org



Cable Automation EtherCAT-P, TwinCAT-3 software tool or TwinCAT HMI a virtual visualisation and the list goes on. "We strongly believe in helping Indian equipment manufacturers to produce world-class equipment using Beckhoff technology so that they can compete in the global market," stated Jitendrakumar Kataria, Managing Director, Beckhoff Automation (India).

Joining hands with academia

Beckhoff Automation (India) undertakes awareness programs for the undergraduate and post graduate engineering students with the consent of their institutes and offers full-fledged Automation trainings to those taking further interest.

The company shares these technologies with young engineers and encourages them to undertake their final year projects or research projects using them. It also offers training courses for the faculties and research students for their sponsored projects.

The institutes provide the PC-based Automation Lab infrastructure within the premises where students learn and practise the technology.

Many renowned engineering colleges in Karnataka, Tamil Nadu, Maharashtra, Punjab etc. have MOUs signed with Beckhoff Automation (India).

Bringing industry scene to the university

KLE Technological University of Hubli had an MoU with Beckhoff Automation (India) to develop a center of competency in PC-based Automation in the year 2012. Following which a laboratory was set up with all the resources to train the faculty and students in PC-based automation using Beckhoff's software TwinCAT and its EtherCAT-based hardware.

"The overall experience has

BECKHOFF AUTOMATION (INDIA) UNDERTAKES AWARENESS PROGRAMS FOR THE UNDERGRADUATE AND POST GRADUATE ENGINEERING STUDENTS WITH THE CONSENT OF THEIR INSTITUTES AND OFFERS FULL-FLEDGED AUTOMATION TRAININGS TO THOSE TAKING FURTHER INTEREST.

Beckhoff Automation (India) helps engineering institutes set up industry relevant labs.

been very good with Beckhoff Automation (India) team. We have received excellent support in terms of technology and training from them due to which our students have started developing industrial grade Automation and Robots using EtherCAT technology," said Arunkumar C Giriapur, Head, Department of Automation & Robotics, KLE Technological University.

The department has framed the curriculum so that industry relevant subjects are taught to the students. The subjects also have labs associated with them. Industrial grade hydraulics and pneumatics, industrial robots, PC-based automation, real-time embedded systems, etc. are some of the laboratories developed. "Students are also encouraged to visit industries to identify problems. Ready platforms are provided to student teams to do their project work as well as to



"The overall experience has been very good with Beckhoff Automation (India) team. We have received excellent support in terms of technology and training from them due to which our students have started developing industrial grade Automation and Robots using EtherCAT technology."

Prof Arunkumar C Giriapur
Head, Dept. of Automation & Robotics
KLE Technological University

Automation (India) team. The project 'Development of a flexible and modular delta robot platform' was recently exhibited in a project fair in South Korea by invitation




Source: Beckhoff Automation Pvt Ltd

get research experience. Experts from the industry are members in our Board of studies who review the curriculum and update it from time to time," he explained.

Benefits are trickling in

As expected, such association has been of tremendous advantage to the institute. "The final year student teams have done a couple of projects with Beckhoff

and now will also be displayed in IMTEX FORMING 2018," said Giriapur.

Another was a research project on developing a new parallel kinematic machine. The students who were involved in the projects have been absorbed by robot manufacturing companies, Fanuc and TAL. A few students have also got admission for Master's degree in European Universities. 

we keep
your
metal
healthy



8th to 11th February

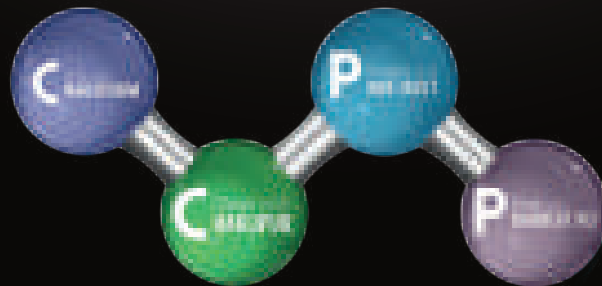
HALL - 7D
BOOTH NO - 12

Cut with
HAKUFORM®
neat and water
soluble cutting
fluids

Clean with
HAKUPUR®
advanced
aqueous
cleaners

Protect with
NOX-RUST®
liquids and
waxes



Pack with
DAUBERT VCI®
papers and
films



SCAN TO
KNOW MORE



FOLLOW US ON   

WWW.ZAVENIR.COM  +91 124 4981000  MARKETING@ZAVENIR.COM

EVENT CALENDAR		
EVENT NAME	CONTACT	DATE & VENUE
IMTEX FORMING 2018	T: +91 (80) 6624 6600 E: imtma@imtma.in www.imtex.in	January 25–30, 2018 Bangalore International Exhibition Centre (BIEC), Bangalore, India
METAV 2018	T: +49 (0) 69 756081 53/54 E: metav@vdw.de www.metav.com	February 20–24, 2017 Düsseldorf, Germany
MACH 2018	T: + 44 (0) 20 7298 6400 E: mach@mta.org.uk www.machexhibition.com	April 09–13, 2018 NEC BIRMINGHAM, UK
DIE & MOULD INDIA INTERNATIONAL EXHIBITION	T: +91 (22) 2852 6876/2850 8976 E: tagma.diemould@tagmaindia.org www.diemouldindia.org	April 11–14, 2018 Bombay Exhibition Centre, Goregaon, Mumbai, India
ACMEE 2018	T: + 91 (44) 2625 0489 E: info@acmee.in www.acmee.in	June 21–25, 2018 Chennai Trade Centre, Chennai, India
31.BI-MU	T: +39 0226 255 860 E: bimu.esp@ucimu.it www.bimu.it/en/home/	October 9–13, 2018 fieramilano Rho, Italy
JIMTOF 2018	T: + 81 (03) 5530 1333 E: jimtof@tokyo-bigsight.co.jp www.jimtof.org/en	November 01–06, 2018 Tokyo International Exhibition Centre, Tokyo, Japan
TIMTOS 2019	T: +886 (2) 2725 1111 E: timtos@taitra.org.tw www.timtos.com.tw	March 05–10, 2019 Taipei World Trade Center (TWTC), Taipei, Taiwan
INTEC 2019	T: + 91 (422) 2222 396 E: intec@codissia.com www.intec.codissia.com	June 06–10, 2019 CODISSIA Trade Fair Complex, Coimbatore, India

To suggest an event, please send details to soumi.mitra@magicwandmedia.in



11th DIE & MOULD INDIA INTERNATIONAL EXHIBITION

11 - 12 - 13 - 14 APRIL 2018

**Bombay Exhibition Centre,
Goregaon, Mumbai, India**

EXHIBIT RANGE

- Additive Manufacturing / 3D Printing
- CAD / CAM system related to Dies & Moulds
- CNC Milling / Machining Centre, EDM etc.
- Coating
- Cutting Tools
- Digitizing
- Die/mould polishing/ Die Spotting machines
- Dies & Moulds, Press Tools, Jigs, Fixture, Gauges
- Heat Treatment
- Hot Runner System
- Injection Moulding Machine
- Machine Tools & Accessories for Dies Moulds
- Measuring Machines, Quality Assurance / Metrology
- Mould base & standard parts of Dies & Moulds, Toolings
- Moulding machines/ Die Casting machines, Sheet Metal Presses & ancillaries
- Precision Machining / Aerospace
- Rapid Prototyping & Tooling
- Surface Treatment
- Texturizing
- Tool Steel
- All ancillary materials, equipments, accessories, consumables, services & automation covering Die & Mould industry

SUPPORTED BY:



WHY TO PARTICIPATE?

- Unique Industry event of Die & Mould Industry, once in 2 years to showcase capabilities, innovation, new technology, process and equipments
- Consolidate business relationship
- Initiate and nurture new bonds/ diversify

HIGHLIGHTS:

Introducing -

**3D Metrology
Printing Pavilion**

Overseas Delegation

Supporting Partner Association



Organised by:

TAGMA INDIA TOOL AND GAUGE
MANUFACTURERS
ASSOCIATION - INDIA

A-33, NandJyot Indl. Estate, Safed Pool, A.K. Road, Mumbai- 72

Tel: +91-22-28526876/ 28508976 Fax: +91-22-28503273

Email: tagma.mumbai@tagmaindia.org & tagma.diemould@tagmaindia.org

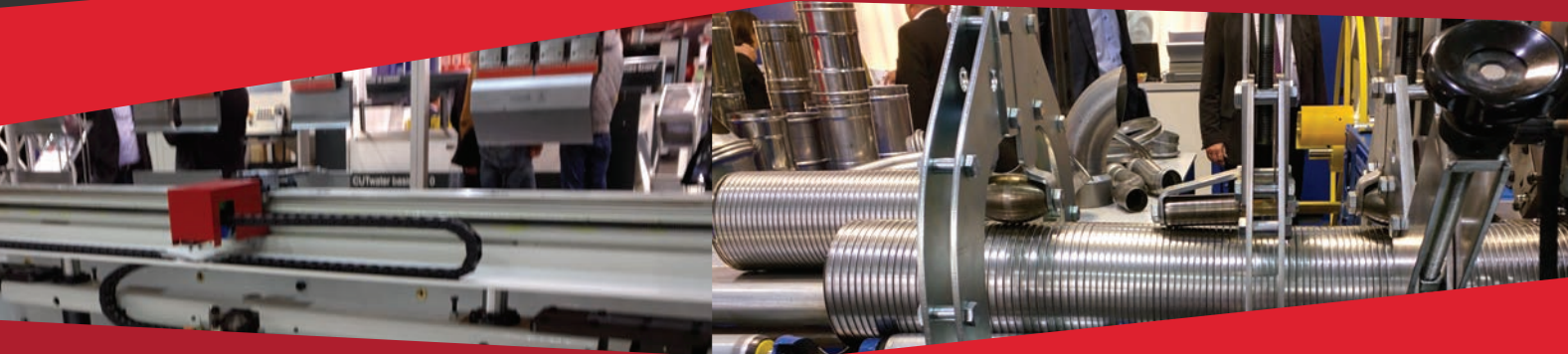
Witness the latest developments and trends in Forming Technology



International Seminar on Forming Technology

"Stretching the Limits"

24 January 2018, BIEC, Bangalore



With a view to highlight, inspire and infuse adoption of the evolving trends in Forming Technologies, Indian Machine Tool Manufacturers' Association (IMTMA) is organizing a one day "International Seminar on Forming Technology 2018" on 24 January 2018 in conjunction with IMTEX FORMING 2018 exhibition at Bangalore International Exhibition Centre (BIEC), Bangalore.

Keynote Address : Latest Trends in Manufacturing Technology for Increasing use of Composites in Aerospace and the Automotive Sector, Dr. Dirk Landgrebe, Fraunhofer IWU, Germany

PARALLEL CONCURRENT SESSIONS

Process	Equipment & Software	Materials & Tools
"Innovative Process Chains for Alternative Drive Concepts in e-mobility" - Fraunhofer IWU, Germany	"Trends in Metal Forming - Press Shop of the Future" - AIDA, Italy	"Hot Stamping Dies : Practical Case Study" - Schuler, Germany
"New Processes for Composite Production in Automotive and Aerospace Industry" - Dieffenbacher, Germany	"Hot Forming Presses" - AP&T, Sweden + ISGEC, India	"Laser Die Hardening" - Laserline, Germany
"New Manufacturing Concept (Monozukuri) for Machine Tools' Cover" - Amada, India	"Recent Developments in Flow Forming & Spin Forming Machines" - MJC Engineering & Technology, USA	"Capability Building for Skin Panel Stamping Dies" - Mahindra & Mahindra, India
"Transforming the Ordinary into Extraordinary through Tube Hydroforming" - Electropneumatics & Hydraulics, India	"Driving Productivity in Stamping through Technological Innovations" - Autoform, Germany	"Advanced Materials for Forming Applications" - IIT Bombay, India
"A case for IC Engine from Sheet Metal" - IIT Bombay, India	"Evolution and Innovations at Punch Press Machine" - Trumpf, Germany	"Determining Formability of Sheet Metal" - APM Technologies, India
"3D Roll Forming Center for Rapid Prototyping of Automotive Parts" - data M Sheet Metal Solutions, Germany	"Process Chain Simulation to Investigate Functional Properties" - Simufact, Germany	"Adhesive Technology for Leak Proof Sheet Metal Part Joining" - 3M, India

While the participants come to attend this International Seminar on 24 January 2018 it is a good opportunity to visit IMTEXFORMING 2018 exhibition scheduled at BIEC from 25 - 30 January 2018.

Registration for participation must be made online only.
To register online, log on to www.imtma.in/isft2018

Organised by



**Indian Machine Tool
Manufacturers'
Association**

www.imtma.in

For event details or any queries / clarifications during 'Online Registration' process, please contact
Prashant Kulkarni, tel : 080-66246805; (prashant.k@imtma.in)
Abhishek, tel : 080-66246829; (abhishek@imtma.in)
Laxmikant, tel : 080-66246665; (laxmikant@imtma.in)
Mobile : +91 9886611007



1. FINISHING AND COATING PLANTS
A) Surface Pre-Treatment lines

- Dip Line: Manual /Automatic (PLC based)
- Spray Line :Continuous / Intermittent
- Combination Of Both Spray and Dip System
- Water Dry-Off Ovens . Batch / Continuous

B) Liquid / Powder Coating Plants

- Booths
- Curing Ovens
- Conveyor Systems
- Air Handling Units

C) Geomat / Dacro Coating Plants

- Hydro Dryer
- Dip and Spin Unit
- Preheating / Curing Ovens
- Environmental Chamber
- Products Handling System

D) Rear View Mirror Plants

- Glass bending furnace
- Glass washing line
- Curtain coaters
- Curing ovens
- Shrink fit ovens

2. INDUSTRIAL OVENS
A. Batch Ovens

- Shelf / Tray Ovens
- Truck / Trolley Ovens
- Tunnel Ovens
- Walk in Ovens

B. Conveyor Ovens

- Flat Belt / Vertical Ovens
- Over Head / Floor Monorail
- Camel Back / Bell Shape
- Zip Ovens

C. Infra-Red Heating Systems

- On Flat Belt, Overhead / Floor Conveyor System
- Short / Medium / Long Wave
- R.Lamps | Electrical / Gas Fired I.R. Emitters
- With Advanced Controls

3. FACTORY AUTOMATION CONVEYORS
A. Assembly Conveyor with

- Work Stations Light Arrangement
- Bin Arrangement

B. Transmission Conveyors

- Belt / Monorail

C. Monorail Conveyor

- Floor / Overhead

D. Belt Conveyors

- Straight / Incline

E. Roller Conveyors

- Ideal / Power

F. Slat Conveyor

- Straight / Flexible

PAINTING PLANTS

PAINTING PLANT WITH SPRAY PT

FLOOR MONORAIL PAINTING PLANT

LIQUID DIP PAINTING PLANT

POWER COATING PLANT

**DIP PT PLANT WITH
PLC BASED TRANSPORTER**

AIR SUPPLY UNIT
INDUSTRIAL OVENS

ROTOR CURING OVEN

IR. CONVEYOR OVEN

VERTICAL CONVEYOR OVEN

BATCH OVEN

VERTICAL OPENABLE BATCH OVEN

TRAY DRYER
CONVEYOR SYSTEM

LOADING / UNLOADING CONVEYOR

ASSEMBLY CONVEYOR

INCLINE CONVEYOR

**Satisfying the Domestic & International Markets
Since 1958.**

PLOT NO. 43-44, SECTOR-34, EHTP, GURGAON - 122001 (HARYANA) INDIA.
TEL- +91-124-237 1106/ 2371820/ 403 0679/ 403 3679, +91-11-2811 1173,2811 2609

FAX - +91-124-237 2859 / +91-11-2811 2989

Contact Person: Mr. Rajesh Narang - Mob: 98100 54075 / 98711 95988

E-Mail - corporate@nswindia.com

Website : www.nswindia.com

SCALING THE LADDER OF SUCCESS

The end of the last year marked a new beginning for Ace Manufacturing Systems Ltd (AMS). The leader in machining centers has beefed up its already hard-to-reckon-with manufacturing prowess with a new facility, taking it closer to its present goal.



P Ramadas, MD, AMS & President, IMTMA (first from left), along with industry leaders at the inauguration of the company's new facility in Bengaluru.

The leading manufacturer of machining centers in India, Ace Manufacturing Systems (AMS) Ltd, an Ace Micromatic Group company, last month inaugurated its new facility in Bengaluru, adding another feather to its already adorned cap.

Facility for enhanced capacity

AMS has evolved from a small size to one of the largest CNC Machining Centers Manufacturers in India. It is also a single source supplier of machines to many Indian OEMs and large size component manufacturers. Many of the AMS' high accuracy machining centers

find applications in industries like Automobile, Die & Mould, Aerospace, Medical and dental equipment manufacturing. It also caters to the need of engineering and defence industries including power, energy and other government sectors.

Last year, AMS witnessed a huge surge in demand for machine tools including horizontal machining centers (HMCs). The latest addition ensures to meet that by increasing the production capacity from 1,200 to 3,000 CNC machining centers per annum, thus making it the largest facility in India for machining centers. AMS is now working towards its vision to produce 10,000 and then to 30,000 machines per year.

The facility includes capacity to build large-sized HMCs. A portion of this space is dedicated for automated turnkey solutions. "We are proud to announce that many of our VMCs, Twin spindle machining centers and HMCs are producing precision components for some of the best automotive manufacturers globally such as Daimler Group, Jaguar Land-Rover Group, Bentley, Maserati, BMW, Volvo, etc. We are investing in stronger processes to enhance our productivity and efficiency. We are running on SAP for all our internal processes," said P Ramadas, Managing Director, AMS & President, Indian Machine Tool Manufacturers' Association

P K CHATTERJEE
Senior Correspondent
Magic Wand Media Inc
info@magicwandmedia.in



(IMTMA), while explaining the new facility at its inauguration. With the state-of-the-art manufacturing technology in the new plant, AMS plans to cater to a wider customer base from various industries with its myriad range of products, which is formally recognized by the GoI.

Repeat customers are a motivation

The facility was inaugurated in presence of the doyens of the leading Indian Automotive Groups. The dignitaries on the dais included AMS' leading customers whose consistent support was acknowledged by Ramadas: "Customers, whom we consider as God, are the focal point of all activities at AMS. We strongly believe they are the reason for our existence and growth."

The customers who graced the occasion included:

Viji Santhanam, MD, Brakes India Ltd. The company is AMS' second largest customer after Sundaram Clayton with over 300 machines population;

Dr Manickam M, Chairman, Shakti Group. One of the most diverse group of companies has more than 170 machines of AMS;

RS Zanvar, Chairman, Shriram Foundry Ltd of Zanvar Group which is the largest user of AMS' HMCs with more than 100 machines;

Gautam Maini, MD, Maini Precision Products Ltd. The company has always preferred AMS as its supplier of machines for most of its requirements;

G Parthipan, CEO, Rane TRW Steering Systems Ltd. AMS' relationship with Rane Group dates back to two decades in which many machines for critical components have been supplied;



Source: AMS

VN Vijayaraghavan, MD of IM Gears Pvt Ltd that has made AMS its partner in the growth journey;

Kohari san - Member of the Board, FANUC Corporation - Japan. It's due to his strong support, the company could avoid delays in delivery of CNC packages in the past many years;

Steven Y Pai, Chairman, Precision Motion Industries, INC. (PMI Taiwan), whose timely response to the company's demanding requirement of precision class components relieved AMS from a portion of its demand supply issue.

"In the past 24 years of its existence, AMS has had its share of ups and downs. However, with strong determination and dedication we have converted every challenge into an opportunity and leaped forward. We are proud to say today we have repeat customer base of over 70 percent. We are ever grateful to all of our customers who have put their trust in us and returned year after year," added Ramadas.


Umesh LS, CEO, AMS, joined in thanking the company's

Most of the industry fraternity present at the inauguration of the new facility comprised of AMS' customers who have been with the company through its ups and downs.

stakeholders: "It is these companies who have pushed us so that we expand. I thank them on my behalf and AMS for being here today."

Also present to grace the occasion were the Directors of Ace Micromatic Group: AV Sathe, Chairman, Ace Designers & Pragati Automation Pvt Ltd; SG Shirgurkar, Managing Director, Ace Designers Ltd; and B Machado, Managing Director, Ace Designers Ltd.

Plans ahead

Ramadas, in his speech, spoke of the bullish trend in India which he expects to continue for the next 3 to 5 years with small corrections. He expressed his goal of being able to produce and sell machines to the full capacity of the factory by the year 2021. "Currently we have a presence in over 15 countries. Our focus on export markets will continue through strengthening relationship with our dealer partners and the introduction of dealers in new markets," he noted. AMS has procured a larger piece of industrial land of 50 acres in size about 30 km from the present facility. "If the trend continues as anticipated we should start using this land by 2022," he revealed. 

WITH THE STATE-OF-THE-ART MANUFACTURING TECHNOLOGY IN THE NEW PLANT, AMS PLANS TO CATER TO A WIDER CUSTOMER BASE FROM VARIOUS INDUSTRIES WITH ITS MYRIAD RANGE OF PRODUCTS, WHICH IS FORMALLY RECOGNIZED BY THE GOI.

GREAT TIME FOR GREAT BEGINNINGS



Source: Magic Wand Media Inc

S&T Machinery's (STM) recently inaugurated expanded facility at Coimbatore.

Market acceptance, improved business performance, and tremendous support from its customers have paved way to expand S&T Machinery Pvt Ltd's (STM) existing product lines. The company has recently inaugurated 7,000 sq ft of new Corporate Office Premises and an expanded new STM Factory Bay of 33,000 sq ft in Coimbatore. James Hsieh, President, Manford Machinery Co. Ltd (Taiwan) officiated the inaugural events.

Taking the leap

Earlier STM was a full-fledged trading company mostly into the distribution of conventional machines. Its vast experience in the machine tool industry made it understand the needs and requirements of the machining

industry. "On our way to achieve our lifetime dream of becoming a recognized machine tool builder and making technology more affordable, we entered into the manufacture arena of CNC machines about two and a half years ago," said D Shanmugasundaram, Managing Director, S&T Machinery.

"In June 2015, we launched the STM range of Machining Centers, a 'co-production venture', with our trusted Principal Manford Machinery Co. Ltd, aligned with the 'Make in India' initiative launched by our Honorable Prime Minister Shri Narendra Damodardas Modi," he added. With this joint venture strategy, STM provides global technology at an affordable cost to Indian customers. While completely assembled frames come from

With the aim to enhance its manufacturing capacity in India and tap the growing market demand, Coimbatore-based S&T Machinery Pvt Ltd (STM) recently inaugurated its second machine tool manufacturing facility. The company has joined forces with software manufacturer Autodesk to make high-end technology affordable and easily accessible to its customers.

Taiwan, CNC controller integration, the guarding, electrical works, application testing and final inspection is done at STM factory unit in India.

STM had been talking to the President of Manford (Taiwan) about foraying into manufacturing for about eight years. Finally, in 2015, Hsieh agreed and motivated the company to go ahead. "Manford is a strong team in R&D of Machine Tools. We have been associated with STM for almost 30 years. It was three years ago that I spoke to Shanmugasundaram to set up a factory. STM is our most important partner in India, so we will do our best to support it," said Hsieh.

The upscale

"In the existing facility, we

POONAM PEDNEKAR
Chief Copy Editor
Magic Wand Media Inc
poonam.pednekar@magicwandmedia.org





“S&T Machinery has always been into making the power of technology affordable and accessible to every Indian customer.”

D Shanmugasundaram
Managing Director
S&T Machinery Pvt Ltd

can build about 30 machines monthly. With this expansion, we expect to build 75 machines,” said Shanmugasundaram.

With the new bay in existence, the company has double sized its manufacturing capacity to produce 5 models of CNC Turning Centers and 9 models of Double Column machines. Horizontal Machining Centers and Vertical Turning Centers will also be added into STM product range in the coming years.

Partnering with Autodesk

During the inauguration event, STM announced its collaboration with Autodesk to provide integrated hardware and software solution. Autodesk is a global software giant enabling the manufacturing sector to evolve and adopt advanced CAM solutions.

“Autodesk is committed to making affordable cutting-edge manufacturing solutions available to customers to help them transform their businesses. This resonated with Shan (Shanmugasundaram). It’s a win-win situation for everyone,” said



“We have been associated with STM for almost 30 years. It being our most important partner in India, we will do our best to support it.”

James Hsieh
President
Manford Machinery Co Ltd

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

PowerMill as the milling solution

With this one-shop-stop model, customers will get original licensed Autodesk software along with best-in-class STM machines. The target industry vertical for this hardware-software solution is dies and moulds market.

“Subscription-only model provides greater flexibility and affordability for businesses in adopting advanced CAM solutions. Autodesk’s PowerMill is one of the most comprehensive milling solutions for high-speed and 5-axis machining,” stated Gauba while briefing the benefits of the software.

The software promises expert performance, high-speed roughing, comprehensive finishing, and toolpath optimization.

Some of the features of PowerMill include:

Ribbon Interface: PowerMill 2018 includes a new user interface designed to shorten the learning curve for new



“Autodesk is committed to making affordable cutting-edge manufacturing solutions available to customers to help them transform their businesses. Our association with STM is a win-win situation for everyone.”


Pankaj Gauba
Head - Digital Manufacturing -
India & Middle East
Autodesk India Pvt Ltd

users whilst making it easier for existing users to discover commands that are relevant to the task in hand.

2.5D Programming: It provides an improved workflow for 2.5D programming. New interactive feature detection allows slots, pockets and chamfers to be created, grouped and edited dynamically using simple click and drag commands. New 2.5D toolpaths offer greater programming control and efficiency.

Rib Machining: The software includes improved toolpaths for the machining of deep, thin rib and slot features found in moulds and dies. New toolpath offsetting ensures a constant tool load is achieved for prolonged tool life and reduced likelihood of premature tool failure.

Every CAD Support: Imports surfaces, solids, or meshes from mainstream CAD systems. Creates high-quality NC code regardless of model quality.

Autodesk is the only CAM vendor that offers a professional onsite training to the customers to ensure that the software is used in the best possible manner. 

UNDER THE ARRANGEMENT, ALL THE STM CNCs WILL BE PRELOADED WITH THE AUTODESK CAM SOFTWARE, THUS MAKING THE HIGH-END TECHNOLOGY AFFORDABLE AND EASILY ACCESSIBLE TO CUSTOMERS.

Process Quality

PROCESS MONITORING DEVICES FOR SMART FORMING MANUFACTURING

The devices are fitted directly to the machine to record a process quality factor (PQ factor), which is displayed on the devices.

Source: MARPOSS INDIA Pvt Ltd

Whether it be in re-shaping, punching, pressing or metal cutting - process monitoring is the key to an optimised production. Process monitoring helps the worker in every phase: from the fitting of the machine to the observation of the production process to the quick stop in case of the threat of damage to the machine.

Any influencing quantities affecting the machine (or the process) will in the end be seen in the process quality. Thus, the process is affected by changes in the machines, in the tool, the

environment (temperature), etc. Only if this process has defined courses, will the product quality meet the requirements. Intentional or accidental changes to these influencing quantities will have an effect on the process quality.

Process monitoring with BRANKAMP sensors

By means of sensor technology, recording the course of the process between the tool and the work piece, the worker is able to watch the process purposefully. The relevant quantity will, in the following, be described as the PQ


(process quality) factor. The more sensitive the sensor technology and the more intelligent the measuring parts are, the better and more "accurate" is the PQ factor.

In addition, the worker will, in the course of time, learn to assess the PQ factor correctly. The standard display shows the current process factor, the highest PQ factor thus far, and a limit set by him. He can then draw the appropriate conclusions from observing any changes and intervene or optimise.

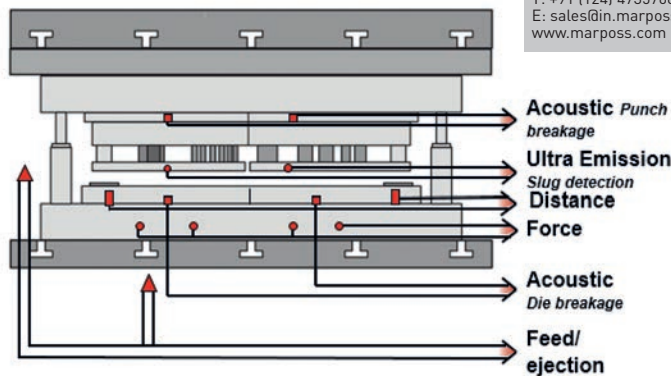
Marposs offers BRANKAMP process monitoring devices that are fitted directly to the machine to record a PQ factor, which is displayed on the devices.

To monitor a process, certain limits need to be set, with the process monitoring device basically initiating a warning or a stop.

Displaying suitable factors for the process provides the worker with considerable advantages with respect to the optimisation of the process and the ability to influence the costs. With the PQ factor, the worker, for the first time, has an objective measured variable by means of which he is able to assess the process quality. Benefits for implementing Process Monitoring include:

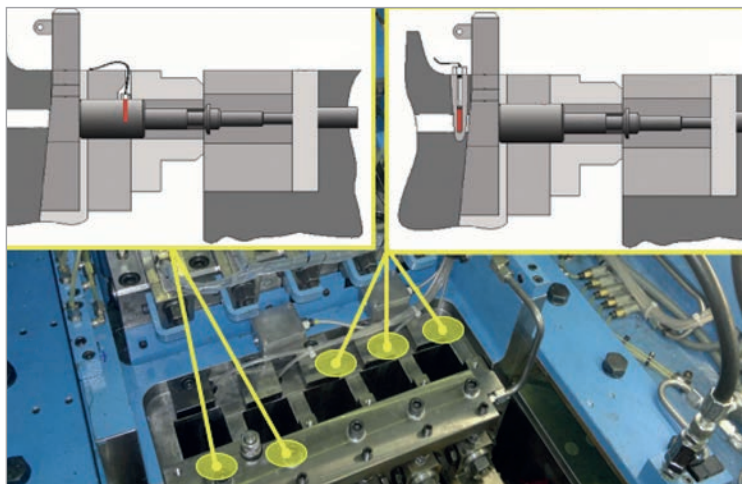
- Machine and tool protection
- In-process quality control
- Increased productivity due to extended run-time, reduced downtime and stroke optimization
- Minimized tool and scrap costs
- Process optimization for more stable processes
- FactoryNet 4.0 interface to the MES / ERP interface. 

MARPOSS INDIA Pvt Ltd
T: +91 (124) 4735700
E: sales@in.marposs.com
www.marposs.com



Source: MARPOSS INDIA Pvt Ltd

Various Sensor Positions in Stamping Press



Source: MARPOSS INDIA Pvt Ltd

Various Sensor Positions in Multistation Cold Forming Press

Marposs Monitoring Solution for SMART forming



Process optimisation

Machine protection

Big data analysis

Production management

Set-up help

Quality control

Tool protection

Productivity increase



 **BRANKAMP**
MARPOSS
www.marposs.com

Your magazine
is back with a
**new
look!**



The Official Magazine of
 Indian Machine Tool
Manufacturers' Association

In Association with
 Modern
Machine
Shop

M MODERN
MANUFACTURING
INDIA
WWW.MMINDIA.CO.IN

Contact:
Bangalore: Murali Sundaram
murali.sundaram@magicwandmedia.in
+91 9740048390
Mumbai: Arunima Nath
arunima.nath@magicwandmedia.in
+91 9833744969

Company Index

Ace Designers Ltd	64
Ace Manufacturing Systems Ltd	64
Autodesk India Pvt Ltd	66
Beckhoff Automation Pvt Ltd	57
Brakes India Ltd	64
Bystronic Laser India Pvt Ltd	34
CII	16
CNC Software, Inc.	52
FANUC Corporation – Japan	64
FARO Business Technologies (I) Pvt Ltd	34, 44
Fibro India Precision Products Pvt Ltd	38
Tecomet Inc	18
Godrej & Boyce Manufacturing Company Ltd	30, 34
IM Gears Pvt Ltd	64
IMTMA	6, 8, 12, 20, 34
ISGEC Heavy Engineering Ltd	34
KLE Technological University	57
Losma India Pvt Ltd	16
LVD-Strippit India Pvt Ltd	54
Maini Precision Products Ltd	64
Manford Machinery Co Ltd	66
Marposs India Pvt Ltd	68
Metal Forming Research Corporation	40
Micromatic Machine Tools Pvt Ltd	14
National University	40
Pragati Automation Pvt Ltd	64
Precision Motion Industries, INC	64
PTC India	48
Rane TRW Steering Systems Ltd	64
S&T Engineers Pvt Ltd	66
Sahajanand Laser Technology Ltd	34
Shakti Group	64
Shriram Foundry Ltd of Zanvar Group	64
State of Bavaria India Office - Invest in Bavaria	26
STIMS Institute Inc., USA	20
The Manufacturing Technologies Association	32
Yamazaki Mazak India Pvt Ltd	34

Advertiser Index

Accurate Sales and Services Pvt Ltd – www accurategauging.com	51
Ace Micromatic Group – www.acemicromatic.net	29
ACMEE -2018 – www.acmee.in	11
Apex Precision Mechatronix Pvt Ltd – www.apexprecision.co.in	49
Beckhoff Automation Pvt Ltd – www.beckhoff.co.in	25
Benign Enterprise Co.,Ltd – www.e-bemato.com	15
Forms & Gears – www.formsandgears.com	71
IMTEX 2019 – www.imtex.in	56
Intec 2019 – www.intec.codissia.com	47
Invest-in-Bavaria – www.invest-in-bavaria.in	27
International Seminar on Forming Technology – www.imtma/isft2018	62
Jyoti CNC Automation Ltd – www.jyoti.co.in	3
Kennametal India Ltd – www.kennametal.com	9
Marposs India Pvt Ltd – www.marposs.com	69
Meiban Engineering Technologies Pvt Ltd – www.meibanengg.com	43
Mitsubishi Electric India Pvt Ltd – www.mitsubishielectric.in	7
NSW India Ltd – www.nswindia.com	63
S&T Group – www.stmcnc.com	2
TaeguTec India Pvt Ltd – www.taegutec-india.com	72
TAGMA – www.tagmaindia.org	61
Wendt (India) Ltd – www.wendtindia.com	17
Zavenir Daubert – www.zavenir.com	59



Asia's Leading Fixture Builder for over 45 years.



"For over 45 years Forms & Gears has been supplying Precision Machining Centre Fixtures to the world's leading Auto OEMs and Machine Makers in Japan, Germany, UAE, Qatar, Thailand and all over India. Forms and Gears owns state of the art design and manufacturing facilities in Guindy, Chennai, housing one of the largest and best equipped tool room facilities in the country.



www.formsandgears.com



Forms & Gears

MF 11, Industrial Estate,
Guindy, Chennai 600 032.
Email : info@formsandgears.com
Phone : +91 98400 32111

smart milling

WITH THE ALL NEW..

D2MILL90°SN

8 EDGE ECONOMICAL AND RELIABLE SOLUTION FOR 90° FACE MILLING

- 8 corners for cost effective machining.
- 90deg rough to semi-finish face milling on thin walled components of SG iron, cast Iron and steel.
- Tougher cutting edge for larger depths up to 6mm.
- Helical edge provides for smooth and chatter free operation.
- Unique chip former for reducing chip contact area thus lowering operating temperature.
- Unique angled screw clamping gives secure insert clamping with higher pitch.
- Available in specialized grades for use on steel, SS, cast iron and heat resistant alloys.

8 EDGES
smart
milling

WHEN
COST SOUNDS LIKE A
FOUR-LETTER
WORD...
TURN TO OUR TOOLS!



Member IMC Group
Duracarb

Smart Indian Choice

sales@duracarb-india.com