VOL 2, ISSUE 4 - NOVEMBER-DECEMBER 2018

MODERN MANUFACTURING INDIA

WWW.MMINDIA.CO.IN

The Official Magazine of
Indian Machine Tool Manufacturers' Association
In Association with
Modern Machine Shop

50 years of IMTEX 1969-2019

WHEN GOALS MATTER!

AEROSPACE MACHINING: Accuracy Matters 44

DR V SUMANTRAN
Chairman
Celeris Technologies 34

DOUBLE YOUR OUTPUT WITH STM TWIN SPINDLE VMC

Presenting the all new twin spindle VMC from STM. The extra-wide and extremely stable base has 4 linear ways in combination with 6 blocks for table support, providing a solid support for the entire machine.

- **2 linear ways and 6 blocks on X axis**
- **4 linear ways and 6 blocks on Y axis**
- **4 box ways on Z axis**
- **Rapid traverse rates on X / Y axis: 30 m/min**
- **BT-40 / 8000 rpm / 11/15 kw belt drive spindle**
- **24 tools Arm type magazine**

IMTEX 2019

Hall - 2A, Stall No - A106

S&T GROUP since 1996

To know more about STM range of machining centers call us at **98652 33855**,
E-mail : info@stmcnc.com, visit us at www.stmcnc.com

Visit us @
IMTEX 2019
24th to 30th Jan.
Hall : 5 - Jyoti Pavilion

JYOTI

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

K3X8 Five Series nvu
CNC 5-Axis Bridge Type Machining Centers

nvu

We are what we repeatedly do.
Excellence then, is not an act, but a habit.
Aristotle

JYOTI CNC AUTOMATION LTD.
jyoti.co.in
G-506, G.I.D.C Lodhika, Village: Metoda, Dist: Rajkot-360 021, Gujarat(INDIA)
T: +91-2827-235100/101, E: info@jyoti.co.in, sales@jyoti.co.in

CONTENTS

VOL 2, ISSUE 4, NOVEMBER–DECEMBER 2018

64


68

IMPRINT

PUBLISHER &
DIRECTOR GENERAL & CEO, IMTMA
V Anbu

EDITORIAL
Editor-in-Chief
Soumi Mitra

Chief Copy Editor
Poonam Pednekar

Correspondent
Arunima Nath

Design
Magic Wand Media

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

Murali Sundaram, Magic Wand Media Inc
murali.sundaram@magicwandmedia.in

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.

IMTEX 2019 & TOOLTECH 2019 TO FUEL MANUFACTURING GROWTH

Dear Readers,

Indian manufacturing industry has journeyed several strides of challenges to reach the level of growth that we see now. The machine tool industry has been an enabler in this and acted as its backbone.

Associations such as Indian Machine Tool Manufacturers' Association (IMTMA), which have been active for past several decades, have made significant contributions to cater to the needs of the manufacturing industry.

IMTMA's flagship exhibition, 'IMTEX' has played a catalytic role in this by bringing technologies, innovations and new products under one roof to cater to the ever-growing needs of various industrial sectors.

IMTEX is now crossing a major milestone of 50 years. In its five decades' journey, IMTEX has supplemented the growth of Indian machine tool industry and also aided the development of the manufacturing industry by bringing technology advancements to its doorsteps.

Commemorating the journey, IMTMA has added two Special Pavilions on 'Factory of the Future' - Industry 4.0 and 'Additive Manufacturing' at IMTEX 2019 & Tooltech 2019. The pavilion on 'Factory of the Future' - Industry 4.0 will showcase the digital revolutions which are sweeping the manufacturing industry today. The expo on Additive Manufacturing will bring to manufacturing fraternity the latest developments in the field.

India is witnessing a significant growth in the manufacturing space. Industries, however, need to invest more in R&D and innovations as well as explore these technologies for improved profitability and sustainability. IMTEX provides an apt platform to witness these technologies closely and adopt them.

This issue of MMI includes an article from IMTMA depicting IMTEX's journey of 50 years and how the exhibition has served India's manufacturing sector. The onus is now on us to attune ourselves to the changing needs by adopting cutting-edge technologies. IMTEX 2019 & Tooltech 2109 could be a starting point if you haven't yet begun.

Happy reading!

P RAMADAS
President, IMTMA

SIGMA TOOLINGS

AN S.V.A.P. COMPANY

Speed of **Innovations** *Feed of* **Expertise**

Combination Boring | Antivibration Tools | Fine Boring Units
Fine Boring Heads | Customised Toolings | End to End Project Management

VISIT US
Hall 3C-C102

IMTEX 2019

24 - 30 JAN. 2019
BANGALORE, INDIA

Highlights

- Save Time
- Save Money
- Save Energy
- Boost Productivity
- Speedy Delivery

Headquarters :
Sigma Engineers, G 39/20,
MIDC Waluj, Aurangabad 431136,
Maharashtra, India
+91 9326194007 | +91 0240 6600606, 610

Sales and Corporate Office :
Sigma Engineers, BGP 10/20, 1st Floor,
Behind The Fern Residency, MIDC
Bhosari, Pune 411026, Maharashtra, India
+91 9272222511, +91 7620605251

@sigmatoolings1 @sigmatoolings @sigmatoolings @sigmatoolings

www.sigmatoolings.com

Dear MMI Readers,

We've had a remarkable 2018. Now we are entering that time of the year when businesses are strategizing for the year ahead, looking for ways to serve their clients better than they had before, and for making available products that are customized for their needs. From the launch of our publication 'Modern Manufacturing India' (MMI), we have been doing this by telling stories of the numerous developments happening on the shop floors of various industries.

Indian Machine Tool Manufacturers' Association (IMTMA) will cross a new milestone in January 2019 as it celebrates 50 years of IMTEX. Over the years the show has earned a reputation for being an enabler of manufacturing growth in this country. In this issue, we are bringing you an article recollecting the journey of IMTEX and its impact on the manufacturing industry.

I would like to thank our readers as well as the manufacturing industry who have helped to build the magazine into a trusted resource. Please share with us your own successes, innovations and ideas. We'd love to hear from you.

I would also take this opportunity to invite all readers as well as the manufacturing fraternity to visit IMTEX 2019 and make the best of it.

V ANBU
DIRECTOR GENERAL & CEO
IMTMA

"The best coolant I've ever used."
Titan Gilroy
TITANS of CNC: Academy, USA

Profit from our unique Liquid Tool

Productivity, economic efficiency and machining quality are factors that critically depend on the choice and the quality of your metalworking fluid.

With our profound know-how and experience, customized services and excellent products, we help you fully capitalize on the potential of your machines and tools and turn your metalworking fluid into a key success factor – a Liquid Tool.

Find out more about the Liquid Tool on **blaser.com**

Blaser Swisslube India Pvt. Ltd. Tel 0124 4994000 india@blaser.com

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

CELEBRATING THE MOMENT OF COMING FULL CIRCLE

It is overwhelming playing host at IMTEX 2019 & Tooltech 2019 from January 24 – 30, 2019 at Bangalore International Exhibition Centre (BIEC) to all those who have provided Modern Manufacturing India (MMI) an opportunity to mark its presence across the latitude and longitude of the world since the magazine's inception. We are thankful to the entire manufacturing fraternity for making MMI the only seeable Indian publication across continents in major machine tool shows.

This exclusive privilege of travelling to global manufacturing exhibitions provides us a valuable opportunity to closely witness trending technologies such as Artificial Intelligence (AI), Internet of Things (IoT), Augmented reality, Virtual reality, Big Data, Blockchain, 3D Printing and many more that are shaping the future of manufacturing.

Bringing these breakthroughs to our players is the flagship event for the Indian metal cutting industry, IMTEX, which is celebrating its golden jubilee in its forthcoming year, a testimony to its raging success in reaching out to the industry. For the first time, this edition of the South & South East Asia's biggest trade fair will house Special Pavilions on Additive Manufacturing and Factory of the Future to present technological refinements that are taking the market by a wave and facilitating business enterprises stay ahead of competition.

> *"People do not decide to become extraordinary. They decide to accomplish extraordinary things."*

For MMI, this is coming full circle seeing all those global trends being showcased on our home turf. Technology continues to play a significant role in capacitating us to do things we did not even imagine in the past. On this empowering note, on behalf of Team MMI, I wish you all an insightful visit to IMTEX 2019 & Tooltech 2019.

Technologies your way

Millenia Technologies

A **LEADER** IN **SURFACE TECHNOLOGY**

Founded in 2009, Millenia Technologies has steadily grown into a leading business partner concentrating on Surface Finishing, Cleaning , Measuring & Coating Equipment's. The firm was founded by Mr. Gautam Tiwari in Mumbai in November 2009, and it became an exclusive partner of **OTEC Präzisionsfinish GmbH**, Germany and **ELMA Schmidbauer GmbH**, Germany in India. The company is based in Mumbai with strategically placed sales and service offices throughout India. In 2013, the company became an exclusive partner of **ALICONA**, Austria and in 2015 setup its own processing Technical Finishing / Demo Centre . Also, in SEPTEMBER 2018 company joined hands with **IHI IONBOND AG**, Switzerland.

The company opened its first branch office in Jaipur (Rajasthan) and subsequently opened its associate offices for sales and marketing in Ahmedabad (Gujarat), Kolkata (West Bengal) and Chennai (Tamilnadu). The firm's diverse product portfolio of machines for different industries ranging from Cutting tools, Medical Implants, Decorative products/Jewellery, Auto & Aerospace Sector. The success that MILLENIA has in the Indian market can be attributed to its focus on providing the best possible service to their customer.

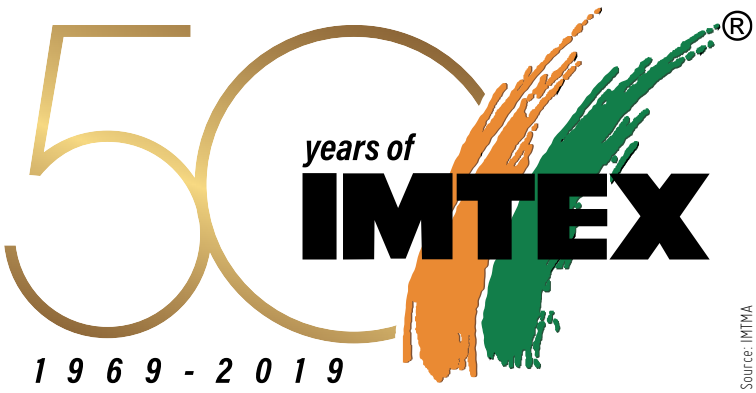
The firm has a vision to be a leading and respected business partner that provides best-of-breed business solutions leveraging technology delivered by the best in class people for **Surface Finishing, Cleaning, Measuring & Coating** of **Precision** components to enhance Surface Finish. The company has High quality products, costs effective solutions, well trained manpower and has its own Technical Finishing / Demo Centre for process development.

Millenia Technologies
311, Options Primo, Plot no.X-21, CTS-31, Near Passport Office, MIDC, Andheri (E), Mumbai, Maharashtra – 400 093
Ph: +91 22 28316101 / 28320401 | E: sales@millenia-technologies.com | W: www.millenia-technologies.com

POWERED BY
Indian Machine Tool Manufacturers' Association

IMTEX: CELEBRATING 50 GLORIOUS YEARS

Indian Machine Tool Manufacturers' Association's (IMTMA) flagship exhibition IMTEX has played a stellar role in enabling the growth of manufacturing industry in India. The exhibition is now 50 years old and as it forays into new territories, we take the opportunity to reflect on its phenomenal growth and the impact it has had on the industry's coming of age.



Source: IMTMA

In comparison with the current stature of IMTEX, the expo had quite a scaled-down debut. The year was 1969 when a group of Indian manufacturers, all members of IMTMA, joined hands to hold the first-ever 'All India Machine Tool Exhibition' at Godrej & Boyce compound in Vikhroli, Mumbai. The sole objective behind organizing the trade fair was to get the trade and the user industries acquainted with the latest innovations by indigenous machine tool manufacturers.

IMTEX in its maiden avatar itself was highly successful. Indian companies, 26 of them, including Central Mechanical Engineering Research Institute and Indian Institute of Technology, Mumbai, participated in the exhibition. Machine tools, small tools and allied equipment were displayed. It recorded a footfall of around 50,000 business visitors. A delegation of machine tool dealers from the US and Canada also attended the show.

Exhibition gains prominence

IMTMA was 25 years old in 1972 and celebrated its silver jubilee when it organized the second IMTEX exhibition once again in Mumbai. The focus, this time, was on the advancements made by Indian manufacturers in the field of design and diversification. Metal cutting and metal forming machine tools, small tools, foundry equipment and accessories were showcased. The second edition of the show boosted the sales and export prospects of the Indian machine tool industry tremendously.

The show's third edition, 'IMTEX 1975' was a turning point. By this time, IMTEX had become a brand as the largest product-based industrial show held in India.

By 1979 when the fourth IMTEX exhibition was organized, the manufacturing fraternity as well as the common public were well acquainted with the exhibition and knew it as the 'IMTEX series'. Functions and technical workshops were also held alongside IMTEX in 1982. This would become a prominent feature from then on.

The sixth IMTEX exhibition, held in 1986, became India's largest specialized show during that period. Exhibitors from all over the country displayed the finest range of machine tools, and the trade fair recorded a footfall of 1,85,000 visitors from both public and private sectors.

IMTEX 1989, seventh in the series, was inaugurated by Shri Rajiv Gandhi, the then Honorable Prime Minister of India. IMTEX would move to Delhi in the next edition.

Moving to Delhi

IMTEX series moved away from the commercial capital of India to its political capital in New Delhi in 1992. Moving into New Delhi had its own privileges. Held for the first time at the Pragati Maidan exhibition complex, IMTEX 1992 displayed the vibrancy of the Indian machine tool industry, which had just been freed from the shackles of controls and closed-door regimes. One of the major attractions of this fair was the 200 CNC machine tools, machining centers and robots that were showcased. The exhibition was inaugurated by Shri R Venkataraman, Honorable President of India of the time.

Hosted again at Pragati Maidan, IMTEX 1995 received an overwhelming response and was inaugurated by the country's highest constitutional authority, Shri Shankar Dayal Sharma, Honorable President of India at that time. IMTEX 1998 and concurrent Tooltech was again held in Delhi at the same venue.

Changing bases

IMTEX once again reached the shores of Mumbai after a gap of 15 years from where it had started its course of history. IMTEX 2004 was more of a homecoming for exhibitors at the Godrej Industrial Garden Township.

Over the years, the need for having a world-class venue for hosting IMTEX was strongly felt and to meet this, Bangalore International Exhibition Centre (BIEC) in the city of Bangalore was chosen as a place perfect to host exhibitors and visitors from world over. IMTEX was held at IMTMA's own venue for the first time in 2007. The exhibition had a large overseas presence from 24 countries with 6 country group pavilions.

Keeping pace with the current technology trends that are driving the industry today, IMTEX 2019 & Tooltech 2019 will spotlight additive manufacturing and Industry 4.0.

IMTEX metal cutting and metal forming

IMTEX 2009 was held in its 40th year of glorified existence along with Tooltech 2009. Almost half of the total participation of exhibitors came from overseas companies which was the highest ever in the IMTEX history. This helped IMTEX become a global exhibition for the worldwide machine tool industry. The show from this year onwards was split into two. Every odd year, the show featured metal cutting equipment and machines and, every even year, it featured metal forming equipment and machines. Both the shows, however, had Tooltech exhibitions running parallel to them.

Present scenario

Today the exhibition showcases the latest trends and technological refinements from India and overseas for the metalworking industry, providing an ecosystem for the manufacturing industry as well as for developing SMEs.

IMTEX, in its next edition, is celebrating 50 years. Keeping pace with the current technology trends that are driving the industry today, there will be a spotlight on additive manufacturing and Industry 4.0. With IMTMA expanding BIEC's infrastructure by constructing a new hall (Hall 5), IMTEX 2019 & Tooltech 2019 will now be held in 6 exhibition halls, throwing open a sprawling exhibition space of 80,000 sq mt to its participants for a comfortable experience. With myriad state-of-the-art technologies from the machine tool space, abundance of information on them, and a platform to network with like-minded peers from across the globe, IMTEX leaves no room for any excuse to give the exhibition a miss.

AMG's new tech center in China

Source: AMG

Inauguration of AMG's state-of-the-art tech center in Shanghai

Shanghai, China – Ace Micromatic Group (AMG) has recently set up a state-of-the-art Tech Center in Shanghai to support its customers. Anil Kumar Rai, Consul General of India in Shanghai inaugurated the center which is called 'Technology & Centre of Experience'. Spread over 1,600 sq mt, the center is a dedicated knowledge hub where customers are hand-held through the process of understanding their machines better with hands-on practical knowledge. Customers can expect flurry of activities at the Tech Center. With expertise in Robotics, Industry 4.0 & IoT and Automation, AMG is confident to accelerate China's potential to manufacture and market advanced components towards the 'Made in China 2025' mission.

BFL opens 'Industry 4.0 Centre of Excellence'

Pune, India – Bharat Forge Ltd's (BFL) 'Industry 4.0 Centre of Excellence', in partnership with PTC, was recently inaugurated at its manufacturing plant in Pune. The center was inaugurated by Baba N Kalyani, Chairman & Managing Director, Bharat Forge; Stefano Rinaldi, Senior Vice President, PTC – Western Europe, Emerging Markets & India; Amit Kalyani, Executive Director, Bharat Forge; and Kalyan Sridhar, Vice President & Country Manager, PTC India. The facility is designed as a working Centre of Excellence built on Bharat Forge's Industry 4.0 thought leadership to incubate digital transformation ideas, develop and experience new cutting-edge technologies and train its people to be able to deploy them on the shop floor.

Source: Bharat Forge Ltd

Senior Management from PTC and Bharat Forge during the inauguration

Radcam opens tech center

Source: Radcam Technologies

(L-R): Siddhu Jolad, Managing Director, Radcam Technologies, with Eugenio Lenzotti, President, Euromac Group

Bengaluru, India – Radcam Technologies recently inaugurated a new Technology Center in collaboration with Italy's Euromac Group to bring the latest European technology to India. "The intent is to begin with about 50 machines a year and take this forward in a much bigger way. It may be challenging to compete with China, but with Euromac's technology edge and Radcam's competent team and a client base who value quality over price we are confident to make it," stated Siddhu Jolad, Managing Director, Radcam Technologies. Meant to be a learning place, the technology center will support activities such as academic visits and interactions and will also be used for R&D, sales and support.

Isgec acquires Eagle Press & Equipment

Source: Isgec Heavy Engineering Ltd

Canada's Eagle Press is now a wholly-owned subsidiary of Isgec Heavy Engineering Ltd

Noida, India / Ontario, Canada – Isgec Heavy Engineering Ltd has taken over Eagle Press and Equipment Co. Ltd, the Windsor, Ontario, Canada-based Press manufacturing company. It has acquired 100 percent shares of Eagle Press in line with its strategy to strengthen its Press portfolio and focus on the North American market. Eagle Press is now a wholly-owned subsidiary of Isgec. The initial purchase price paid is around ₹79 crore. An additional purchase price of up to around ₹33 crore may have to be paid based on performance of the acquired entity in the next two years.

iMT Taiwan in Dec 2018

Source: Kaigo Co., Ltd

iMT Taiwan spotlights 'Made in Taiwan' technology and products in metalworking

Taichung, Taiwan – Taiwan's trade fair for the metalworking industry, International Metal Technology Taiwan (iMT Taiwan) is scheduled to take place on December 05-07, 2018 at Taichung International Exhibition Hall. Organized by Kaigo Co., Ltd, iMT Taiwan 2018 specializes in 'Metal Materials, Secondary Processing Technology and Materials Application' and brings together exhibiting companies comprising Taiwan's leading metal technology and products manufacturers and other metal processing businesses.

FULL MACHINING RANGE

YG-1 offers the full solution to your machining needs

MILLING | DRILLING | THREADING | TURNING | TOOLING SYSTEMS

Custom Solutions

INDUSTRY we serve

HEAVY INDUSTRY | AEROSPACE | AUTOMOTIVE | ENERGY | IT | MEDICAL | DIE & MOLD

Visit Us at:
IMTEX 2019
Hall-3A, Stall No : B121
24 - 30 January 2019
BIEC, Bangalore, INDIA

YG-1 Industries (India) Pvt. Ltd.
Plot No. 2C, Gate No. 2, Obadenahalli Industrial Area, Phase 3, Doddaballapura, Bangalore - 561203 Tel: +91 80 22044620, Fax: +91 80 22044645
Email: marketing@yg1india.com

BFW focuses on smart solutions

Chennai, India – The third edition of Manufacturing Day 2018 hosted by Bharat Fritz Werner Ltd (BFW), brought together a wide range of companies from the manufacturing world.

The day-long conference focused on three pillars – Innovation, Factories of Future and Entrepreneurial spirit. The theme for this year is 'Towards Globally Competitive Indian Manufacturing'. Kamal Bali, MD, Volvo India; and Sonam Wangchuk, Ramon Magsaysay awardee, Engineer, Innovator and Education Reformist, graced the occasion as Chief Guest and Keynote Speaker respectively. Speaking on the importance of making Indian manufacturing globally competitive, Bali said, "To be a global leader, India has to create the culture of manufacturing." Stressing on innovation, Ravi Raghavan, MD, BFW, said, "Innovation is never out of fashion. Today, innovation means new solutions that bring significant value to the innovator as well as the users."

Source: BFW

Ravi Raghavan, MD, BFW, speaking on innovation and sustainability at BFW's Manufacturing Day 2018

Wangchuk spoke on innovation in real life. He said, "Innovation is important, but we have to also keep sustainability in mind. Innovation solves problem, in every area of life – be it education, living standards or any other area of life."

IMTMA spotlights automation

Pune, India – To help Indian manufacturing companies understand the application and benefits of Automation in their production processes, Indian Machine Tool Manufacturers' Association (IMTMA) recently organized a 'Symposium on Appropriate Automation in Indian Context'.

Industry experts from renowned companies including Robert Bosch Engineering & Business Solutions Pvt Ltd, Ace Micromatic Group Ltd, Fanuc India Pvt Ltd, Grind Master Machines Pvt Ltd, Pepperl + Fuchs (India) Pvt Ltd, Schuler India Pvt Ltd, Schunk Intec India Pvt Ltd, and Universal Robots addressed various aspects of automation relevant to Indian context.

"Today the machines are working at an efficiency of 40-45 percent. This symposium focuses on how to reduce machine idle time and maximize machine utilization by adopting automation. It is an eye opener for many Industry 4.0 users of tomorrow," said P Ramadas, President, IMTMA.

Source: IMTMA

Dattatri Salagame, Vice President & Head of Digital Business, Robert Bosch Engineering & Business Solutions delivering the Keynote Address at the Symposium

"This is an emerging platform for people to network and understand Industry 4.0 and how to put it to use. This is a continuous journey and the platform provides the participants an opportunity to start the journey," said V Anbu, Director General & CEO, IMTMA.

Dassault Systèmes introduces SOLIDWORKS 2019 in India

Mumbai, India – Dassault Systèmes has announced the launch of SOLIDWORKS 2019, the latest release of its portfolio of 3D design and engineering applications in India. Among its new features, SOLIDWORKS 2019 provides greater design flexibility to quickly interrogate or rapidly make changes due an enhanced Large Design Review capability. It also dramatically improves high performance view manipulation to scale with higher-end graphics hardware.

Gian Paolo Bassi, CEO, SOLIDWORKS, Dassault Systèmes, said, "The introduction of the 3DEXPERIENCE platform is going to lead the way data and information are turned into knowledge and know-how with the help of Artificial Intelligence and Machine Learning."

Source: Dassault Systèmes

(L-R): Suchit Jain, Vice President, Strategy and Community, Dassault Systèmes SOLIDWORKS; Shantanu Pathak, Co-Founder, CareNX Innovations; Gian Paolo Bassi, CEO, Dassault Systèmes SOLIDWORKS; and PM Ravikumar, Sales Director – SOLIDWORKS India, Dassault Systèmes

HiKOKI firms footprint in India

Bangalore, India – Hitachi Koki lately announced its aggressive business plans for India. Now rebranded as 'HiKOKI', the company's India arm has been operating since 1996. HiKOKI India has registered a steady growth over the last 20 years with a CAGR of 16 percent and aims to scale up its dealer count from 600 to 1000 by 2020. The company is launching new technology Multi Volt tools and also planning to introduce affordable, user-friendly cordless and DIY tools in the India market. According to Dattatraya Joshi, Executive Director & Secretary, HiKOKI India, "There is a growing demand for quality and world-class tools which can enable India to compete globally. Keeping this demand in mind, we are strengthening our business and customizing our offerings for the Indian market and its unique requirements."

Source: HiKOKI India

(L-R): Takeo Tamagawa, Senior Director, Marketing and Communications office, Strategic management division- HiKOKI; Tomoaki Moro- Managing Director, HiKOKI; Dattatraya Joshi- Executive Director & Secretary, HiKOKI India

The AM8000 servomotor integrates the feedback signal and power into one standard motor cable.

www.beckhoff.co.in/AM8000

Material and installation costs can be significantly reduced with the advanced "One Cable Technology" (OCT) from Beckhoff: the new AM8000 servomotors combine power and feedback signals into one standard motor cable. These innovative servomotors are ideally suited for the design of more compact machines with a smaller footprint. The AM8000 series has an optimised torque-to-inertia ratio as well as high energy efficiency and low lifecycle costs. In addition to high availability and flexibility, development and manufacturing in Germany guarantees consistently high servomotor quality:

- Six sizes with a standstill torque of 0.5 – 90 Nm
- Low power loss thanks to a new winding concept and full encapsulation
- Up to 5-fold overload capacity and 50 % higher ball bearing load
- 50 % longer service life (30,000 hrs)
- Powder coated housing
- Integrated temperature sensor
- Electronic identification plate
- Energy-saving, backlash-free, permanent magnet holding brake

BECKHOFF ENABLING
MADE BY
INDIA

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

New Automation Technology **BECKHOFF**

25% EVs by 2023

Source: Magic Wand Media

New Delhi, India – The Delhi government, in order to combat air pollution, has proposed to make 25 percent of all vehicles to be electric by 2023. It has released the draft 'Delhi Electric Vehicle Policy 2018' for the public's feedback which states various subsidies that will be offered on the use of electric vehicles (EVs). Under the policy, the Delhi government will set up battery charging and swapping stations similar to petrol pumps.

First symposium on OPC UA held

Source: VDMA India

Industry experts pose for shutterbugs during the OPC UA

Pune / Bangalore, India – To create more awareness on building strategies and roadmaps to migrate and build the businesses and machines oriented towards Industry 4.0, which is the contemporary technology for the Mechanical and Plant Engineering globally, OPC Foundation and VDMA India Services Pvt Ltd jointly organized the 1st international symposium – "'From Shop Floor to Top Floor' - OPC UA – Platform enabler for Industrie 4.0" at Pune and Bangalore.

The Chief Guests of the Pune and Bangalore events were Tulika Pandey, Scientist 'F' & Director, Ministry of Electronics & Information Technology, Government of India and Shri Gaurav Gupta, Principal Secretary, Department of Commerce & Industry and Department of IT, BT and Science & Technology, Government of Karnataka respectively.

EuroBLECH 2018 receives positive response

Source: Mack Brooks Exhibitions

One of the manufacturing innovations displayed at EuroBLECH 2018

Hannover, Germany – The recently concluded EuroBLECH 2018 turned out be a successful event with 56,301 visitors from around the world. A total of 1,507 companies from 40 countries exhibited at this year's show. The four-day show witnessed a 58 percent exhibitor participation and 37 percent visitors from outside Germany. Major visitor countries, next to Germany, included Italy, Switzerland, the Netherlands, Spain, Turkey, India, Great Britain, Poland, Austria and Belgium. "Many exhibitors demonstrated how well the industry is prepared for digitalization and how these new technologies can be used within a manufacturing environment," said Evelyn Warwick, Director, EuroBLECH Exhibition, on behalf of the organizers Mack Brooks Exhibitions. The next EuroBLECH will take place from October 27–30, 2020 in Hannover.

Sweden partner country in Hannover Messe

Source: Consulate General of Sweden

(L–R): Geeta Bisht, Managing Director, International Sales – HMFI; Ulrika Sundberg, Consul General of the Consulate General of Sweden in Mumbai; and Mukesh Samtani, Assistant Director — EEPC India, at the press conference in Mumbai

Mumbai, India – Sweden has been chosen as Partner Country at the Hannover Messe in 2019 where the country will highlight itself as a lab for co-creation (CO) and innovation (LAB) — an open and strong collaborative partner committed to innovation — Sweden CO-LAB. The national pavilion, the Swedish Co-Lab Digital Factory, will display a digital journey through Sweden's state-of-the-art smart industry solutions. "Collaboration and team work will be the focus of Sweden's presence in Hannover in 2019. The Swedish government, industry and research institutions together are dedicated to keeping our country at the forefront of innovation and digital transformation, making Sweden a solid base for investment and partnerships," said Ulrika Sundberg, Consul General of the Consulate General of Sweden in Mumbai, at a press conference in the city.

MITSUBISHI ELECTRIC

Changes for the Better

for a greener tomorrow eco Changes

Perfection Through Precision

MITSUBISHI CNC E80 Series

The CNC E80 Series boasts drastic improvements in performance and a higher accuracy than ever before.

The simple and easy-to-use E80 Series helps in achieving a greater cost performance, and fits best with simple machine configurations.

- Easier programming with interactive cycles
- High accuracy control for lathe with milling functions
- 3D solid program check function
- Synchronous tapping with Analog I/F spindle

www.MitsubishiElectric.in

IMTEX 2019

Visit us at:
Hall No.: **1A**
Stall No.: **B107**

MITSUBISHI CNC
THE CUTTING EDGE OF MACHINING CONTROL

Now HIRING!

Heller India Pvt Ltd

Job Title:
Sales Engineer/Manager
Location: **Pune**
Requirements: **Min 5 years of experience in sales and marketing of Horizontal Machining Centers (HMCs)**

Job Title:
Mechanical Service Engineer
Location: **Pune**
Requirements: **Min 5 years of experience in installation and fault findings of HMCs with application knowledge**

Job Title:
Application Engineer/Manager
Location: **Pune**
Requirements: **Min 8 years of experience in running machines and conduction trails and run off on HMCs**

Job Title:
Admin/Logistic Executive
Location: **Pune**
Requirements: **Min 5 years of experience in admin and logistic work**

Heller India Pvt Ltd 138, MIDC Sector 2 Industrial Area, MIDC, Bhosari, Pimpri-Chinchwad 411 026, Maharashtra
T: +91 96899 38701 | E: mahesh.tyagi@heller.biz | www.heller.biz

HELLER

Hurco India Pvt Ltd

Job Title: **Regional Sales Manager**
Location: **Bangalore**
Requirements: • **Bachelor in Engineering, MBA is preferable** • **7-8 years' experience in the sales of machine tools**

Hurco India Pvt Ltd No. 69, 2nd Main Road, Ambattur Industrial Estate, Chennai 600 058, Tamil Nadu
T: +91 96001 88566 | E: sanjibc@hurco.in, arshathm@hurco.in | www.hurco.in

HURCO

SLTL Group

Job Title: **Events and Communications Executive**
Location: **Gandhinagar, Gujarat**
Job Description:

- Managing all pre-, during and post-event planning
- Planning layouts and activities such as workshops, seminars and demonstrations
- Selling stand/exhibition spaces to potential exhibitors
- Promoting events and organizing the production of tickets, posters, catalogues and sales brochures
- Producing detailed proposals for events.

Job Title: **Customer Relations & Business Development**
Location: **Gandhinagar, Gujarat**
Job Description:

- Client handling and coordination
- Regular follow up with new and existing customers
- Cold calling and lead generation
- Client orientation on the product and the company
- Overseeing direct communication with customers through the CRM
- Making presentations and demos; negotiating and finalizing deals
- Maintaining, building and updating databases
- Market research and analysis.

SLTL Group E-30, GIDC, Electronic Estate, Sec-26, Gandhinagar 382 028, Gujarat, India
T: +91 90990 63941 | E: hrd@sltl.com | www.sltl.com

SLTL Group

SLTL Group

Job Title: **Sales Manager**
Location:
Delhi / Pune / Bangalore

Job Title: **Sales Engineer**
Location:
Baroda / Rajkot / Haridwar / Jaipur

Qualification:
BE / BTech + MBA (Marketing)

Key Skills:
Great communication, negotiation, presentation and team handling skills

Job Description:

- Handling sales and marketing activities
- Generating leads
- Handling business expansion process
- Carrying out business development activities
- Traveling extensively.

SLTL Group E-30, GIDC, Electronic Estate, Sec-26, Gandhinagar 382 028, Gujarat, India
T: +91 7923287461 to 68
E: career@sltl.com
www.sltl.com

SLTL Group

RENISHAW
apply innovation™

Your partner for innovative manufacturing

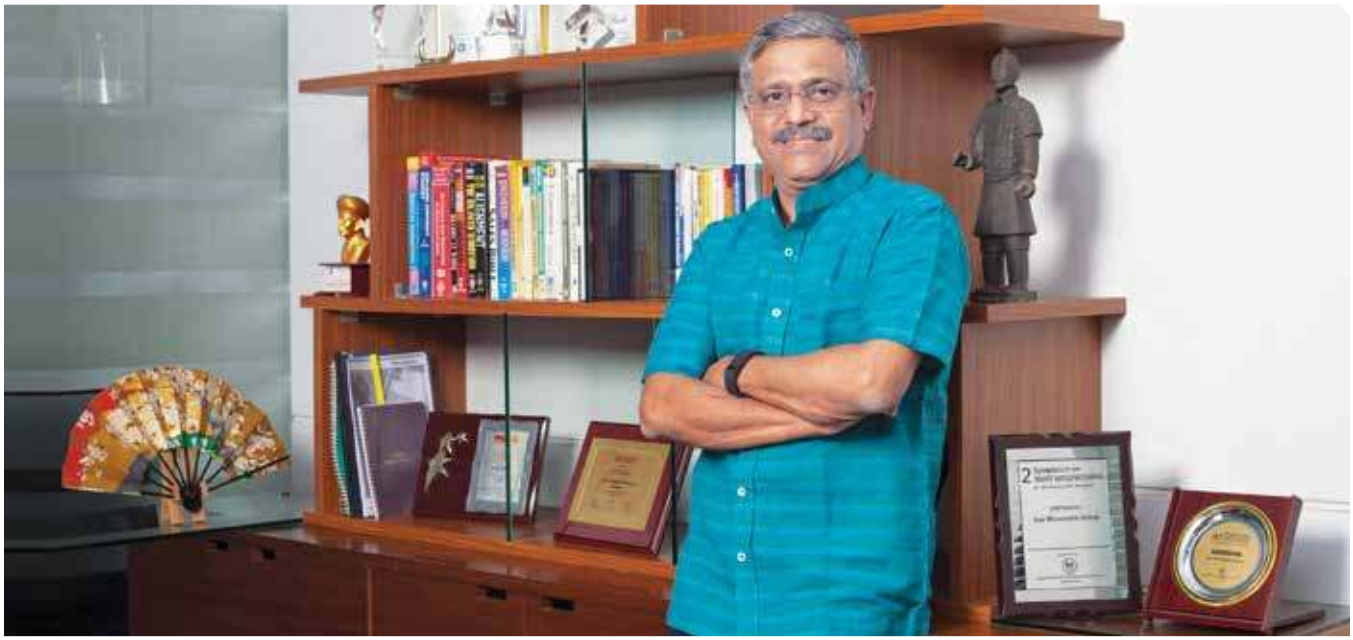
See us at:
IMTEX 2019
Hall 3A, stand B103

Renishaw's smart manufacturing technologies enable our automotive customers to benefit from the factory of the future, today

- **Partnership:** We support the automotive and mobility sectors in developing their visions for future vehicle manufacturing by supplying advanced metrology systems and sensors that enable smart factory concepts to be implemented with existing technology.
- **Innovation:** By applying Renishaw's innovative approach to process control, our customers are producing performance parts with high levels of design, manufactured to tighter tolerances and with minimal human intervention.
- **Automation:** As manufacturers ourselves, we're well-placed to help you apply smart factory automation to your production processes for optimum quality, efficiency and resource utilisation on the shop floor.

For more information visit www.renishaw.com/automotive

Renishaw India [Pune] S.No.283, Hissa No.3, Raisoni Industrial Estate, Village Mann, Tal:Mulshi, Pune 411057
T +91 20 6674 6400 F +91 20 6674 6211 E india@renishaw.com
www.renishaw.com



DIFFERENTIATING MARKETING STRATEGY FROM MARKETING PLAN

Enterprises and their teams often get caught up in defining their marketing strategy and drawing up their marketing plan. The issue is that many a time they set out to accomplish the 'How' without enough understanding of the 'Why' and 'What'. While marketing strategy is a thorough understanding and explanation of the business goals of an enterprise, marketing plan, on the other hand, is the roadmap for implementing the strategy and achieving those goals.

A marketing strategy should provide an enterprise an edge over its competition and help it sustainably develop products and services that have good tangible and intangible returns. Within an enterprise, marketing strategy should align teams effectively and enable organizational growth with the customer at its core.

> Marketing strategy is a thorough understanding of the business goals of an enterprise. Marketing plan, on the other hand, is the roadmap for implementing the strategy and achieving those goals.
>
> **T K RAMESH**
> **Managing Director and CEO**
> **Micromatic Machine Tools Pvt Ltd**

Formula that never fails

A successful formula that can be used to explain the importance of marketing strategy and marketing planning looks like this:

Marketing Strategy → Marketing Plan → Implementation = Success

In which, success is achieving the business objective of gaining broader market adoption; the marketing strategy is to foray into new market segment and the marketing plan is to develop a marketing campaign that reaches out, identifies with and focuses on those specific segments.

While a marketing strategy comprises external marketing message, internal positioning goal, short-term goals and objectives and long-term goals and objectives, a marketing plan is composed of a brief description of products/services to be marketed and a recap of goals identified in a marketing strategy.

However it's important to analyze the situation which comprises —

Analysis of the customers: How many customers would one like to obtain? What kind of customers are to be focused on? How does their decision process look like?

Analysis of the competitors: What is one's marketing and market position? What are their strengths and weaknesses when it comes to their competitors? What market share are they going after?

It's clear that one's marketing strategy must go hand-in-hand with their marketing plan. In the absence of any, one would not only waste resources, but could also end up clueless of the next course of action.

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

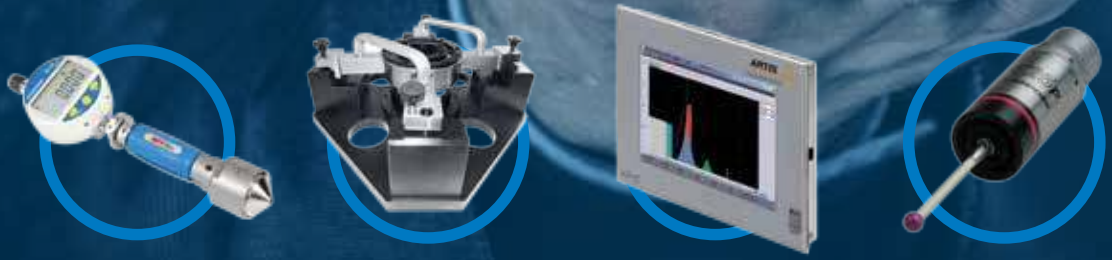
MARPOSS AEROSPACE
YOUR WORK IN GOOD HANDS

Process monitoring
Documentation

MRO Tools

Process monitoring
Machine Protection

Fastner holes inspection



ONE PARTNER, MULTIPLE SOLUTIONS.

Marposs Aerospace produces tools for MRO inspection, assembly, and machining components used for the aircraft engine. With thousands of tools manufactured and over 40 years of industry knowledge, Marposs can do it all. Currently, **Marposs Aerospace** can be found in Mexico, China, and in the U.S.

MARPOSS
www.marposs.com

MARPOSS INDIA Pvt. Ltd 147, Sector 7, IMT Manesar 122 050 - Tel. +91 124 4735700 | sales@in.marposs.com

IMTEX 2019
Visit us at:
Hall: 3A
Stand: B111

Factory of the FUTURE
An Expo on Industry 4.0
Visit us at:
Hall: 6
Stand: B111

DISTRIBUTORS WANTED

With the view to reach out to potential customers in India, the following companies from Taiwan are looking for dealers in the country.

Huen Chen Machinery Co., Ltd

Products:

Riveting Machine: Mostly used for hollow rivet riveting. Can fix two workpieces together such as stationery files, baby strollers, chairs etc.

Spin Riveting Machine: Mostly used for solid rivet riveting. The products need great strength between two components such as scissors, hand tools etc.

Cutting Machines: Used for cutting puzzles, carpets, disposable tableware, stationery goods, EVA materials, leather, fabric and etc.

Customized Machines: Fully customized riveting machines are available at customers' requests.

Requirements:

- Standard mechanical background
- Dealer/distributor experience
- Self-owned company/warehouse/factory

Huen Chen Machinery Co., Ltd
T: +886 425 615 828
E: huenchen.vince@gmail.com
www.huenchen.com.tw

Chain Headway Machine Tools Co., Ltd

Products:

SYIC brand: Tool holders for all kinds of machines, which is the company's main business. Chain Headway Machine Tools has over 30 years of experience in manufacturing chucks

KOVIT brand: High-quality and economical cutters and inserts for milling, boring and turning

LEMMA brand: Aid tools, test devices, fixtures, meters etc.

Requirements:

- Must initially buy worth US$10,000. Certification will be provided
- Must be able to do continuous business

Chain Headway Machine Tools Co., Ltd
T: +886 426 268 383
E: cc-intdep@chmt.com.tw / cc-indeo@chmt.com.tw
www.chmt.com.tw

Anderson Industrial Corp.

Products:

Advanced CNC routers using high-quality CNC Controllers and adhering to strictest industry quality standards — ISO9001

Anderson Industrial Corp.
T: +886 377 268 76
E: service@mail.anderson.com.tw
www.anderson.com.tw

Ching Hung Machinery & Electric Industrial Co., Ltd (Brand: CHMER)

Products:

- Wire Cut EDM
- Die Sinker EDM
- High-Speed Machining Centers
- EDM Drilling
- EDM Solutions for Mould Making users

Requirements:

- Must have a professional background in EDM products

Ching Hung Machinery & Electric Industrial Co., Ltd
T: +886 423 500 979
E: overseas@mail.chmer.com
www.chmer.com

WENDT

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

THE LEADING MACHINE BUILDERS YOU TRUST, HAVE CHOSEN US AS THEIR TRUSTED OE SUPPLIER.

SOLUTIONS FOR COOLANT HANDLING

Compact Band Filter

Coolant Centrifuge

Magnetic Separator

Oil Skimmer

www.u-techindia.com

U-TECH

TRIED AND TESTED ON
INDIAN SHOPFLOORS

TARGETED TO DELIVER

SOLUTIONS FOR CHIP HANDLING

Bag Filter

Chip Conveyor

Chip Shredder

Chip Centrifuge

U-TECH ASSOCIATES
U-Tech House, #33/1 (296), Mallathahalli Main Road, Mallathahalli Post, Bangalore 560 056
Tel.: +91 80 23182828 ● Email: sales@u-techindia.com

Source: Magic Wand Media

WHEN GOALS MATTER!

Because of the high material removal rate creep-feed grinding can deliver in challenging materials, grinding might not be just the last step in the process—it might be the process. An insight into 10 things to know about Creep-Feed Grinding that can help achieve the manufacturing goals of the current times.

PETER ZELINSKI
Editor-in-Chief
Modern Machine Shop
pzelinski@
mmsonline.com

Is grinding the material-removal process of the future? The demand for tighter feature tolerances, finer surfaces on machined parts, and the use of harder materials such as superalloys and ceramics for durable parts certainly implicate greater use of grinding in the future. Additionally, improved grains and bonds in grinding wheels are delivering more effective performance making the case stronger in the favour of creep-feed grinding specifically.

Creep-feed grinding employs a heavier grinding depth combined with a slow traverse rate, generally with a profiled grinding wheel, to generate a given geometric form at a material removal rate (MRR) that is much higher than the finishing passes for which grinding is generally known.

The MRR is why creep-feed grinding offers such promise. Greater use of hard materials such as Inconel or a ceramic-matrix composite poses greater challenges for milling. Developments such as grinding wheel improvements have enabled creep-feed grinding's MRR in these materials to significantly increase. According to grinding wheel manufacturer Saint-Gobain Abrasives, also known by the brand Norton, we have already reached the point at which grinding is no longer a ter-

minal process in the machining sequence for a part. Instead, in a significant and growing number of cases, grinding is the process.

The company's initiative called 'Machining-to-Grinding' aimed at helping support manufacturers make a transition from metal cutting to greater use of grinding. This initiative, which has focused on aerospace manufacturers as they shift to difficult-to-machine alloys and composites, has also realized success for gear makers and now is finding applications in automotive manufacturing. To have a better understanding about creep-feed grinding given below are 10 points.

Source: Modern Machine Shop

Particularly in hard-to-machine alloys, creep-feed grinding using a profiled wheel offers a way to realize precise forms that would be difficult to generate via any other type of machining.

1 Creep-feed grinding has no formal definition.

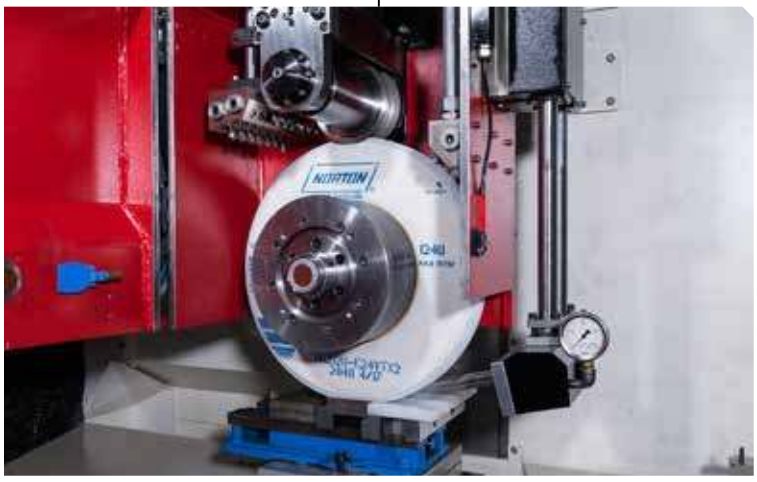
The principal defining characteristic of creep-feed grinding is a depth of cut that is high for grinding, but opinions differ on precisely what depth marks the transition. In aircraft-engine-related grinding applications, engineers frequently mark the beginning of creep-feed at 0.015 in. Many a time the transition happens earlier than this; a grinding depth of 0.005 in. can qualify as creep-feed. In either case, the choice is arbitrary, with no formal definition. Hence, it is reasonable to think of deep-grinding application as creep-feed, and perhaps one must have done grinding that was arguably creep-feed without realizing it.

2 Creep-feed is both a low-force and a high-force process.

In the creep-feed process, the force in the cut is low from one perspective and high from another. While each cutting particle on the grinding wheel experiences a low force relative to other modes of grinding, the force imparted to the machine and part overall is likely to be high. Compensating for the heavy depth of cut in creep-feed is a traverse rate (feed rate) that is low, often on the order of 5 to 20 in. per minute. The low feed rate and corresponding chip load mean the cutting force upon every individual grit of the surface of the grinding wheel is also low. Wheel life and power efficiency both potentially benefit from this.

And yet, a lot of grits are engaged. The larger depth of cut of creep-feed means a longer arc of the wheel is submerged in the part, increasing the force overall. As a result, the requirements of a grinding machine used in this process include spindle power of at least 15 to 20 horsepower per inch of grinding wheel width and a static loop stiffness of 100,000 pounds per inch for each inch of grinding wheel width.

It is reasonable to think of deep-grinding application as creep-feed, and perhaps one must have done grinding that was arguably creep-feed without realizing it.



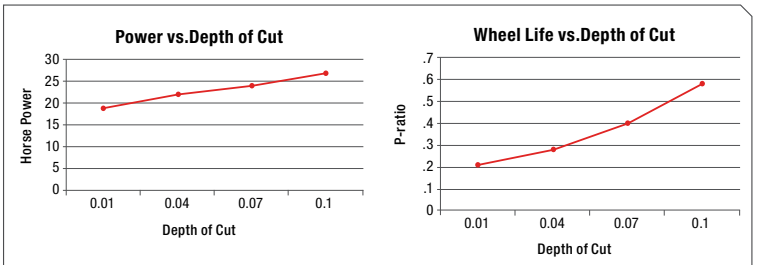
Source: Modern Machine Shop

A creep-feed grinding set-up: A profiled grinding wheel, continuous-dressing unit directly above it, nozzles following the profile of the wheel, and tooling (the white plastic piece) for capturing and pooling the coolant.

3 Creep-feed offers advantages over conventional grinding.

Creep-feed grinding offers the following benefits:

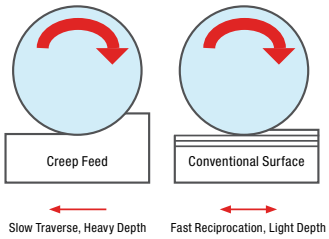
- **Shorter cycle time.** True, the feed rate is low, but the increased depth of cut more than compensates for this. Additionally, the reduced total number of passes means there is less time lost to accel-



Creep-feed grinding is a high-force process. A heavier depth of cut demands higher horsepower for the same material removal rate.

Grinding deeper tends to extend the life of the wheel. 'P-ratio' describes stock removed per circumferential inch of the wheel. This graph describes the performance of a single-layer-plated CBN wheel.

Source: Modern Machine Shop



Compared to surface grinding, creep-feed grinding has a higher depth of cut and slower traverse rate. Norton Saint-Gobain places the minimum depth of cut for creep-feed at 0.005 in., but others imagine the starting point for creep-feed to be deeper than this.

Source: Modern Machine Shop

eration and deceleration as the machine reverses.

- **Reduced machine wear.** Another beneficial result of the reduced frequency of machine reversals.
- **Longer wheel life.** The reduced force per grit means that this high-MRR process is actually less demanding on the wheel.
- **Finer-tolerance and more complex geometric forms.** The low feed rate and low force per grit enable superior control over the outcome of the grinding operation.

All these benefits come with one very large downside to creep-feed grinding, discussed in the next point.

4 Coolant is crucial.

The long arc of wheel engagement translates to greater heat generation in the process. Coolant is therefore crucial to using creep-feed grinding effectively. Other machining processes routinely apply flood coolant by using a nozzle to point the coolant stream in roughly the direction of the cut, but creep-feed requires coolant application to be taken more seriously. Various considerations are employed to ensure as much of the coolant's heat-transfer capacity is realized as possible, including:

- Coolant delivery speed is matched to the speed at the wheel surface. Syncing coolant-flow speed with the speed at which any point of the wheel is passing ensures more of the coolant meets and follows with the wheel.
- Coolant-delivery nozzles are arranged in profiles that match the profile of the grinding wheel.
- Special coolant-collection tooling is used in creep-feed grinding. A ramp on the exit side of the part collects coolant and enables it to pool at the wheel for still greater wheel exposure to the fluid. This ramp might even be machined to match the part profile.

5 Down grinding is preferred for MRR.

Similar to milling in which the two possible directions of tool rotation relative to the workpiece produce either conventional milling or climb milling, the two possible directions of grinding wheel rotation produce either 'up' grinding or 'down' grinding. Creep-feed's preference is down grinding when the objective is high MRR. The rotation of the wheel in down grinding causes

Grinding is an effective process for machining in the harder, post-heat-treatment state, though milling the part in this state would be problematic.

Source: Modern Machine Shop

At the Higgins Grinding Technology Center near Boston, one of the machines routinely used for creep-feed grinding research and process development is this one from Mägerle (also seen in the previous photo).

Source: Modern Machine Shop

Coolant is vital in creep-feed grinding. One potentially valuable consideration is matching the coolant-flow speed to the speed at the surface of the wheel.

the bottom of the wheel to move in the same direction as the feed of the part. This type of grinding causes any point of the wheel—any grit of the wheel—to first meet the workpiece where the material engagement is greatest. Again, heat is the reason for this preference where stock removal is high. To grind in the other direction is to have the grit first meet the material without cutting into it. The result is that each grit is not making a chip right away. Initially, the grits are sliding and plowing, which causes friction and excess heat into the part. Down grinding, though it might seem more abrupt, allows for a cooler grinding process, as grits are forming chips when they first engage the part. By contrast, up grinding is preferred where the objective is either a fine surface finish or extending the life of the abrasive.

6 Intermittent dressing is becoming more acceptable.

Because the material removal per pass is so great in creep-feed grinding, aluminum-oxide wheels used in this process tend to require continuous dressing. A dressing wheel applied to the grinding wheel as it is grinding keeps the wheel sharp at all times. Indeed, continuous-dress capability is potentially another machine requirement for creep-feed grinding, in addition to power and stiffness.

However, newer grinding wheels with ceramic grit make it possible to avoid this need. Because the ceramic wheels remain sharp for a longer period of time, they make it possible to use intermittent dressing, meaning dressing using a separate wheel located elsewhere in the work zone apart from the grinding head. Dressing only when needed allows the wheel to last longer, and by eliminating the need for continuous-dress capability, the more advanced grinding wheel makes it possible to perform creep-feed grinding on a less expensive machine.

7 Superabrasive wheels can move beyond tool grinding.

A third wheel type is also likely suitable for intermittent dressing. Dressable metal-bond superabrasive wheels using diamond or cubic boron nitride (CBN) grit have been used in cutting tool manufacturing for grinding composite, cermet and ceramic tools. Based on the similarity of material properties, Norton engineers believe these wheels could also efficiently grind ceramic-matrix composite and gamma titanium aluminide parts for aerospace. Another useful feature of these wheels is their porosity. For grinding wheels in general that are engineered for creep-feed grinding, material grains are spaced widely to create microscopic porosity allowing coolant to infiltrate the wheel. In a superabrasive wheel such as the Norton Winter Paradigm product line, the metal bond allows for a wheel porosity ranging to 46 percent.

In some cases, superabrasive wheels also can be used without any dressing. Single-layer metal-bond superabrasive wheels designed for no dressing have been applied to realize creep-feed grinding on CNC milling machines.

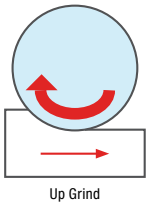
Newer grinding wheels with ceramic grit make it possible to avoid the need for continuous-dress capability, which is another machine requirement for creep-feed grinding, in addition to power and stiffness.

Source: Modern Machine Shop

Another consideration for maximizing the effectiveness of coolant in creep-feed grinding: Coolant nozzles arranged to follow the profile of the wheel.

Source: Modern Machine Shop

Here is another view more clearly showing the array of coolant nozzles matching the wheel's profile.



For creep-feed grinding with the aim of productive material removal rates, down grinding is the preferred choice. In the heaviest-cutting applications, the alternate approach subjects the wheel to friction and heating before it begins to remove material.

Source: Modern Machine Shop

Source: Modern Machine Shop

Superabrasive wheels such as the Norton Winter Paradigm wheel seen here permit creep-feed grinding without a demand for continuous dressing. The unit for intermittent dressing is seen on the machine's table just within the frame of the photo.

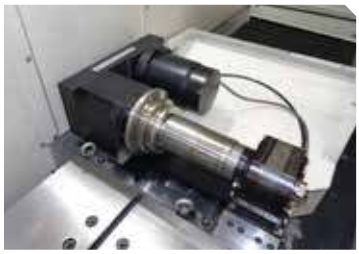
8 Broaching now has a low-footprint rival.

Milling is not the only competitor to creep-feed grinding. Another is broaching, specifically the broaching that is applied to realize the fir-tree forms in aircraft-engine disks made of superalloy. A form such as this can be generated through creep-feed grinding. The result might be considerable floor-space savings. Because of the long linear travel it requires, the broaching machine for this operation could easily be 30 to 40 ft. long. Creep-feed grinding offers the chance to perform the same machining within a standard-size machine tool.

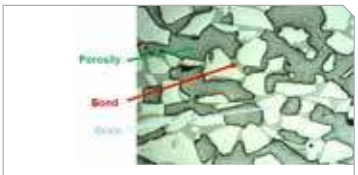
9 In aerospace, the MRR can match that of milling.

The view that grinding is a finishing process and the final touch applied to a machined part to realize dimensional and surface tolerances—that is, the historical role of grinding—is a view that will become less and less inclusive of all that grinding can do as advanced workpiece materials are used more widely. In the past, 1 cubic inch per minute per inch of wheel width is the typical specific MRR that has been expected of grinding. In superalloy grinding applications today on CNC machines using engineered wheels, creep-feed grinding can realize a specific MRR of 18 cubic inches per minute per inch of wheel width—resulting in overall MRR equal to or better than what a milling cutter might do in that same workpiece material.

Another important area of advance has been in the energy demand creep-feed grinding requires. From the perspective of the machine, creep-feed is a high-force process (point 2), but the sharper-cutting grit in modern wheels reduces that force. Improved wheel porosity for conveying swarf and coolant along with improved coolant techniques also help to improve energy efficiency. As a result, the specific energy of creep-feed grinding—the energy required to remove each cubic inch of material—has become comparable to milling as well.



A wheel allowing dressing with a unit such as this permits creep-feed grinding to be performed on older or less-expensive machines.



Source: Modern Machine Shop

Wheel porosity is a useful feature for creep-feed grinding because it aids coolant infiltration. Metal-bond superabrasive wheels thrive in creep-feed grinding of ceramic-matrix materials because of their high porosity.

10 Creep-feed offers the promise to relocate heat treatment.

But comparing milling to grinding in terms of their machining cycles alone might miss one of the greatest benefits of creep-feed: a fundamental change to the sequence of the process. In that traditional role of grinding as a finishing operation, the part often undergoes heat treatment just ahead of this step. Grinding is an effective process for machining in the harder, post-heat-treatment state, though milling the part in this state would be problematic. Thus, most of the part's machining is carried out through milling while the workpiece is still soft, then comes heat treating, then the part may receive a final light milling step before grinding or it may go to grinding directly. This sequence—milling, sending the part away for heat treatment, bringing the part back to the shop for the operations including grinding—is second nature to manufacturers and a standard way many parts are made.

However, creep-feed grinding can undo that sequence. The workpiece could be heat treated first, meaning the workpiece could be brought to its final hardness first, before any machining is done. Creep-feed grinding would eliminate the interruption, delay and coordination necessary to ship a partially completed part away for this off-site step. Matching the MRR of milling may be the benchmark enabling grinding to take on a larger role in production, but reordering the steps needed in production may in some cases be where creep-feed grinding realizes its greatest savings.

In creep-feed grinding, the workpiece could be heat treated first, before any machining, eliminating the interruption, delay and coordination necessary to ship a partially completed part away for this off-site step.

Exact take off.
Precise landing.

With CNC machining centres and turnkey solutions from CHIRON, STAMA and SCHERER. Ready to meet the challenges of the aerospace industry: Precision manufacturing of complex and durable components in highest quality.

IMTEX 2019

Visit us at Hall 4, Stall No. A108

CHIRON Group

chiron STAMA SCHERER FEINBAU cms

CHIRON India Machine Tools Private Limited
Bangalore, India
Tel +91 80 4905 6490
info@chiron-india.com

www.chiron-group.com

MAKING A FAIR POINT

Dr V Sumantran, Chairman, Celeris Technologies, shares his insightful views on many a topic ranging from India's manufacturing goal, mass manufacturing, lean manufacturing, Industry 4.0 to his book in this free-wheeling interview with MMI. An excerpt...

Source: Magic Wand Media

Dr V Sumantran
Chairman
Celeris Technologies

Source: Team MMI

Please share your views on the thought that India has a long way to go before the goal of the manufacturing sector to significantly contribute to India's GDP is realized.

Dr Sumantran: Nations like India started their journey after Independence with an economy that was mainly dependent upon agriculture. The planned economy in the years post-Independence saw the beginnings of institutions such as BARC, ISRO, HAL etc. and IITs, IISc, IIMs, Polytechnics etc. for capability-building. However, the prolonged period of the licence raj did our country no favor. When the economy was finally unshackled, the IT industry and service sectors proved attractive as they demanded lower capital investments and employed large workforce. Even so, the realization that the manufacturing sector needed to grow from its current level of about 15 percent of GDP to 25 percent, to gainfully employ a vast population facing an inevitable shift away from dependence on agriculture, has been articulated repeatedly. But this goal has proven elusive. We must sincerely hope that the latest 'Make in India' platform achieves meaningful progress towards this much-needed target. For this we need to rebuild a credible level of trust between society, government and industry. This needs to be backed by sound policies, targeted investment, and balanced management of international trade.

The principles of mass manufacturing led to substantial productivity improvements. How can we leverage its principles in today's scenario?

Dr Sumantran: The principles of mass manufacturing remain very relevant today for a large number of industrial sectors. In the coming decades, manufacture of consumer goods, automobiles, solar cells, advanced storage batteries and consumer electronics will all demand that we gain proficiency with mass manufacturing. Mass manufacturing depends upon standardization of product parameters (a well-defined bill of materials), highly repeatable and controlled processes (with enablers like Six Sigma), closed loop process control, process enhancement (Kaizen) and orchestrating a resilient supply chain. Our commitment to leverage these principles must start at the top of the organization.

Indian companies are now increasingly realizing the potential of Japanese Lean Manufacturing. They are now working with tighter constraints to improve efficiency and are being successful in doing so. Your take on it?

Dr Sumantran: Yes. Thankfully for India, our journey in Lean Manufacturing basically origi-

nated when Maruti Suzuki started its operations and developed its supply chain. Dr V Krishnamurthy, who was Chairman of Maruti at the time, was a strong believer in this approach and got Maruti and its suppliers to commit to Lean Manufacturing practices and roped in many Japanese organizations and gurus to help us accelerate on this path. As we absorb this culture, over the past three decades, we are witnessing a growing number of Indian manufacturing organizations win the coveted Deming Prize. Usually, this stems from top management defining such a goal and supporting the efforts of the organization to achieve it. I am hopeful that this culture can spread to benefit much of India's manufacturing sector.

Manufacturing is now challenged by not just managing productivity, but also managing variety along with productivity in its operations. How do manufacturers cope with this challenge?

Dr Sumantran: Our pursuit of variety in product development and manufacturing is motivated by trends in consumer demand. From the time of Sloan's GM in the 1930s, when it established a staircase of products to counter Ford's cookie-cutter monotony, customers have enjoyed expressing themselves and their individuality and/or status. Since the Millenium, we are faced with a growing demand for customization and personalization from customers. Fortunately, we have amassed many new tools and skills to deliver such variety and product complexity. The digitized development and manufacturing environments provide many of the enablers. Collaborative enterprises and distributed supply chains are easier to manage. Process innovations such as additive manufacturing can be

Source: Magic Wand Media

"For us to achieve the target of increasing the manufacturing share to 25% of GDP, we need to rebuild a credible level of trust between society, government and industry. This needs to be backed by sound policies, targeted investment and a balanced management of international trade."

Dr V Sumantran
Chairman
Celeris Technologies

powerful tools. And with the adoption of the principles of Industry 4.0, we can make significant further progress.

How, according to you, Industry 4.0 holds opportunities for India? Our country's large talent pool in this domain has the potential to make significant contribution to Indian as well as global manufacturing. How much do you agree with this?

Dr Sumantran: Industry 4.0 is based upon dealing with systems in cyber-physical space. This initiative is something India must take advantage of. Our Prime Minister has personally endorsed this statement. We may expect an explosion in the number of sensors, processors and controllers. Every product and every part of a production system will be defined not only by its physical characteristics but also the data and information that characterize it. This will imply growing dependence upon software to define the performance of systems. India's relative disadvantage in electronics may, to some extent, be compensated by our plentiful resources to deal with software and system architecture. Mastery of the production and supply chain environment will require mastery of cyber-physical tools.

Your book, 'Faster, Smarter, Greener' takes a deep dive into the challenges of mobility and sustainability facing the world and its cities today. We are eager to have your expert view on our country trying to embrace complete e-mobility. How soon, according to you, should we expect this revolutionary shift?

Dr Sumantran: The drivers of change are relentless: accelerated urbanization in India (and much of the world), and global apathy to concerns of sustainability. Like all transformations that are overdue, we need to start immediately. E-mobility is often associated with only electric vehicles (EVs); to us this is unfortunate. If we all shifted to electric cars, we would still have a major global crisis in an ever more crowded and urbanized world. We believe that we must visualize and operationalize a full portfolio (heterogeneity) of mobility options: walkways, bikes, shared-rides, car-sharing, bus rapid transit, mass-transit metros, etc. Each of these modes can be further enhanced with electrification. When these heterogeneous modes are connected both physically and digitally, powered with intelligent tools and systems, and personalized for each user based on individual priorities, we can have system that can deliver mobility that is faster, smarter and greener. Furthermore, our research has shown that these technological solutions must be employed in an environment that benefits from sound policies and regulations.

Manufacturing quality and efficiency in India will rise to the level that is demanded by the leadership of the organization. We only fail when top management makes too few demands.

INDIA-BRAZIL: STRENGTHENING TIES

Being one of the most important trading partners of India in the Latin America and Caribbean region, Brazil has been offering its best to us for a long time. Here's to acknowledge that and know about India's payback to it...

Source: Magic Wand Media

Commercial ties between Brazil and India have always been strong. The countries share a close relationship at a bilateral level, which has seen a surge in the last two decades.

The economic recession in Brazil in 2015 did, however, affect Brazil's overall trade, impacting to some extent the India-Brazil bilateral trade as well. Proving that resilience is what takes to weather it all, the country has emerged stronger than ever and is all set to beef up its relation with its trading partners. The country, today, ranks among the top 10 economies of the world and is the largest in Latin America (LA), with a GDP of US$ 2 trillion in 2017.

Why Brazil beckons

Brazil continues to be among the top 10 recipients of FDI in the world and the only Latin American country on that list. Inward FDI flows in Brazil totalled over US$ 1.1 trillion from 2008 to 2017, averaging US$ 110 billion per year, according to the data from Brazilian bank.

With advantages including robust domestic investor protection rules enforced by an independent, credible judiciary and a fair regulatory environment that provide security for investors, Brazil has become a hot bed for profitable opportunities.

The country attracts for a number of other reasons too. With 208 million population and a steady domestic demand for services, goods and agricultural products, it makes for the largest consumer markets in the world. Additionally, it has an economy which relies on a wide range of industrial sectors including LA's largest Aerospace, Automotive, Oil and Gas, Mining, Capital goods, Medical Equipment, Chemical and Technology. Its large pool of workers and extensive natural resources are advantages that few countries can boast of.

India connection

Indian companies including ONGC, Videocon, TCS, Wipro, Infosys, Cadilla, Mahindra, L&T, Renuka Sugars, United Phosphorus, Polaris have invested in Brazil in sectors such as IT, Pharmaceutical, Energy, Agri-business, Mining, Engineering, and Auto.

While Brazilian companies including Marco Polo (Automobiles), Vale (biggest mining company), Stefanini (IT), Gerdau (Steel) etc. have invested in Automobile, IT, Mining, Energy, Biofuels, Footwear sectors in India.

Shedding light on the machine

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

VERTICAL TURNING MACHINE VT 2
SETTING THE PACE FOR SHAFT PRODUCTION

SHORT IDLE TIMES

SHORT MACHINING TIMES

SHORT SET-UP AND RETOOLING TIMES

IMTEX 2019

24. - 30. January

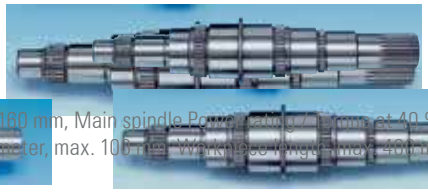
HALL 2B

BOOTH A104

MAXIMUM: 4-AXIS TURNING WITH 2 X 11 TOOLS ENSURES MAXIMUM PRODUCTIVITY

HIGHLIGHTS

+ **Reduced idle times through cycle time-concurrent loading and unloading**
+ **Raw-part and finished component storage form an integral part of the machine**
+ **Shorter cycle times through four-axis machining**
+ **The compact, vertical construction of the machine makes for a small footprint**
+ **Short setting and resetting times owing to great machine accessibility and operator friendliness**



Technical Data: Chuck diameter, max. 160 mm, Main spindle Power rating S1 / 100 % at 40 % ED 17.9 kW / 142 Nm, Workpiece gripper diameter, min. 63 mm, Workpiece diameter, max. 106 mm, Workpiece weight, max. 200 mm, Turret tool stations 2 x 11, Turning tools and driven tools applicable.

EMAG

EMAG India Private Limited "Technology Centre" I No. 17/G/46-3 · Industrial Suburb I 2nd Stage · Yeshwanthpur I Bangalore · 560022 I Karnataka · India
Phone Sale: +91 80500 50163 I Phone Service: +91 80500 50165 I E-mail: sales.India@emag.com I www.emag.com

Source: ABIMAQ

"We have a favorable machine tool trade with India. Despite strong oscillations in the past years that impacted our exports and imports, our balance, for the most years has been positive, which indicates that India is a strong market for our products."

João Carlos Marchesan
President
Brazilian Association of Machinery and Equipment Industry (ABIMAQ)

Brazil's Machine Tools Trade with India

	2014	2015	2016	2017
Export	5,081,911	1,227,022	2,175,599	1,583,752
Import	2,708,258	2,705,075	611,625	1,083,747
Balance	2,373,653	-1,478,053	1,563,974	500,005

Source: MDIC

Values in US$

tools trade between the two nations, João Carlos Marchesan, President, Brazilian Association of Machinery and Equipment Industry (ABIMAQ), said, "We have a favorable machine tool trade with India. Despite strong oscillations in the past years that impacted our exports and imports, our balance, for the most years has been positive, which indicates that India is a strong market for our products."

"In 2017, despite a 27.2 percent reduction in machine tools exports and a spike in imports by 77.2 percent, the balance stays favorable for Brazil at US$ 500,000," he added.

Speaking on the machining technologies from India that could be of interest to the Brazilian market, Marchesan stressed on the Industry 4.0 technologies. "There is a good scope of collaboration there," he noted pointing to the high demand of smart technologies in Brazil.

Showcasing Brazil's manufacturing prowess

An initiative of ABIMAQ as well as key industry organizations, Brazil International Machine Tool and Industrial Automation Exhibition, EXPOMAFE, is scheduled to be held on May 07 – 11, 2019 at São Paulo Expo.

The expo will be attended by over 55,000 industry professionals and will host over 750 Brazilian and international exhibitor brands.

"ABIMAQ gained a huge success with EXPOMAFE 2017. We expect the upcoming event to outdo the last in terms of the number of exhibitors and visitors," said Marchesan.

"EXPOFAME 2019 will present enormous opportunities to Indian visitors and exhibitors looking for new clients or a place to launch their products and reach out to their target audience," he added summing up.

Brazil ranks among the top 10 economies of the world and is the largest in Latin America, with a GDP of US$ 2 trillion in 2017.

Visit us @

IMTEX 2019

January 24th to 30th 2019

Hall No : 5
Stall No : B106

Designed for Reliability
Engineered to last.

INDIA'S FINEST RANGE OF CNC MACHINES

MILLING

TURNMILL

TURNING

Horizontal Lathe

Vertical Lathe

Horizontal Machining Center

Vertical Machining Center

5 axis Vertical Machining Center

Integrated Solutions!

Follow us on

YouTube LinkedIn

www.lmwcnc.com

TURNING
MILLING
TURNMILL

LMW®

INNOVATING TO WIN

The leading manufacturer of comprehensive high-end tooling solutions, Sigma Toolings, has upped its game by catering to unique customer needs with a unique approach for each. Armed with experience and knowledge, and a keen insight into the market demands, the company has been keeping up with the daunting task of customization through constant innovation.

Source: Sigma Toolings India Pvt Ltd

Sigma Toolings' Cylinder block tools demonstrated at IMTEX 2017. (L-R) Crank bore, Cam bore and Linear bore boring bars showing their areas of application

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

Founded by Shashi Thete and Sukhesh Vinchurkar as a fixture and holding systems manufacturer on India's 53rd Independence Day anniversary, August 15, 2000, it did not take long for Sigma Toolings Pvt Ltd to climb up the growth ladder. The company in mere two years since its inception delved into the development of custom tools and emerged as one of the most sought-after tooling providers. "The recognition was marked with the development of the Boring Head for Rotary Boring bars, with a 2 and 10 micron accuracy, that could be directly shrink fitted on to the tool," says Shashi Thete, Director, Sigma Toolings, narrating Sigma Toolings' tale of remarkably rapid growth.

However, that was just the beginning. With its gaze fixed firmly on the ever-evolving market needs, the company, with consistent innovation, shortly developed its own range of Fine Boring Units (FBU) used in Finish Boring Bars by 2008. "Soon after dominating the market in 2010, the manufacturing set-up was swiftly expanded, and with the development of Light Weight Boring Bars, the Farm Equipment and Automobile Sectors contributed to our growth as the second largest custom tool manufacturer in India," he adds.

Today, the company houses a 0.5 acre facility in Aurangabad, and sales offices in Pune, Bangalore, Chennai, Delhi and Kolkata respectively. With an awe-inducing client list including TELCO, Ashok Leyland, DANA India, American Axle, TAFE,

CNH (New Holland Tractors), Sonalika International Tractor Ltd, Swaraj, Honda, Kirloskar, Mahindra, TATA Motors, etc., Sigma's present turnover stands at ₹84 Cr with the next year's target of ₹115 Cr.

For a bevy of sectors

Elaborating on the wide array of industry sectors that Sigma caters to, Thete explains, "A major part of our revenue comes from the Farm & Agricultural Sector, which is 40 percent of our business as our Auto Tuned Anti-vibration Boring Bars with their ability to operate for the extra-long boring application are of cardinal value to the sector. The Automotive sector contributes to 20 percent, whereas 25 percent is generated from the Oil & Gas. Earth Moving and Heavy Engineering sectors provide 10 percent along with 5 percent from Defense Engineering."

Personalized manufacturing

One of the primary reasons why the company is favored by its customers is the option of having it their way. The company caters to their demands of one-of-a-kind products, tailored just for them. "Customization can be found around every corner at Sigma Toolings. Our tools are developed and tested using custom software; our supply chain is governed by custom ERP and CRM tools, tailor fit to our needs," explains Thete. "Similarly, every project we work on is unique with its own varied requirements, which needs a new approach for each component," he adds.

Source: Sigma Toolings India Pvt Ltd

"Customization can be found around every corner at Sigma Toolings. Our tools are developed and tested using custom software; our supply chain is governed by custom ERP and CRM tools, tailor fit to our needs."

Shashi Thete
Director
Sigma Toolings Pvt Ltd

According to Thete, the company is ready to innovate for India's dynamic needs for tooling. With experience, knowledge and extensive market research it gauges the needs of the Indian market. Stressing on Sigma's focus on customization and innovation, Thete says, "Around 90 percent of our tools are customized and 10 percent standard."

A step ahead

With a thorough insight into the current needs of the Indian market, Sigma, says Thete, has positioned itself to estimate what future will be like and is all prepared to meet the forthcoming market demands. "Take electric cars for example; they are going to be all the rage very soon with their lightweight components and widespread demand. For this, we have already planned for a new Light Weight Boring Bar made of composite materials to increase cutting corners of ours inserts and to find solutions for composite and titanium machining to be able to achieve the critical finish and high operating parameters. We are also planning to enter the PCD tool market and penetrate more sectors with our newly designed variable boring bar – the Duo Boring Bar," he shares.

Project management services

Speaking on Sigma's project management services that take care of its clients from scratch to final execution, Thete states, "We provide support in cutting tools, holding systems and various gauges while assisting in the manufacturing process. Sigma's special service helps companies calculate their tentative cost-per-component and achieve their GD&T requirements." This is achieved by Sigma's technical experts who arrest the machining and holding problems by constructive prediction and analysis to address any issues during the planning stage itself. "This enables us to run on the principles of FTR (First Time Right) while maintaining development schedules of components and keeping the pecuniary interests of our clients in mind," he sums up.

Source: Sigma Toolings India Pvt Ltd

Sigma Toolings' competent team on its ultra-modern shop floor

For Sigma Toolings, IMTEX 2019 & Tooltech 2019 presents a significant opportunity to showcase its latest innovations and have a better understanding of its demographics. You can find it in Hall 3C, Booth C102 at BIEC.

Simultaneous 5-axis Horizontal Machining Center

HCR-5000S

Simultaneous 5-axis horizontal machining center for high speed machining of aluminium

- ntegral spindle/motor design minimizes vibration
- 12,000, 18,000, 25,000 and 30,000 rpm spindle options
- Linear roller guides on X, Y and Z axes
- X-, Y- and Z-axis ballscrew core cooling for machine stability
- Base X-axis construction and high-rigidity bed ensure high-accuracy positioning
- Center trough with chip conveyor for fast and efficient chip evacuation
- Tilt/rotary table for 0.0001-degree increment positioning
- Automatic tool changer (ATC) options to 160 tools

COMPLETE SOLUTION

Mazak is not only manufacturing advanced machines, but also adds value by supplying a complete solution to our customers in India like Tools, Fixture & Automation

Simultaneous 5-axis horizontal machining center

VORTEX HORIZONTAL PROFILER 160 XP

Designed for the machining of mid to large aerospace components with unsurpassed efficiency

- Box construction integrates the base, column, and table for the maximum rigidity to ensure high accuracy machining
- High speed, high output spindle for high effi ciency machining of aluminum components High productivity thanks to powerful, 120kW(Cont.),30000 rpm high speed integral spindle / motor
  -HSK-A63/80mz spindle interface with large flange diameter for heavy-duty machining
  -Same spindle interface for both HSK-A63/80mz and HSK-A63 tools
- Symmetrical base/column construction together with advanced coolant and chip disposal system minimizes heat displacement for stable production

Yamazaki Mazak India Pvt. Ltd.
INDIA TECHNOLOGY CENTER
115, Pune Nagar Road, Sanaswadi, Pune. 412208.
TEL: +(91)-2137-668800. FAX: +(91)-2137-668829
www.mazakindia.in

Since 1919 M 100th ANNIVERSARY Together-Success

Mazak
Your Partner for Innovation

ACCURACY MATTERS

To help maintain accuracy in the machining process, Honeywell turned to global engineering company Renishaw to supply a RMP600 high-accuracy machine tool probing system and Productivity+ PC-based inspection software for machining centers. The technology allows Honeywell to take measurements prior to machining and detect any axial displacement early in the process, preventing machine downtime and additional cost.

Source: Renishaw Metrology Systems Ltd

Honeywell Aerospace, part of global commercial and consumer engineering conglomerate Honeywell, produces a large number of the impellers and blisks used in commercial aeroplanes. The impellers, which are essentially radial and axial compressors, rely on a workpiece datum being maintained throughout the machining process to ensure that they are suitable for use. If the workpiece datum point is not maintained, the impeller will be considered incompatible and will require rework, repair or scrapping entirely.

If the workpiece datum of a finished part is off-center, the impeller must be submitted for design analysis, in which a designer reviews the component and decides whether it can be used. Each analysis costs approximately $66,900 per part and lengthens the manufacturing process. Production alone can take up to 60 hours, and uses around 130 tools, including assembly in the machine. At Honeywell, this production time is scheduled over a two-week period. If the part is found to be off-center after it is machined, the required analysis can take an additional week.

This leads to machine downtime and delays in the workflow, both of which have an impact on the production time and the cost of manufacture.

Challenge

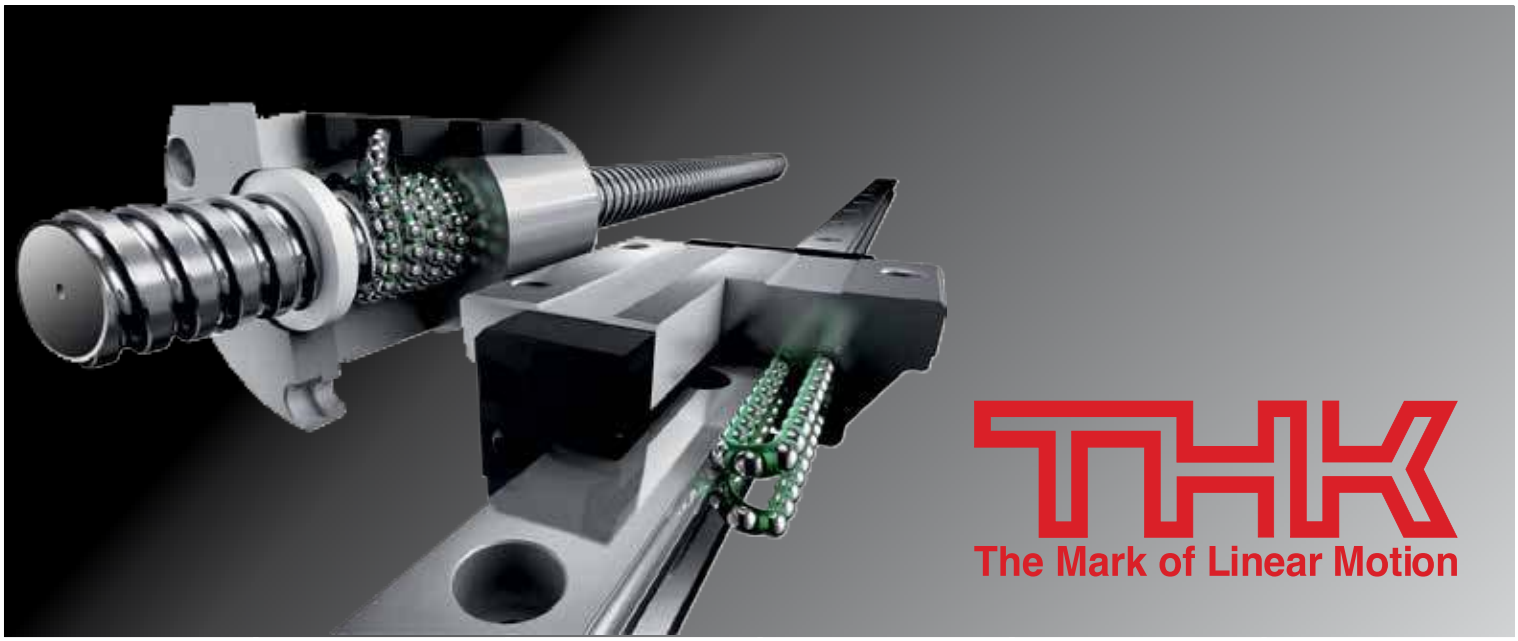
"During the impeller machining process, Honeywell found that the workpiece datum was not being maintained axially, resulting in an increase in the time taken to finish a part," commented Raúl Barriga, Sales Director, Renishaw Mexico.

Axial displacement of the central point of origin can occur as a result of incorrect part set-up, which can be caused by operator error, a damaged fixture, and/or burrs left on the part from a previous machining operation.

Solution

When the first cycle of Honeywell's impeller production process came to an end, Luis

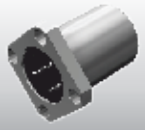
Source: Renishaw Metrology Systems Ltd

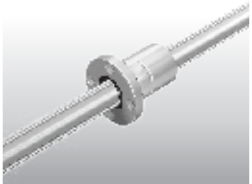



LM Guide


Ballscrew


Cross Roller Ring


LM Bush


LM Spline


Grease

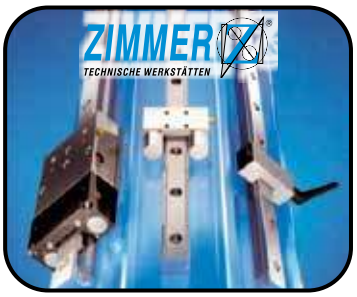

Cam - Roller Follower


Rod End - Link Ball


Cross Roller Guide


Ballscrew & 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 Mechatronix 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

Challenge

Axial displacement which can result in an increase in the time taken to finish a part

Solution

Automated part setting and on-machine measurement using RMP600 machine tool probing system with Productivity+ software

Before: original uncut blank

After: the finished blisk

Source: Renishaw Metrology Systems Ltd

Adrian Gallegos, Manufacturing Engineer, Honeywell, and his Quality Product Engineer discussed the ways that the company could reduce misalignment during the machining process. They knew their process needed improvement but didn't want to make a huge investment.

"We met with Renishaw to discuss the possibility of using a high-precision compact touch probe, along with Renishaw software, to measure the parts prior to machining and detect any misalignment so that they can be corrected before machining," commented Gallegos.

Source: Renishaw Metrology Systems Ltd

Reinshaw's RMP600 high-precision touch probe

"After exploring our options, we decided to purchase an RMP600 machine tool probe with radio signal transmission. This offered all the benefits of automated job set-up and had the capacity to measure the geometry of complex 3D parts, such as our impellers," he added.

During the machining process, the Renishaw probe touches the part in various places to identify whether there are any errors or misalignments.

"The probe helps us detect any inaccuracies before a defect occurs," continued Gallegos. "Previously, we had no way of identifying a problem until 16 hours of machining and over an hour of measuring had passed. We can now receive some warning that a part is incorrect and perform the necessary corrective actions before precious machining time and resources are wasted," he said.

Honeywell also opted for PC-based inspection software, Productivity+, for its machining centers. "This provided Honeywell with an easy-to-use programming environment for incorporating inspection probe routines and in-process decision making into machining cycles. The software helped simplify component set-up and part verification, and assisted in core areas of the machining process: process and job set-up, and part and tool identification. Productivity+ also helps in post-process reporting, as it gathers information about the completed process and helps with decision-making for subsequent operations and processes," informed Barriga.

Axial displacement of the central point of origin can occur as a result of incorrect part set-up, which can be caused by operator error, a damaged fixture, and/or burrs left on the part from a previous machining operation.

Results

"Since we started using the RMP600 touch-probe and Productivity+ inspection software, we have had no discrepancies, scrap or faults in production," said Gallegos.

"The software helps perform control tasks during the machining process, such as monitoring the status of the tool, updating the tool measurement and adaptive machining, depending on the results gathered by the probe," he added.

"Although it was always possible to rework incorrect parts after machining, it did come at a cost to the business. Receiving real-time data from the Renishaw on-machine probing system helps eliminate the chance of the same problems occurring on multiple parts, as we are able to adapt the machining process based on feedback from the probe. Renishaw's equipment has helped us improve our machining process, reduce machine downtime and produce right-first-time impellers for today's commercial aerospace sector," concluded Gallegos.

IMTEX 2019

24 - 30 January 2019

Visit us at
HALL - 3A/BOOTH - B125

ZAVENIR DAUBERT

Give your Metals the
"HAKUFORM" precision

- Complete Technical Solution
- Increase in Productivity
- Reduction in Cost Per Component
- Delegates Performance

HAKUFORM®
WATER SOLUBLE CUTTING OILS
High Tool Life, Reduced Consumption.

SCAN TO
KNOW MORE

FOLLOW US ON

www.zavenir.com +91 124 4981000 marketing@zavenir.com

BUILDING INTELLIGENT ENTERPRISES

Intelligent enterprises effectively leverage the overwhelming volume of data that is accessible to them and draw truly meaningful insights. They operate with visibility, focus and agility to achieve game-changing outcomes. Here's knowing how these enterprises do what they do...

Intelligent technologies are inherent to the Digital Economy and also change the way we work.

Source: SAP SE

PRITI PRABHOO
Vice President
SAP S/4HANA Cloud
Product Management
& Co-Innovation
SAP SE

The Digital Economy is the world we live in today which is changing faster than ever before because of the technologies available at a massive scale. We actively partake in this economy when we deposit a check using our smartphone or go for a run wearing a FitBit or take the bus and use our SmartPass. These technologies impact our everyday personal and professional lives, to the point we, at times, forget they are there.

A radical change in future business challenges

Intelligent Technologies like Machine Learning (ML), Internet of Things (IoT), Robotics, Predictive and Real-Time Analytics, 3D Printing, Artificial Intelligence are increasingly impacting our lives, adding tremendous value to the way we do business.

These technology trends are inherent to the Digital Economy and will also change the way we work. Customers today expect personalized offerings, faster delivery and proactive services; they want a best-in-class experience. Employees now represent four to five different generations. They all want to be empowered and engaged in meaningful work. And productivity means doing even more with less, while driving topline growth through new business models.

To address these challenges, one needs to make sense of the growing volume of data, allocate scare capital and innovate with relentless speed. For example:

- Finance professionals can find new ways to fund innovation;
- Sales professionals can find new ways to serve customers;
- HR professionals can spend their time building the talent pipeline;
- IT professionals can focus on the needs of the business.

What manufacturing companies need to do

Manufacturers, in this environment, need to find ways to start leveraging the Intelligent Enterprise technologies that –

- Can deliver a comprehensive suite of modular, integrated software to connect their business end-to-end;

INDIA'S **No.1** EXPORTER
of lathes to **GERMANY**

50 GOLDEN JUBILEE 2016 GOLDEN YEARS
GEDEE WEILER
Legacy continues...

Rigid. Precise. Flexible

THE MOST VERSATILE UNIVERSAL MACHINE!

UNITURN 300 HD. A real universal CNC machine which is rigid, precise and with many flexible options like live tool turrets, different controllers and work holding options etc. And with over a decade long proven track record of being successfully used by various industries across the globe.

UNITURN 300 HD

UNIVERSAL TO MEET ALL YOUR MACHINING REQUIREMENTS

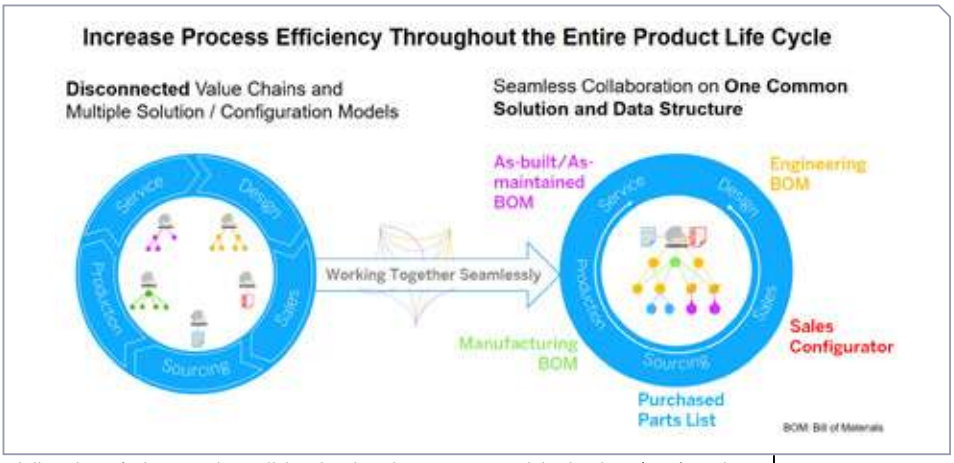
GEDEE WEILER

A CUT ABOVE THE REST

GEDEE WEILER PRIVATE LIMITED, Vellalore Road, Podanur P.O. Coimbatore - 641 023, Tamil Nadu, INDIA.
EPABX: +91-422 2413908, 804 and 048 E-mail: sales@gdweiler.com Website: www.gdweiler.com

- Can apply intelligence and innovation to re-imagine their business;
- Are the latest advances in mobile, cloud and in-memory computing technology to simplify processes, deployment and user experiences, helping them simplify the increasing complexity of today's digitally-infused, information-rich world.

All without disruption to their core business.



Source: SAP SE

Intelligent ERP fosters seamless collaboration based on one common data structure / configuration model, which can be enriched, filtered and productized as the product moves along the life cycle.

Deploying next-gen intelligent ERP

Intelligent Enterprises do not work in silos. They deploy a full suite of intelligent technologies embedded in ERP (Enterprise Resource Planning) supporting end-to-end business processes across modular and flexible, yet integrated lines of business (LoBs), be it sales, marketing, procurement, manufacturing or human resources and much more.

These processes are operated in the cloud and allow the team to focus on what really matters: Driving value for their customers and shareholders and transforming their business.

Increasing process efficiency throughout the product life cycle

In traditional ERP, data structures and configuration models of the same product may have been built and used independently from each other across different LoBs, leading to disconnected value chains. Instead, Intelligent ERP fosters seamless collaboration based on one common data structure / configuration model, which can be enriched, filtered and productized as the product moves along the life cycle:

- **As-built/as-maintained BOM:** During installation and life of the product, parts will be changed, augmented and improved leading to yet another view of the product structure;
- **Engineering BOM:** R&D develops the basic product structure with configuration options, new and re-used parts;
- **Sales configurator:** Sales decide which options to expose to customers as options and valid configurations;
- **Working together seamlessly:** The prerequisite of this is creating, managing and changing the solution / configuration model in a controlled and collaborative way. No strict process serialization;
- **Purchased parts list:** Sourcing decides on strategic suppliers and alternative parts;
- **Manufacturing BOM:** To do the actual manufacturing, the product structure is re-modelled reflecting the manufacturing strategies and process.

An Intelligent Enterprise is one that can effectively leverage the overwhelming volume of data that is accessible to them and draw truly meaningful insights. Intelligent enterprises operate with visibility, focus and agility to achieve game-changing outcomes. They do more with less and empower employees through process automation. They deliver a best-in-class customer experience, by proactively responding to customer expectations. And they invent new business models, and revenue streams.

Productivity means doing even more with less, while driving topline growth through new business models.

Accelerating value creation

The Intelligent Enterprise accelerates value creation through three capabilities: visibility, focus and agility.

- With Visibility one can tap into siloed or external data and recognize previously unseen patterns.
- With Focus one can simulate the downstream impacts of critical decisions and allocate scarce resources.
- And with Agility one can adapt their business processes in response to changing market conditions in real-time.

One's business may already have some of these capabilities, but they can be dramatically enhanced through intelligent technologies such as ML, IoT, and advanced analytics. It's these enhanced capabilities that allow the Intelligent Enterprise to achieve critical outcomes faster and more effectively than ever before.

Ace Micromatic® Group

AMS® In Pursuit of Excellence

PRECISION MACHINES.

Reliable Performance.

Largest Manufacturers of
3 axes, 4 axes & 5 axes
CNC Machining Centers...

www.amsl.in

We understand complex shapes and exotic materials can be a real challenge to machine without the use of right products. With AMS's multitasking and 5 axes machining centers you can address these issues while raising the productivity levels. Our products are handcrafted to suit aerospace parts machining while they are also designed for high dynamic performance.

ACE MANUFACTURING SYSTEMS LTD.
Plot No. 467 - 469, 4th Phase, Peenya Industrial Area, BANGALORE - 560 058. INDIA.,
T: +91-9880189832 E: helpdesk@amslindia.co.in

USHERING IN INNOVATION

With the objective of facilitating collaboration between the industry and academic institutions to address the issue of skill shortages, Indian Machine Tools Manufacturers' Association (IMTMA) organized an Industry Institution Interactive Meet at Bangalore International Exhibition Centre (BIEC), Bengaluru on September 25, 2018. Highlights...

Source: IMTMA

(L-R) PJ Mohanram, Senior Adviser, IMTMA; Dr S Devarajan, Senior Vice President, TVS Motors and Indradev Babu, Vice President, IMTMA, at the Industry Institution Interactive Meet.

IMTMA has always been in the forefront of forging a robust industry-academia bond to help address the problem of widening skills gap and create a strong pool of trained manpower. To ensure that its efforts are heading in the right direction, the association held an interactive meet that convened around 80 people from various institutions as well as the industry.

The day-long event commenced with a welcome address by PJ Mohanram, Senior Adviser, IMTMA. Other panelists included Dr S Devarajan, Senior Vice President, TVS Motors and Indradev Babu, Vice President, IMTMA.

Engineers to benefit from machine tool industry

Speaking on the importance of the machine tool industry in manufacturing, Babu highlighted the various growth opportunities that the industry offers. He stressed that when measured in terms of the size, machine tool industry may be a small constituent in manufacturing, it, however, plays a significant role in producing the machines required for the manufacturing to happen. The industry, therefore, throws open highly interesting opportunities for engineers, particularly for designing and creating products. The industry produces products with allied services support, whereas the institutions bring out educated youth. A proper alignment between the industry and academic institutions will surely pay rich dividends, he stated.

Babu said that he could feel the undercurrent of the mounting demand for machine tools at the recently concluded International Manufacturing Technology Show 2018 at Chicago. The exhibition created a record in terms of participation and there was a huge interest for machine tools.

Informing the audience on our country's global standing, he stated that India is the sixth largest economy in the world and is expected to overtake the UK and occupy the fifth position in the global list of economic giants. He divulged statistics that manufacturing contributes to around 16.7 percent to India's GDP. Machine tool consumption during 2017-18 was around ₹14,700 crore and around 50 percent of the machines were produced domestically. He added that by 2020, the production figures for machine tools is expected to touch around ₹12,600 crore.

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

Enhancing Manufacturing Industries' Competitiveness

www.imtmatraining.in

150+ Focused Technical Training Programmes on

Maintenance
Metal Forming
Emerging Technologies

Design
Productivity
Quality
Automation

@ Bangalore, Pune & Gurgaon

- **86000+** Mandays of training delivered 2009 onwards
- **150+** Training Programmes
- **5000+** Companies Trained Across India
- **e-Learning**

MAKING FRESH ENGINEERS INDUSTRY READY

FINISHING SCHOOL IN PRODUCTION ENGINEERING

@ Bangalore & Pune

192 Hours Comprehensive Programme in Modern Production Environment

Hands-On Sessions on CNC Machines and CNC Accessories

Practical-Based, Industry-Endorsed Curriculum

Experience sharing by Industry experts


Engineering Drawing


Process Planning


Tooling Selection


CNC & CAD / CAM Programming


CNC Machining


Measurement & Quality Control

Hands-on training for Junior Engineers, Supervisors, Industry Recruits & Engineering /Diploma Students from Mechanical and Allied Disciplines

IMTMA Technology Centre
Indian Machine Tool Manufacturers' Association
www.imtmatraining.in

For further details and registration, please contact:

Indian Machine Tool Manufacturers' Association
BIEC ,10th Mile, Tumkur Road, Madavara Post, Bangalore - 562 123
Tel Nos: 080-66246708 / 66246600 ; Fax No : 080-6624 6658
E-mail : productivity@imtma.in ; Website : www.imtmatraining.in

Source: IMTMA

The meet gathered experts from the industry and academic institutions to deliberate over ways to create industry-ready workforce.

The Auto industry, he said, was a major consumer of machine tools. While 40 percent of the machine tool consumption comes from this industry, industry machinery accounts for around 20 percent. Die and Mould industry accounts for around 10 percent and Defence, Railways and Power etc. account for around 5 percent. With the machine tool industry growing at around 20 percent year-on-year, the demand for precision parts and other accessories are expected to increase, he informed.

Dr Devarajan seconded Babu's opinion on the significance of the machine tool industry and said that the industry possesses incredible design skills and the tools are price competitive. He added that if the industry can design good products for the Indian market then it has the ability to deliver them anywhere in the world. He further added that Indian economy is creating the right opportunities for this and we need to stay tuned. He elaborated on how learning and enhancing total employee involvement would result in QCD benefits of an organization.

Training is important

Mohanram made a brief presentation on IMTMA Technology Centers. IMTMA lays great emphasis on training the industry workforce through its training programs as well as imparting technology know-how on advanced developments through seminars and summits. Speaking on the relevance of the Centers, Mohanram said that IMTMA has set up model digital manufacturing units at its Centers and has recreated a model manufacturing shop where machines are interconnected. Students undergo training for the jobs that they would have to take up on shop floors when they join the industry. The training makes them industry ready.

V Anbu, Director General, IMTMA spoke on the current trends in Indian manufacturing and how can they be instrumental in realizing the Indian government's vision of increasing the contribution of manufacturing from the current over 16 percent to 25 percent by 2025.

More to deliberate over

The meet also featured interesting sessions from M Dharmananda, Manager – HRM, Toyota Kirloskar Auto Parts, who made the attendees aware of the 'Best Practices of Learning and Development'; Dr Prakash Tewari, Dean Academics, KLE Technological University, gave an account on 'Faculty Development Initiatives'; and V Kumarasubramaniam, Senior General Manager – L&D, Tube Investments Group, divulged ways to 'Enhance Effectiveness of a Training'.

The event concluded with a visit to IMTMA Productivity Institute and Design Institute and an interactive session with the faculty. The final panel discussion focused on examining the skills gap between the ones imparted by institutions and those needed in the industry. It led to an insight into the expectations of the industry from the new recruits and the significant role of IMTMA Technology Centers in analyzing and bridging the knowledge gap.

"Machine tool consumption during 2017-18 was around ₹14,700 crore and around 50 percent of the machines were produced domestically. By 2020, the production figures for machine tools is expected to touch around ₹12,600 crore."

Source: IMTMA

The event concluded with a visit to IMTMA Productivity Institute and Design Institute and an interactive session with the faculty.

TECHNOLOGY @ work

50 years of IMTEX 1969 - 2019

IMTEX 2019

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

Tooltech 2019

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

24 - 30 January 2019, Bangalore, India

Organiser

Indian Machine Tool Manufacturers' Association

Venue

BIEC Bangalore International Exhibition Centre

ufi Approved International Event

www.imtex.in

EVENT CALENDAR

EVENT NAME	CONTACT	DATE & VENUE
AERODEF INDIA	T: +91 8860075056 E: pawan@infinityexpo.in www.aerodefindia.com	January 17–19, 2019 Hitex Exhibition Center Hyderabad, India
IMTEX 2019	T: +91 80 6624 6600 E: imtma@imtma.in www.imtex.in	January 24–30, 2019 Bangalore International Exhibition Centre (BIEC) Bangalore, India
EXPO MANUFACTURA 2019	T: (52 55) 1087-1650 ext. 1116 E: arian.correa@ejkrausetarsus.mx www.expomanufactura.com.mx	February 05–07, 2019 Cintermex Monterrey N.L., Mexico
CHINA MACHINE TOOL EXHIBITION (CME) 2019	T: +86 21 6028 0793 E: zhouxiaodan@cme021.com www.cme-shanghai.com	February 26–March 01, 2019 National Exhibition & Convention Center Shanghai, Hongqiao, China
TAIPEI INTERNATIONAL MACHINE TOOL SHOW (TIMTOS) 2019	T: +886 2 2725 5200 E: timtos@taitra.org.tw www.timtos.com.tw	March 04–09, 2019 Taipei Nangang Exhibition Center, Taipei, Taiwan
EXPOMAFE	T: 11 3598-7810 E: expomafe@informa.com www.expomafe.com.br	May 07–11, 2019 Sao Paulo Expo Exhibition & Convention Center Sao Paulo, Brazil
METALLOOBRABOTKA	T: +7 (499) 795 3843 E: metobr@expocentr.ru www.metobr-expo.ru/en/	May 27–31, 2019 Expocentre Fairgrounds Moscow, Russia
INTEC 2019	T: +91 422 222 2396 E: intec@codissia.com www.intec.codissia.com	June 06–10, 2019 CODISSIA Trade Fair Complex Coimbatore, India
DELHI MACHINE TOOL EXPO (DMTX) 2019	T: +91 80 6624 6600 E: info@imtma.in www.mtx.co.in	August 08–11, 2019 Pragati Maidan New Delhi, India
EMO HANNOVER 2019	T: +91 22 6687 550 001 E: info@hmf-in www.emo-hannover.de	September 16–21, 2019 Hanover Fairground, Messegelände Hannover, Germany
MTA HANOI 2019	T: +65 6233 6688 E: machine-isoa@ubm.com www.mtahanoi.com/en-us/	October 16–18, 2019 Hanoi, Vietnam
METALEX 2019	www.metalex.co.th	November 20–23, 2019 BITEC, Bangkok, Thailand
MACHINE TOOL INDONESIA 2019	T: +62 21 2525 320 E: maysia@pamerindo.com www.machinetoolindonesia.com	December 04–07, 2019 Jakarta International Expo (JIExpo), Jakarta, Indonesia

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

Block your date on 23 January 2019

Global Trends in Machining Technologies !

8th INTERNATIONAL SEMINAR ON MACHINING TECHNOLOGIES

23rd JANUARY 2019, BIEC, BANGALORE

"Powering Manufacturing Growth and Competitiveness"

IMTEX 2019

Being held in conjunction with IMTEX 2019 exhibition, this International seminar will dwell extensively on new manufacturing strategies, review and address emerging trends, as well as expose users and manufacturers to a range of value added machining solutions.

Focus Areas

- Machining, Tools & Metrology
- Large Parts Manufacturing
- Additive Manufacturing
- Automation & Industry 4.0
- Emerging Technologies

Facilitators

International experts from Germany, USA, Japan, UK, Switzerland as well as from India will facilitate sessions at this International seminar. Spread over 3 concurrent sessions and 5 technology tracks, this seminar will cover key technology areas and their application related to metal cutting.

Organised by

www.imtma.in

For details, please contact: Abhishek, abshishek@imtma.in

Indian Machine Tool Manufacturers' Association

Tel: +91 80 6624 6829 / 6805 ; Fax +91 80 6624 6661

SUPER BOWL OF MANUFACTURING!

When digitization collides with a robust manufacturing industry a dynamic show is created. The 32nd edition of The International Manufacturing Technology Show (IMTS) was a testimony to exponential technology advances and a strong economy that propelled North America's premier manufacturing show from September 10-15, 2018 at McCormick Place in Chicago.

(L-R) Dr Jochen Koeckler, Chairman of the Managing Board, Deutsch Messe AG, and Douglas K Woods, President, The Association For Manufacturing Technology (AMT) declaring IMTS 2018 open.

Source: AMT

Drawing 129,415 visitors to explore cutting-edge offerings by 2,563 exhibitors occupying 2,123 booths in a massive area of 1,424,232 sq ft of exhibit space, the 2018 edition of IMTS broke its own previous records, displaying an unprecedented degree of collaboration among exhibitors to develop additive manufacturing, automation and connected systems.

In this backdrop, Tim Shinbara, Vice President, Manufacturing Technology, The Association for Manufacturing Technology (AMT), observed, "Historically, years between IMTS lead to incremental machine improvements, which are now reaching physical limits. The velocity of change has become different. Analog technology yields linear improvements. Digital technology creates exponential growth and transforms how manufacturers and job shops operate."

Agreeing to this sentiment, Peter R Eelman, Vice President, Exhibitions & Business Development, AMT, shared, "Connectivity, the digital transformation of manufacturing, automation, additive manufacturing (AM) and a strong economy drove record numbers at IMTS 2018."

Around 128 Taiwanese manufacturers participated in IMTS 2018. The 'Taiwan: Make Tomorrow Come True' VR Press Conference at IMTS 2018 featured the technological strengths of Taiwan's smart manufacturing products and solutions.

Source: Magic Wand Media

Olli, the self-driven shuttle gave more than 1,400 rides at IMTS.

Source: Magic Wand Media

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

Additive Manufacturing

The expansive show featured an exclusive Additive Manufacturing Pavilion housing 51 exhibitors sprawling across 31,550 sq ft. To display the ability of going from digital to actual production in less than 10 hours that traditionally used to consume six weeks and costed huge money, Oak Ridge National Laboratory created a 'die-in-a-day' demonstration that featured four stages of development: printing the die at Lincoln Electric, machining the printed die at Mazak, moulding a part from the die at IACMI and 3D laser scanning the part at Quality Vision International.

In this setting, John Rogers, CEO & Co-Founder, Local Motors, elaborated, "The machines that you see at IMTS 2018 are moving at the speed of digital technology. They're able to take files and make something that you've imagined." He further added, "The tagline of IMTS 2018 says it the best, 'Where dreamers and doers connect'. That was the reason why we started a vehicle manufacturing company like Local Motors where we would be able to think it, print it and deploy it."

Bruce Rauner, Governor of Illinois also rode Olli, a self-driven, digitally manufactured, 3D-printed, electric shuttle by Local Motors designed to streamline shared transportation systems around the world.

Several participating companies such as HP and EOS made IMTS 2018 their venue to debut high-volume AM systems. Stephen Nigro, President, 3D Printing, introduced the HP Metal Jet printer which is designed for high-volume production and gives 50 times more productivity than any other binder jet or laser.

Source: Magic Wand Media

V Anbu, Director General & CEO, Indian Machine Tool Manufacturers' Association (IMTMA), at IMTS 2018 apprising international media and associations on the Indian machine tool capabilities and inviting them to IMTEX 2019 & Tooltech 2019, which will the 50th edition of the show

Intelligent Solutions

Athena, the industry's first voice-operated assistant, debuted at IMTS at the Makino and OKK booths, as well as at AMT's ETC where visitors could control a 5-axis DMG MORI CNC. According to Dan Bagley, VP, Marketing & Sales, iTSpeeX, "People don't operate machines; they produce parts in a cell, and the machine is an actor in that cell. Athena provides intelligent assistance to machinists to allow them to operate multiple types of controls."

Digital Factory @ Co-located Show

The Hannover Messe USA co-located show had 510 exhibitors from around the world hosting more than 60 learning sessions on important topics such as IIoT, intelligent manufacturing and next-generation technology. Talking of this strong partnership, Douglas K Woods, President, AMT, said, "Hannover Messe USA and IMTS bridge the gap between Silicon Valley technology and main street manufacturing. People find technologies here that change the spaces we work in."

Technical Conferences

More than 2,500 visitors attended conference sessions during the show. The IMTS Conference and the co-located events collectively provided IMTS visitors with more than 142 hours of educational programming and 71 different sessions. "The two most popular themes from the conference sessions were additive manufacturing and connected/digital manufacturing," said Bill Herman, Director, International Exhibitions and Sponsorship, AMT.

Grand Finale

Well said by many veteran participants that by the time IMTS 2020 arrives, what visitors learned at IMTS 2018 would have already changed their operations. However, they will continue visiting the show to unravel newer possibilities that can expand their horizons still further.

According to AMT, the show owners, producers, and exhibitors brought in more than 24,947,580.35 kg machinery on 4,465 trucks with eight machines weighing more than 45,359.237 kg.

Blaser Swisslube presented its Synergy 735, a crystal-clear, water-miscible and oil-free fluid in IMTS 2018. Validating it as the best coolant he has ever used, Titan Gilroy from Titans of CNC shared that he has switched all his machines to Synergy 735.

Source: Blaser Swisslube

FOR TOGETHER WE WIN

The 7th VDMA Mechanical Engineering Summit presented an insight into VDMA India's initiatives and Government's progressive reforms to accelerate Indian industry's growth, technologies of today and problems that need to be solved.

A robot handing over the VDMA summit special issue to the dignitaries at the event.

Source: VDMA India

Considering the fact that India is the second-largest sales market in Asia for the German Engineering industry, VDMA India, with its relentless focus on Mechanical Engineering industry, organized a 7th VDMA Mechanical Engineering Summit. The event brought together 250 VDMA India members and served as an ideal platform to shed light on the various issues that demand immediate attention.

Favorable changes

Acknowledging the unprecedented and impactful reforms by the Government of India, Rajesh Nath, Managing Director, VDMA India, in his welcome address noted, "The country's economic growth soared to an over two-year high in the April to June 2018 quarter, powered by solid expansion in the manufacturing, the farm sector, gathering strength in consumer spending and bolstering the government's reform record." He further stated, "The Business Climate Survey among the German companies conducted by VDMA had a positive outcome as 62 percent of the participants said the climate is good, whereas 35 percent considered it normal and only 3 percent termed it slower than last year."

Exchanging each other's best

The Chief Guest, Rashmi Urdhwareshe, Director, Automotive Research Association of India (ARAI), congratulated VDMA for acting as a bridge between the German and Indian industry and also made a presentation on 'Implementation of BIS-VI – Way forward for the Automobile industry'. ARAI is an autonomous research association of the Automotive Industry with Ministry of Heavy Industries and Public Enterprises, Government of India.

Dr Jurgen Morhard, Consul General, Federal Republic of Germany, Mumbai, spoke on 'Indo-German Trade in the western part of India". He considered VDMA as an excellent medium for German companies to establish their businesses in India and highlighted the association's im-

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

International Machine Tools & Industrial Trade Fair

18th Edition

inter 2019

INTEC 2019

(An Event of CODISSIA Intec Technology Centre)

Organised by

CODISSIA
Intec Technology Centre

CONCURRENT EVENTS

Toolex 2019

INDUSTRIAL AUTOMATION EXPO 2019

6th to 10th JUNE 2019

CODISSIA Trade Fair Complex

Coimbatore, INDIA

Exhibitors Profile

- Industrial Electrical & Electronics
- General Engineering
- Machinery for Process Industry
- Metallurgical Plant & Equipments
- Textile Machinery & Equipments
- Fabrication Machinery & Equipments
- IT Consulting & Service Providers
- Machine Tools & Accessories
- Hydraulics & Pneumatics
- Material Handling Equipments & Machinery
- Foundry Equipments
- Pumps & Fittings
- Precision Tools, Cutting Tools, Dies & Moulds
- Instrumentations Automation
- Factory Cleaning & Pollution Control Equipments
- Industrial Consumables

Platinum Supporter: ELGi Always Better.

Diamond Supporter: JANATICS Pneumatic

Silver Supporter: GISHNU GEARS Transforming Innovation

Conference Partner: TexasVentures www.texasventures.us

E-Magazine Partner: INDUSTRY 4.0 www.industry4o.com

STALL BOOKINGS OPEN

Mobile : 99655 15182 / 75025 22000 / 75029 22000 / 85020 22000

E-mail : intec@codissia.com Web : www.intec.codissia.com

portant role in the field of Mechanical Engineering.

Citing the numerous exchanges between the two countries in technology, investment, education, and tourism, Morhard informed the audience of the fast track mechanism to expedite certain important issues of the German companies with the Indian government. The key challenges, according to him, were the safety issues and the complexity of labour laws.

All positive

The audience response for the summit was a reason for delight for Carl Martin Welcker, President, VDMA Frankfurt. At present, VDMA has around 3,250 members. Welcker was optimistic with the trade with India as exports have grown to €1.6 billion. "The capital goods exports have also increased, and it will continue to grow in the coming years. The challenge going forward is how to cope with China which is investing hugely on quality and quantity."

The VDMA summit special issue was released and, for the first time, a robot was used to hand over the publication to the dignitaries. The dignitaries also released a knowledge paper prepared by the Knowledge Partner, BDB India Pvt Ltd on 'Primary user industry for Machinery manufacturers', which

Source: VDMA India

"German exports to India have grown to €1.6 billion. The capital goods exports have also increased, and it will continue to grow in the coming years. The challenge going forward is how to cope with China which is investing hugely on quality and quantity."

Carl Martin Welcker
President
VDMA Frankfurt

was followed by a presentation on the same.

Technical sessions

The summit was packed with back to back technical sessions. While Aditya Lakhanpal, Director–Corporate Treasury Solutions, Global Markets, HSBC India, spoke on the 'Importance of meeting the Fiscal Targets'; Prashant Deshpande, Partner, Indirect Tax, Deloitte Touche Tohmatsu India LLP, gave an overview on the 'Impact from GST Taxation and Anti Profiteering'. Sharing his organization's experience of GST since the last one year was Nilesh Jajodia, CFO, Wirtgen India Pvt Ltd.

The technical session on the theme of 'Early adoption of Industry 4.0 and its challenges in Manufacturing' had a presentation from Lokesh Payik, Chief of Digital Enterprise and Connected Industry, Bosch. Sanjeev Kumar, Head – MTS, Marcom, Rittal India Pvt Ltd, also gave an overview on the company's automation system, a comprehensive equipment for a professional workshop operation covering machine tools and a fully automated machine technology.

Umesh Pai, Managing Director, EPLAN Software & Services Pvt Ltd, explained the challenges in the adoption of Industry 4.0 and concluded that the success lies in the reduction of complexity and total integration. Neeraj Athalye, Vice President – Innovation & Digital Business, SAP Indian Subcontinent, stressed on the need to have more mega cities, new customer segments, improved supply chain infrastructure, better regulatory environment, higher global integration, and innovative and affordable technologies.

Brainstorming for solutions

A panel discussion named "From Red Tape to Red Carpet - Ease of Doing Business" was moderated by Nath, with panelists including Welcker; Georg Sparschuh, President, SCHOTT Glass India Pvt Ltd; Dharmesh Arora, President & CEO, Schaeffler India; Girish Ketkar, Whole Time Director & CFO, Thyssenkrupp Industries India Pvt Ltd; Bipin Jirge, Managing Director, ifm electronic India Pvt Ltd. The panel members explained the implications of GST in their businesses in the last one year and discussed the upcoming challenges like anti-profiteering, getting skilled workers etc.

According to the Business Climate Survey among the German companies conducted by VDMA, 62 percent of the participants said the climate is good, 35 percent considered it normal and only 3 percent termed it slower than last year.

Source: VDMA India

The audience at the summit which was packed with back to back technical sessions

As per the Advertisement in Deccan Herald on 05-10-2018 the last date for submission of Applications is extended upto 31-12-2018, 5.00 p.m.

Last date extended to 31-12-2018

TUMAKURU MACHINE TOOL PARK (TMTP)

(A Special Purpose Vehicle of GOI & GOK)

#.49, 5th Floor, East Wing, Khanija Bhavan, Race Course Road,
Bengaluru-560 001. Phone No. 080-22288841, 22288842 & 22288843
Email: tmtp@kiadb.in Website www.kiadb.in

Date: 06.09.2018

NOTIFICATION

APPLICATIONS ARE INVITED FOR ALLOTMENT OF INDUSTRIAL PLOTS AT TMTP EXCLUSIVELY FOR MANUFACTURERS OF MACHINE TOOLS AND THEIR ANCILLARY UNITS

Government of Karnataka (Through SPV) is developing an Integrated Machine Tool Park with State-of-the-Art Industrial Infrastructure coupled with an eco-friendly layout in an extent of about 530 acres of land at Vasanthanarasapura, Tumakuru District, with assistance from Department of Heavy Industry, Government of India to attract investments in the machine tools sector. It is an integral part of Tumakuru Industrial Node on the proposed Chennai - Bengaluru-Chithradurga, Industrial corridor and is located adjacent to proposed Japan Industrial Park.

This is a golden opportunity for manufacturers of Machine Tools, accessories, attachments, sub-system assemblies, components and parts, dies and moulds, tools and tooling, consumables and others directly related to machine tool industry and service providers and units providing support to the machine tool industry to set up their units in TMTP.

The Karnataka State Industrial Policy 2014-19 intends to offer special impetus with incentives & concessions and special rate for industrial plots.

Applications from the prospective and interested entrepreneurs can be submitted online in the website of Karnataka Udyoga Mitra **(http://kum.karnataka.gov.in), (http://ebizkarnataka.gov.in)**. The filled in applications should be submitted by **5.00 p.m. on 06.10.2018.** Further details and detailed notification is available on the website. For any further guidance with respect to Machine Tool Park, the agencies may contact Sri Revannagowda, Managing Director, (Mobile : 9845521224), Karnataka Udyog Mitra, 3rd Floor, Khanija Bhavan #49, Race Course Road, Bengaluru-560001 or any of the following officers.

Smt. T.K. Swaroopa
Additional Director,
Policy & Promotion
Industries & Commerce
Mob: 9341966609

Sri. L.S.Harti
Chief Finance Officer
TMTP
Mob: 9845520837

Sri. Ifthekar Ahmed
Dev. Officer
KIADB
Mob: 9901604074

Sd/-

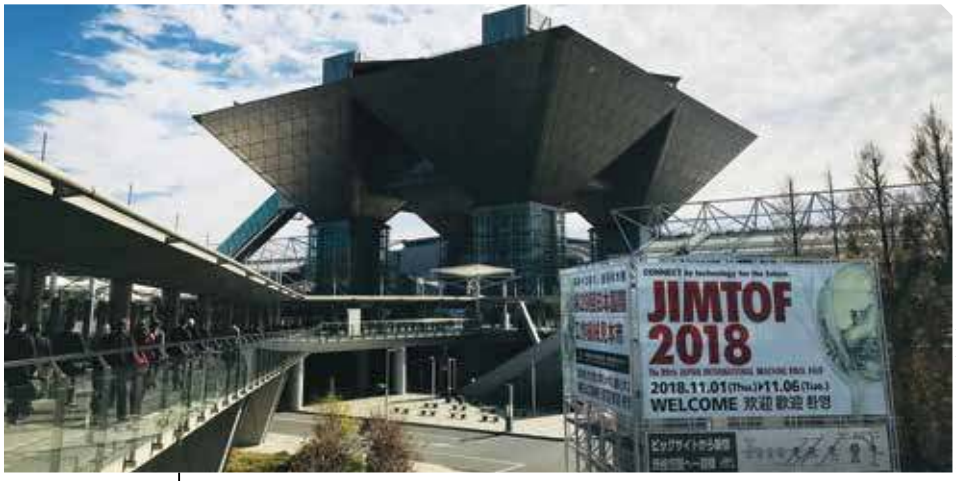
Sri. Anirudh Sravan P., IAS
Chief Executive Officer
TMTP

Sd/-

Sri. Darpan Jain, IAS
Commissioner for Industrial Development & Director
Department of Industries and Commerce, GoK

FUTURE OF MONOZUKURI

The 29th edition of Japan International Machine Tool Fair (JIMTOF 2018) was a technological feast themed around 'CONNECT by Technology for the Future'. Organized by Japan Machine Tool Builders' Association (JMTBA) and Tokyo Big Sight Inc from November 01-06, 2018 at Tokyo Big Sight, the ever-evolving show housed cutting-edge technologies that are shaping the fourth Industrial revolution.



Source: Magic Wand Media

With a record breaking participation of 1,085 exhibitors from 21 countries exhibiting in 5,524 booths and 1,53,000 visitors, the latest version of JIMTOF served as a platform to stimulate new demand for capital investment from the visitors. With the assimilation of a wide range of key trends under one roof, the biennial fair served as a Mecca for tech enthusiasts of the manufacturing space.

According to Yukio Iimura, Chairman, JMTBA, rapid developments are taking place all around the world, bringing about a fusion of manufacturing craftsmanship and information technology and exploiting the potential of the Internet of Things (IoT). This made for the theme of JIMTOF 2018 - 'Connecting to the Future: The Great Tree of Technology.' A plethora of innovative displays under this concept such as IoT, Additive Manufacturing (AM), intelligent smart machines and Industrial IoT for smart factory automation that combines machine tools with robots were showcased in the six-day show.

Internet of Things

Woven around its core theme, around 72 companies in Hall 7 East used IoT platforms to morph Tokyo Big Sight into a huge Smart Factory, connecting nearly 300 displays under the title 'Connected Industries SHOWCASE @JIMTOF2018'. Sharing his thoughts on this marvellous feat Iimura said, "This is the world's first attempt of its kind at a machine tools exhibition. It is a wonderful sight to see how machines produced by different manufacturers can be connected without any problem and to get a sense of how connecting tools and machines is no longer difficult."

The platform helped visitors to comprehend potential ways in which machine manufacturers and users can use shared information in mutually beneficial ways and stimulated the interest of machine tool users in the introduction of IoT technology.

DMG MORI premiered its Digital Twin, an innovative technology to carry out machining, analysis and process adjustment in the virtual space to shorten development lead time. It showcased 22 machines with 4 Japan Premieres under the theme of 'DMG MORI Digital Factory'. Various turnkey solutions were displayed for process integration, small-sized automation solutions, digital solutions offering connectivity between machines and factories. Its human-machine interface CELOS and operation-monitoring DMG MORI Messenger were connected via network.

Source: JMTBA

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

Source: JMTBA

"All around the world rapid developments are taking place, bringing about a fusion of manufacturing craftsmanship and information technology and exploiting the potential of the Internet of Things."

Yukio Iimura
Chairman, JMTBA
Chairman & CEO
Toshiba Machine Co Ltd

Source: JMTBA

"The demand in the automobile sector in Southeast Asia including Thailand and India has led to an increase of 6.2 percent machine tool orders amounting to 388.7 billion Yen."

Masayoshi Amano
President
JMTBA

Advanced Software Technologies

In sync were showcased highly advanced software technologies that facilitate the collaboration between robots and machine tools. In the foreseeable future, machine tools will be designed on the assumption that robots and humans will work together in factories. The automation of various production processes with robots will be on the rise and become increasingly popular in myriad sectors.

Intelligent Manufacturing

The demonstration of 'Athena', the first universal, voice-operated intelligent assistant technology designed for the manufacturing work on the OKK Corporation machine was the cynosure at JIMTOF 2018. The OKK machine, equipped with 'Athena', was also demonstrated at IMTS 2018. This revolutionary technology enables operators to interact with machine tools using simple voice commands and helps increase productivity. Its biggest advantage is that the operator can operate the machine without touching the operation panel and even beginners, not well-versed with NC codes, can work on machines.

Additive Manufacturing

Acknowledging the increasing deployment of AM in creating actual products instead of prototypes, JMTBA spotlighted this highly sought-after technology too at the show. Several high-speed and high-precision machine demonstrations using 3D laminating moulding equipment and hybrid machines integrated with cutting and polishing equipment were showcased. The number of exhibits displayed under AM bore testimony to its growing importance and contribution to the future of manufacturing.

Source: Magic Wand Media

Industry experts from JMTBA and Tokyo Big Sight addressing the overseas media

Source: JMTBA

Metalworking Fluids

For fully capitalizing on the potential of machines and tools, metalworking fluids play a key role. By analyzing the customer's entire production process and selecting the most suitable metalworking fluid, Blaser Swisslube helps them influence tool wear, cutting speed, surface quality and sump life and soft factors such as odor, human and environmental sustainability. At JIMTOF 2018, the company presented its three latest metalworking fluids: Synergy 735, Vasco 6000 and Blasogrind GTC 7.

Confluence of Conferences

Advancement of machine tool technology influences the advances of the manufacturing globally. Keeping this into consideration, the show organizers held the 18th International Machine Tool Engineer's Conference (IMEC) to foster innovation in machine tools. Researchers and engineers from Japan and all over the world presented papers on 15 interesting themes under the theme of 'Future Monozukuri in Japan Now in View'. Additionally, a poster session of 70 latest research findings was displayed during JIMTOF 2018..

Curtain Call

This edition of JIMTOF set a perfect tone for the highly anticipated forthcoming Industrial Revolution. Its next version in 2020 is much awaited by the industry and holds a special significance as Japan is hosting the Summer Olympics in the same year.

According to JMTBA, the total amount of machine tools order received in 2018 is around 1,850 billion Yen, which is 12.4 percent more from the previous year.

Metrology

Multi-sensor CMM systems

The REVO 5-axis from Renishaw, with its benefits, promises to be the next wave in quality control.

The need to retain accuracy has historically compromised the ultimate speed of the measuring process due to the characteristics of a CMM's structure. The non-linear motion of a Cartesian CMM induces accelerations and decelerations that twist and deflect the machine structure and result in measurement errors that increase with speed and acceleration.

REVO 5-axis systems approach this challenge from an entirely different perspective, minimising CMM accelerations whilst moving the stylus very rapidly over the component surface through the simultaneous control of the three machine and two probe head axes (X, Y, Z and A, B).

Additionally, the REVO system offers five different probe families, each specifically designed to maximise the advantages of 5-axis motion and infinite positioning. The probes are automatically interchangeable and include tactile scanning, touch-trigger, surface finish and non-contact vision probes. All are used within a common co-ordinate reference frame and provide the choice of an optimum tool to measure multiple features all on a single CMM platform.

REVO SFP2 measuring crankshaft

Source: Renishaw Metrology Systems Ltd

IMTEX 2019 Visit us at: Hall: 3A Stall: B-103 Hall: 6 Stall: D-102

Renishaw Metrology Systems Ltd
T:+91 (20) 6674 6200
E: samina.khalid@renishaw.com
www.renishaw.co.in

Cutting Tools

Chase2Mill's new 6mm insert

The insert is a versatile tool for general face milling, true 90 degree shoulder milling, full slotting as well as helical ramping and pocket machining.

TaeguTec's Chase2Mill has a new, compact, four-corner, double-sided insert for multiple applications – the 4NKT 6mm insert for end mills, face mills and modular cutters.

The 90 degree entering angle insert, despite the double-sided design, is suitable for high ramp down angle applications. Its high positive geometry generates low cutting force while the cross edge insert geometry prevents unexpected insert failure. The increased insert thickness and high strength, combined with the cutter's wide bottom for improved clamping, enables excellent stability and productive machining.

Furthermore, the 4NKT's smaller 6mm size compared to the 11mm and 16mm sizes increases the number of teeth on the cutter which is not only good for machining small components, but also makes it a finer pitch tool that increases productivity. The new line of cutters is offered as end mills (D16-40mm), modular types (D16-40mm) and face mill types (D32- 63mm). All cutters include an internal coolant delivery system for efficient chip evacuation that prevents built-up-edges.

Source: TaeguTec India Pvt Ltd

IMTEX 2019 Visit us at: Hall: 3A Stall: A-128

TaeguTec India Pvt Ltd
T: +91 (80) 2783 9111
E: sales@taegutec-india.com
www.taegutec-india.com

Machining Centers

New machining solutions from CHIRON

The turnkey specialist, CHIRON Group's two companies CHIRON and STAMA have introduced their new machine generations for high-precision, dynamic CNC machining.

IMTEX 2019 Visit us at: Hall: 4 Stall: A-108

CHIRON Werke GmbH & Co. KG
T: +49 (0) 7461 940 3822
E: rainer.schopp@chiron.de
www.chiron.de

CHIRON FZ16 S five axis for precision and dynamics

When CHIRON developed the FZ16, the focus was on the customers' requirements of precision, dynamics and a high surface quality for increasingly complex workpieces. Designs incorporating a moving gantry are completely new for CHIRON. Customers with special accuracy-related requirements for five-axis machining will find in the FZ16 S five axis that offers top levels of dynamics and rigidity and therefore guarantees high productivity. Additional benefits in terms of productivity and flexibility are provided by the fact that the machining center can be equipped with up to 162 tools without taking up any more floor space.

Source: CHIRON Werke GmbH & Co. KG

The FZ16 S five axis offers top levels of dynamics and rigidity and, therefore, guarantees high productivity.

STAMA MT 733 for complete machining

The new 733 series from STAMA allows all six sides of a workpiece to be machined on a single five-axis center. The machining center's gantry design lends it optimized static, dynamic and thermal rigidity. The high process stability means that even the very first part to be produced is always correctly dimensioned, both when manufacturing single items and in series production. An optional feature of the new series is active temperature control for linear guides, chip channels and the whole machine structure. This allows for even higher precision in combined milling/turning machining. Four MT 733 models are available with customization as an additional option.

Source: CHIRON Werke GmbH & Co. KG

The STAMA 733 series allows all six sides of a workpiece to be machined on a single five-axis center.

India's Premier International Machine Tools Show

ufi Approved International Event

ACMEE 2020
14th International Machine Tools Exhibition
An AIEMA Initiative
18 - 22 June 2020
CHENNAI TRADE CENTRE, CHENNAI, INDIA

ORGANISED BY

AIEMA

TITLE SPONSOR

SCHUNK

For Space Booking
Visit
www.acmee.in

PLATINUM SPONSORS

AMS Ace Micromatic

Mahr

UCAM Engineering Excellence. Exactly

DIAMOND SPONSORS

VMT

ALSTRUT POSSIBILITIES UNLIMITED

POWERED BY

K-LITE

GOLD SPONSORS

JAIBALAJI CONTROL GEARS PVT. LTD

sidbi

SILVER SPONSORS

SRI HARI INDUSTRIES

mtandt

ACCURATE MACHINES AND ACCESSORIES PVT. LTD.

R.C. DAS ENGG. www.rcdas.in

APPLIED ENGINEERING APPLIED ENGINEERING & TECHNOLOGY (P) LTD

htm HI-TEK MACHINES

K.K.R. METAL COMPONENTS

METCHEM INDUSTRIES

SUPER PLATERS!

INDO NIHON TECHNOLOGIES NIKKEN RIX

ELTA

Tapco

ABLE Able Electronic Services

PBSI PRECISION BRIGHT STEEL INDUSTRIES

bodor laser SAI ARC INDIA

HYDRO STUDY HYDROSTUDY TOTAL SOLUTION FOR HYDRAULICS & PNEUMATICS

SIDCO - AIEMA Tower, First Main Road, Ambattur Industrial Estate, Chennai 600 058. Phone : +91 - 44 - 2625 0245, E-mail : info@acmee.in

CATERING TO THE CHANGING NEEDS

Jointly organized by Taichung City Government and Taiwan Machine Tool & Accessory Builders' Association (TMBA), the 5th Taiwan International Machine Tool Show (TMTS) was held on November 07-11, 2018 in Taichung. Focusing on today's demand for personalized, automated, and smart machines, the event received an overwhelming response from the participants, making it country's biggest in all respects this year.

(Seventh and tenth from the left resp.) Jui-Hsiung Yen, Chairman, Taiwan Machine Tool & Accessory Builders' Association (TMBA); and Walter MS Yeh, President & CEO, Taiwan External Trade Development Council (TAITRA); along with other eminent personalities of the Taiwanese manufacturing industry and government

Source: TMBA

To keep pace with the current trends in smart manufacturing, TMTS 2018 was held on the theme of "Manufacture Linking • Activate the Future" that focused on fulfilling today's demand for customization and smart machines. Showcasing Taiwan's strength in machine tools, the five-day trade show also displayed path-breaking innovations in the field from various parts of the globe.

TMTS rules in 2018

Founded in 2010, TMTS, today, has become one of the most important metalworking exhibitions in Asia. It has kept breaking its own records in terms of the range of innovative exhibits and also exhibitor and visitor response.

Keeping up with its reputation, TMTS 2018 far exceeded expectations. Held in a spacious exhibition area of 91,000 sq mt, TMTS played a gracious host to 712 exhibitor companies including 623 local and 89 international, and attracted 86,477 visitors including 3,659 from overseas, making it the biggest machine tool exhibition in Taiwan this year.

Overseas exhibitors hailed from 14 countries including Germany, Switzerland, Italy, Spain, the Netherlands, Sweden Denmark, the US, Canada, Australia, Japan, Korea, China and Singapore.

Many international manufacturers from Europe, the US and Japan flew in for the first time to be part of the event including FANUC, DMG-MORI, MAZAK, and Hexagon, etc. Most visitors came from China, Japan, Malaysia, South Korea, the Philippines, the USA, and India.

Source: TMBA

MURALI SUNDARAM
Correspondent
Magic Wand Media Inc
murali.sundaram@magicwandmedia.in

Source: TMBA

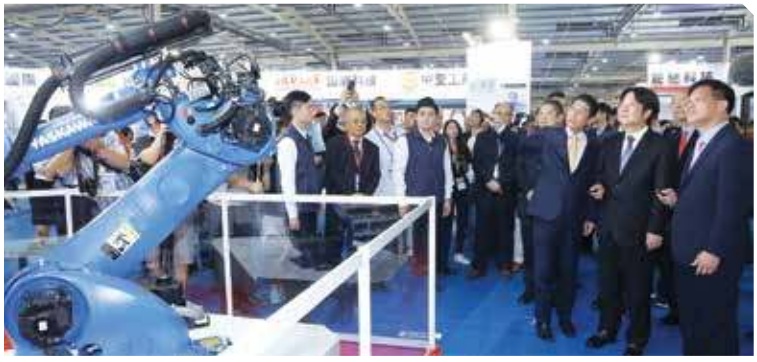
Taiwan strong in machine tools

According to Yen Jui-Hsiung, Chairman, TMBA, "The machine tool industry produces the biggest output in the machinery industry in Taiwan. It has an export share of 79 percent as well a global market share of 6 percent, rendering Taiwan the world's seventh biggest machine tools producing country and the world's fifth biggest as machine tool exporter."

In terms of machine tool accessories, apart from satisfying domestic production needs, Taiwan also sells products to global markets, providing services for major machine tool customers including China, the US, Japan, India etc. In particular, Taiwan has become the world's third largest ball screw exporter.

In recent years, the country's machine tools have performed outstandingly, especially in the development of new machines and international expansion. Its machine tool industry has gained exceptional popularity due to reasonably priced high-quality products.

Moreover, Taiwan has a significant influence on the global markets with products manufactured for sectors including Automobile, Aviation, Railways, Die & Mould, and for 3C devices and all kinds of machine components. This year, due to the increasing demands from the manufacturing industries in China, the US, Turkey, and the EU, the export value of Taiwan's machine tool industry of the first three quarters in 2018 has reached US$2.3 billion, an impressive 13.3 percent increase compared to the same period last year.


Source: TMBA

Full-fledged support

Along with Taichung City Government and TMBA, the show had Ministry of Economic Affairs, The Bureau of Foreign Trade as its supervisor and supportive organizer. Major manufacturing associations including Taiwan Association of Machinery Industry, Taiwan Fluid Power Association, Taiwan Automation Intelligence and Robotics Association etc. also lent their support as co-organizers.

Additionally, the event also gained support from major manufacturers in Taiwan such as FAIR FRIEND Group, TONGTAI, HIWIN, GOODWAY, AWEA, VICTOR, YCM, FAR EASTERN, KAOMING, FALCON, WELE, CHMER, GSA, KEYRROW, GIFU, and HABOR.

An immersive experience

The exhibition had thematic pavilions for Metal cutting machines; Metal forming machines; Machine tool accessories, components, parts, fluid power, CNC control system & auxiliary equipment; Cutting tools, toolholding and workholding devices, measurement instruments; Smart manufacturing systems; and Media, associations, service sectors.

Beside a rich array of exhibits, the event held conferences that edified the participants on the latest technologies and trends. The organizers also arranged for factory tours to first-hand witness Taiwanese manufacturing facilities and their best practices. To help facilitate interactions, one-on-one meetings were also arranged. All in all, TMTS 2018 ensured that it provided a platform that offered ample business opportunities, facilitated promising exchanges and provided an ideal environment to catch up on the current market trends.

Held in a spacious exhibition area of 91,000 sq mt, TMTS 2018 hosted 712 exhibitor companies including 623 local and 89 international, and attracted 86,477 visitors including 3,659 from overseas, making it the biggest machine tool exhibition in Taiwan this year.

Company Index

Advertiser Index

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.

45 years of Engineering Excellence

www.formsandgears.com

Forms & Gears

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

RNI NO. KARENG/2017/72993

TaeguTec
Member IMC Group

QUAD•RUSH

>>> 4 CUTTING EDGES WITH CHIP BREAKER FOR GROOVING, PARTING AND RECESSING

- 4 edges with unique chip breaker
- Rigid screw clamping with 3 contact points
- Insert indexing from both sides of the holder
- Pocket protects unused edges from chips during machining process

TaeguTec India Pvt. Ltd.
Plot Nos.119 & 120, Bommasandra Industrial Area, Phase 4, Bengaluru 560 099, India
☎ +91-80-4901 3000 🖷 +91-80-2783-9123 ✉ sales@taegutec-india.com 🏠 www.taegutec-india.com

TaeguTec
Member IMC Group