



Indian Machine Tool Manufacturers' Association

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Indian Machine Tool
Manufacturers' Association

ANNUAL REPORT

2015-2016





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Executive Committee 2015-16

President

P. G. Jadeja

Chairman & Managing Director
Jyoti CNC Automation Limited

Vice President

P. Ramadas

Managing Director
Ace Manufacturing Systems Limited

Members

Pradeep Pradhan

CEO - Batliboi Machine Tool Group
Batliboi Limited

Ravi Raghavan

Managing Director
Bharat Fritz Werner Limited

Sonali Kulkarni

President
FANUC India Private Limited

B. M. Shivashankar

Managing Director
HMT Machine Tools Limited

B. C. Rao

Managing Director
Kennametal India Limited

Rupesh J. Mehta

Managing Director
Macpower CNC Machines Private Limited

Rajendra S. Rajamane

Managing Director
Rajamane Industries Private Limited

Vijay Pratap Singh

Head – Motion Control
Siemens Limited

Rajesh G. Khatri

Executive Director & CEO
TAL Manufacturing Solutions Limited

Indradev Babu

Managing Director
UCAM Private Limited

Co-opted Member

Achal Nath

Executive Director
Ashok Manufacturing Company Private Limited



Executive Committee 2015-16

Past Presidents

L. Krishnan

Managing Director
TaeguTec India Private Limited

Vikram Sirur

Executive Chairman
Miven Machine Tools Limited

M. Lokeswara Rao

Managing Director
Lokesh Machines Limited

N. K. Dhand

Chairman
Micromatic Grinding Technologies Limited

C. P. Rangachar

Managing Director
Yuken India Limited

V. S. Goindi

Chairman
Parishudh Machines Private Limited

Shrinivas G. Shirgurkar

Managing Director
Ace Designers Limited

C. R. Swaminathan

PSG Industrial Institutions*

Shailesh Sheth

Corporate Strategy Adviser
Sheths'

S. N. Mishra

Bharat Fritz Werner Limited*

Nirmal Bhogilal

Chairman
Batliboi Limited

R. Srinivasan

Widia India Limited*

Jamshyd N. Godrej

Chairman & Managing Director
Godrej & Boyce Manufacturing Company Limited

(*Companies represented by Past Presidents during their tenure of Presidency)

Invitees

S. Sukhdial Singh

President
Association of Ludhiana Machine Tool Industries

Aditya Ratnaparkhi

Executive Director
Electronica Plastic Machines Limited

Vivek Nigam

Business Head
Machine Tool Business Group
ISGEC Heavy Engineering Limited

Dinesh N. Khambhayata

President
Machine Tools Manufacturers' Association-Rajkot

Raghava Badhya T. V.

President
Makino India Private Limited

T. K. Ramesh

Chief Executive Officer
Micromatic Machine Tools Private Limited

A. N. Chandramouli

Managing Director
Starrag India Private Limited

Secretary and Director General & CEO

V. Anbu

Foreword



Renewed Thrust on Manufacturing

Peaking at the Right Time

Amidst global uncertainties, the country's GDP recorded a growth rate of 7.6% as per the Advance Estimates of National Income released by the Central Statistics Office. The momentum, if sustained, is expected to rebuild the confidence of investors in Indian economy.

In April this year (2016), IMF pegged India's growth at 7.5% for 2016-17 with growth being continued to be driven by consumer expenditure which benefited from lower energy prices and higher real incomes. As per the UN report on Economic and Social Survey of Asia and Pacific 2016 prediction, consumer inflation moderated to 5% in 2015 as against 6.7% in 2014. The near-term growth outlook looks positive.

Manufacturing - The New Growth Engine

The Government of India's 'Make in India' initiative has spurred manufacturing growth and attracted investments across various sectors. The National Capital Goods Policy 2016 released by the Union Government, in May this year, contains several policy recommendations aimed at further enhancing the competitiveness of the Capital Goods industry with the ultimate objective of tripling its current turnover to Rs. 7,50,000 Crores by the year 2025. Aided by this Policy, manufacturers can add more depth in the technology of Capital Goods which means that industry will be able to improvise and add new categories resulting in capacity enhancements and attracting fresh investments, particularly, in the area of supply chain.

Within Indian manufacturing, there is a sense of rejuvenation in view of an apparent realization that real advancement of any industrial economy can only happen when the manufacturing sector is competitive and growing. This has been evident from the number of reforms initiated over the last one year to better infrastructure development, enhance skill and propel economy and manufacturing.

Setting up of the National Board of Skill Development Certification in partnership with industry and academia would ensure availability of skilled manpower for the industry.

The industry welcomes the Finance Ministry's move to control fiscal deficit at 3.9% for FY 2015-16 and 3.5% for FY 2016-17 while going ahead with the planned development. Reduction in corporate tax for small enterprises will aid the production capacities of the Small and Medium Enterprises (SMEs).

India has set up the National Investment Infrastructure Fund for attracting foreign investments and has ushered in 100% foreign direct investment (FDI) in most sectors including defence, civil aviation, pharmaceuticals, etc. opening them for complete foreign ownership. The decision assumes significance as it would pave way for many foreign investors to establish their business in India and on the other hand aid in bringing cutting edge technology, giving boost to employment and create room for foreign capital in capital intensive sectors.

India's Defence Procurement Procedure unveiled earlier this year has laid out the process for acquisition of equipment for India's defence sector. The private sector can now look forward for a larger role in the production of military hardware. This will further the need for machine tools.

The nation is also consolidating its Aerospace industry through investments in public and private sectors. Indian companies are eyeing a bigger space in aerospace industry for indigenous development and building its own internal capacities.

Industry Future

India's machine tool industry, an enabler to manufacturing competitiveness and excellence has a lot to cheer. Currently, the consumption of machine tools is around Rs.10,500 Crores. As per the World Machine Tool Survey 2016, India is globally ranked 13th in Production and 10th in Consumption. Over the last two years, the country has moved up 3 places in Production and by 1 place in Consumption. India is seen as a major destination for global investment in the machine tool industry.

Foreword

The high level of optimism shown for economic growth, throwing up key sectors for foreign direct investments and with many other reforms in pipeline, the Indian machine tool sector can look forward to an era of growth despite formidable barriers such as high interest rates, technology acquisition difficulties, and shortage of skilled workforce.

Government Advocacy

I would like to place on record the industry's gratitude to the Department of Heavy Industry (DHI) and the Government of India for its gracious support for proactive initiatives in the last few years for fostering competitiveness of the Indian machine tool industry.

The support mechanisms such as: (a) a comprehensive scheme for enhancement of global competitiveness in the capital goods sector; (b) support for establishment of a machine tool park; and (c) establishment of a Centre of Excellence in Machine Tools & Production Technology have been rolled-out. These would support the machine tool industry in developing an ecosystem for R&D, innovation and design of new technologies and products in metalworking machine tools and production technologies for the industry's growth.

Moving forward, IMTMA will continue its efforts on a strong policy advocacy initiative to bring greater benefit to the industry such as: (a) establishing parity for Indian industry in procurement and tender terms; (b) encouraging "development contracts" between machine tool users and manufacturers; (c) policy measures to enable Indian value addition and technology transfer on all large imports of machine tools; (d) encourage joint ventures with Indian companies when foreign companies bid on large government or public sector undertaking orders; (e) allow higher depreciation on new machine tools manufactured in India; (f) concessional institutional funding to micro and small units for purchase of Indian machine tools; and (g) pressing for the need for exclusion of machine tools from all free trade, preferential trade, comprehensive economic agreements, and partnership.

Association Initiatives

Training

The Association has been in the forefront of kick-starting a number of activities for the benefit of the entire Indian manufacturing sector. IMTMA Design Institute was started in Gurugram and Pune to provide training to young engineers to inculcate in them a sound design knowledge and capabilities.

It gives me great pleasure to inform you that the Finishing School in Production Engineering, an initiative by IMTMA to

train engineers on various facets of production engineering, successfully completed 25 batches of training since it began in September 2010. Over 120 training programmes were conducted by the Productivity Institute across the country in 2015-16. IMTMA was also able to help over 70% of the trainees get placement in leading manufacturing companies. These efforts have helped IMTMA record around 15,000 person-days of training during the year 2015-16 and support the Indian manufacturing industry in skill development / upgradation.

Mega Events

Our Association has taken up endeavours to keep up with the changing requirements of the industry. To champion the cause of productivity in metal working industries, IMTMA organized the Ninth National Productivity Summit 2015 in Gurugram. The summit showcased the best productivity practices in metal working and was an excellent platform for knowledge sharing.

The year was also witness to the roll out of another key initiative by the Association. To address and understand the real-time benefits and applications of 'Automation', the Association organized the first edition of "Symposium on Smart Manufacturing" at BIEC, Bengaluru. Automation Buzz, an exhibition displaying a wide range of automation devices & systems, software and automation solutions was held concurrently. The symposium delved into a gamut of areas including manufacturing intelligence, strategies for implementing automation.

The Sixth Machine Tool Industry Summit in Kochi provided a forum to the entire machine tool industry to network and set forth a process of deliberations. A special session on "VUCA" highlighted the leadership qualities and skills required to thrive in a VUCA world.

Trade Fairs

IMTMA's flagship event - IMTEX FORMING 2016 and Tooltech 2016 reflected the good potential of the metal forming industry with extensive trade discussions and networking. During IMTEX FORMING 2016 & Tooltech 2016 around 40 Academic institutions participated in the i2 Academia Pavilion. 'CONNECT', an awareness programme for imparting knowledge on machine tool industry for young engineers was attended by around 300 students giving them an opportunity to gain more knowledge on machine tools and manufacturing sector.

The 18th edition of IMTEX exhibition, IMTEX 2017 & Tooltech 2017 with focus on metal-cutting machine tools, to be held in January 2017 will further strengthen its position as a premium exhibition of metal-cutting machine tools and manufacturing solutions in South and South East Asia and is expected to be a milestone for the Association.

Foreword

Regional Expos

The long cherished desire of opening avenues for penetrating the far flung regional markets to enhance the manufacturing capabilities of various industry sectors was boosted with the launch of two regional shows: Delhi Machine Tool Expo in New Delhi and Ahmedabad Machine Tool Expo in Ahmedabad reaching out to industries in Northern and Western region, respectively. We see a huge potential for these shows to grow in the future editions.

Going forward, IMTMA has scheduled Pune Machine Tool Expo 2016 which is expected to unveil manufacturing technologies and solutions enabling the large industries as well as SMEs to leverage and enhance their manufacturing capabilities.

Publications

To further the competitiveness of the machine tool industry, the Association brought out a Country Report & Market Research Report on Turkey, UAE and Saudi Arabia focusing on the market opportunities for the industry in these countries. The Association also published a comprehensive Report on Metal Forming Machinery Industry in India. IMTMA published a Guide Book on Export packing of Machine Tools to support members to have more knowledge about Export packing. IMTMA also published a Study on Establishing Investment Linkages for Machine Tool Industry focusing on the growth potential in various industries.

The Association will continue to initiate activities that are key from time to time so that we meet the aspiration of membership and stakeholders.

BIEC

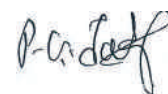
Bangalore International Exhibition Centre (BIEC) was conferred with the Excellence in Services Award at the Exhibition Excellence Awards 2016 in January this year. BIEC held around 30 national and international events during the year 2015-16. BIEC soon plans to have an additional Exhibition Hall and is constantly striving to provide facilities at par with international venues. This will add another feather to the crown as BIEC celebrates its 10th anniversary in 2017.

Future Thrust

The Indian economy has been able to withstand the global slowdown and manufacturing sector is seemingly poised for good growth. The machine tool industry needs to take advantage of this by expanding its capacities, keeping pace with the rapidly changing technologies with focus on Technology, Innovation and New Product Development. Our Association has been in the forefront of supporting its members through various initiatives such as the Advanced Manufacturing Technology Development Centre at Indian Institute of Technology-Madras with support from DHI and industry, in which technology development projects have been taken up. The Advanced Machine Tool Testing Facility (AMTTF) - a state-of-the-art machine tool testing facility was established in June 2011 at Central Manufacturing Technology Institute (CMTI) in Bangalore, as a joint project of the industry and the Department of Industrial Policy and Promotion (DIPP), Govt. of India. Another initiative, Machine Tool Industry Park is being taken up with support from the Government of Karnataka and the Dept. of Heavy Industry, Govt. of India. As the industry bridges several gaps it would be able to realize its Vision of becoming a dominant market force and become a global player through state-of-the-art manufacturing. Towards this, the Association will continue to project machine tool industry as a key enabler of 'Make in India' initiative.

Felicitation

I would like to record that 2015-16 for me was a year of reckoning as I took the office of Presidency. Certainly, all the achievements of the Association have been a gratifying experience for me. These have been made possible due to the proactive assistance of IMTMA's Executive Committee and membership, the enduring guidance and untiring contribution of all Past Presidents. I shall look forward to their continued encouragement in all future endeavours of the Association. I hope to get renewed support from all quarters in future as well, especially, in carrying out the tasks outlined for the Association in the years ahead.



P.G. Jadeja
President

69th Annual General Meeting

10 December 2015: Bangalore International Exhibition Centre, Bengaluru



Indian Machine Tool Manufacturers' Association (IMTMA) held its 69th Annual General Meeting (AGM) at the Bangalore International Exhibition Centre (BIEC) in Bengaluru on 10 December 2015. At the Executive Committee meeting following the AGM, Mr. P. G. Jadeja, Chairman and Managing Director, Jyoti CNC Automation Ltd. was elected as the President of IMTMA and Mr. P. Ramadas, Managing Director, Ace Manufacturing Systems Limited as the Vice President of the Association. and new Executive Committee of IMTMA for the year 2015-2016 was formed.

Prior to the AGM, IMTMA held a panel discussion on Capacity building for R&D, process & application capability – To enable 'Make in India'. Mr. L. Krishnan chaired and moderated the session. Dr. S. Devarajan, Head of Production Engineering, TVS Motors, Mr. T.R. Parasuraman, Deputy Managing Director, Kirloskar Toyota Textile Machinery, Dr. N. Ramesh Babu, Professor, Manufacturing Section, Indian Institute of Technology-Madras and Mr. N.K. Dhand, Chairman, Micromatic Grinding Technologies were the panelists.

The panelists presented their views on how innovation in product development and the collaboration with institutions could lead to a change in the manufacturing industry and enable the objective of Make in India.

Delivering his annual address at the AGM, IMTMA President, Mr. L. Krishnan briefly spoke about the positive signs emerging in the Indian economy and the Government of India's impetus to manufacturing. Mr. Krishnan said that the machine tool sector during April to September 2015 grew by 5%. He spoke about the major policy initiatives for the machine tool industry under the Scheme for Enhancement of Competitiveness in the Capital Goods Sector. He also spoke about the IMTMA - Automotive Component Manufacturers Association (ACMA) joint study. The study he said will form a basis for development of domestic machine tools industry through a strong cooperation between IMTMA, ACMA and auto Original Equipment Manufacturers. He further stated that IMTMA is bringing out country reports on Turkey, select GCC nations and South East Asian countries to explore opportunities for domestic manufacturers to export to these nations.

Mr. Krishnan thanked the Members, Past Presidents, Executive Committee and the Secretariat of IMTMA for providing assistance, guidance and support in all major endeavours of the Association. He then took up the statutory agenda and the special business of the Association which was unanimously approved by a voice vote. The Annual General Meeting of IMTMA concluded with a vote of thanks to the office-bearers of the Association.

Calendar of Events - 2015

July 2015	
8 - 9	Productive Utilization of CNC Grinding Machines - Bengaluru
10	Modern Automotive needs and Latest trends in Forging Technology - Bengaluru
14 - 15	Design of Experiments & Robust Design in Solving Real Life Problems - Bengaluru
14 - 15	Workholding and Fixturing Clinic for Production Engineers - Pune
16 - 17	Design & Processing of Plastic parts - Bengaluru
17	Measuring Productivity through OEE - Pune
19	Energy Conservation / Energy Saving in Manufacturing - Bengaluru
21, 22	Automation Project Implementation - Pune
23 - 24	Getting the Best out of CMMs - Gurugram
24	Trouble Shooting of L M Guide ways and Ball Screws for Industrial Machinery - Pune
27	Hydraulic System Design for Machineries (1 week) - Bengaluru
29 - 30	Towards Zero Defects in Welding Applications - Gurugram

August 2015	
3	Machine Tool Design - Mechanical (8 weeks) - Bengaluru
7	Behaviour based safety for accident prevention - Bengaluru
7 - 8	Assembly, Welding and Inspection Fixtures - Pune
11 - 12	Implementing Failure Mode & Effects Analysis (FMEA) - Pune
20	Maintenance and Trouble shooting of Bearings of Industrial machinery - Bengaluru
21	Calibration of CNC Machine Tools - Pune
25 - 26	Practical Solutions for Designing Complex Plastic Injection Moulds - Pune
26	Burr Management in Machining - Gurugram
28	Gear Metrology and Measurement Methods - Pune

September 2015	
1 - 2	Towards Zero defects in welding applications - Pune
2 - 3	Spindle Maintenance for Metal Cutting & Industrial Machinery - Gurugram
4	Design of Hydraulic System for Machine Tools - Bengaluru
7 - 11	Basics of Programming & Operation of CNC Machine - Pune
11-12	Reducing Cycle Time & Machining cost on Machining Centres – Bengaluru
14 - 15	Improving Process Capabilities - Pune
14 - 15	Heat Treatment Process in Metalworking - Pune
14 - 16	Robotics Operation and Programming - Bengaluru
16	Modern Automotive needs and Latest trends in Forging Technology - Gurugram
22 - 23	Selection & Application of Metal Forming Presses - Pune
22 - 23	Advanced Geometric Dimensioning & Tolerancing - Bengaluru



Calendar of Events - 2015

September 2015

24 - 26	Effective Maintenance of CNC Machines for Productivity Improvement - Bengaluru
28	VFD Technology for Industrial Automation and Energy Conservation - Bengaluru
29 - 30	Design of Workholding & Fixturing - Bengaluru
30	Burr management in machining - Pune

October 2015

6 - 7	Geometric Dimensioning and Tolerancing (GD&T) in Design through Manufacturing - Pune
8 - 9	Cold Forging / Cold Extrusion Technology - Bengaluru
13 - 14	APQP & PPAP - Bengaluru
13 - 14	Fundamentals of Press tool design - Bengaluru
14 - 15	Defects & Analysis of painting and coating applications - Gurugram
16	Maintenance Management for Hi-Tech Job Shop - Pune
26 - 28	IDR Approach to trouble shoot Component Defect in a Press Shop - Pune
29 - 30	Visual Factory / Visual Management - Gurugram
26 - 31	Hydraulic System Design for Machineries - Bengaluru
29	Laser Processing Equipment for Cutting, Welding, Cladding & Hardening Applications - Pune
30 - 31	Advance Sheet Metal Forming - Bengaluru

November 2015

3 - 4	Spindle Maintenance for Metal Cutting & Industrial Machinery - Pune
3 - 7	Hands-on Training in Programming & Operation of CNC Turning Centres - Pune
5 - 6	Towards Zero defects in welding applications - Bengaluru
6	Performance Improvement in Foundries - Bengaluru
16	Machine Tool Design - Mechanical (8 weeks) - Bengaluru
19 - 20	Cleaning of machined components - Bengaluru
23 - 25	Sheet Metal Dies - Tryout and Proving - Pune
25 - 27	Effective Sales and Marketing of Machine Tools and Capital Goods - Bengaluru
26	Improving Productivity and Cost Effectiveness in Sheet Metal Stamping - Pune
26 - 27	Hands-on training on Measuring GD&T Parameters - Bengaluru
30 Nov - 2 Dec	PLC Programming - Bengaluru

December 2015

7 - 9	Gear Manufacturing Processes - Pune
11	Challenges and Solutions in Thread Cutting Operations - Pune
12	Design of Hydraulic System for Machine Tools - Bengaluru
14 - 15	Design of Gauges - Bengaluru
15 - 16	Latest Developments in Metal Working Technology - Pune
17 - 18	Maintenance and Trouble Shooting of Presses - Pune
21 - 23	Maintenance of Hydraulics & Pneumatics Subsystems - Bengaluru
22 - 23	Strategies for successful Design and Processing of Plastic Parts - Pune

Calendar of Events - 2016

January 2016	
5 - 6	Design for Manufacturability (DFM) - Pune
5 - 6	Understanding and Implementation of Risk Assessment through FMEA - Bengaluru
8	VFD Technology for Industrial Automation and Energy Saving - Pune
8 - 9	Spindle Maintenance for Metal Cutting & Industrial Machinery - Gurugram
11-13	Geometric Dimensioning & Tolerancing in Design through Manufacturing (GDTP Technologist Level) - Bengaluru
12 - 13	Design of Workholding & Fixturing - Pune
18 - 19	Design for Target costing - Bengaluru
18 - 22	Basics of Programming and Operation of CNC Machining Centres - Pune
19 - 20	Defects Analysis of Paint & Powder Coating Applications - Pune
28 - 29	Manufacturing Excellence thro SPC and Problem Solving Tools - Pune

February 2016	
1 - 2	Defects Analysis of Paint & Powder Coating Applications - Pune
4 - 5	Cleaning of Machined Components - Pune
8	Machine Tool Design - Electrical (4 weeks) - Bengaluru
9 - 10	Effective Maintenance towards Zero down time - Electrical & Electronic Aspects of CNC Machines – Pune
11 - 12	Energy Conservation / Energy Saving in Manufacturing - Bengaluru
12 - 13	Calibration of Dimensional Measuring Instruments & Evaluation of Uncertainty - Bengaluru
15 - 19	Basics of Programming and Operation of CNC Machining Centres - Bengaluru
15 - 20	Design of Fixture – Specialization - Bengaluru
23 - 24	Cost reduction and Quality enhancement through VA / VE - Bengaluru
24 - 25	Latest trends in PDC Dies & Plastic Mould Manufacturing - Pune
25 - 26	Burr Management in Machining - Bengaluru
25 - 26	FMEA – Gurugram

March 2016	
8 - 9	Adv. GD&T – Bengaluru
10 - 11	Strategies for Successful Design and Processing of Plastic Parts - Bengaluru
17 - 18	Applied Metallurgy for Engineering Industry - Bengaluru

Calendar of Events - 2016

April 2016	
4	Modern Automotive needs and Latest trends in Forging Technology - Pune
5 - 6	Geometric Dimensioning & Tolerancing (GD&T) in Design through Manufacturing - Pune
8	Machine Tool Design - Mechanical - Bengaluru
12 - 13	Basics of Sheet Metal Forming Technology - Pune
13 - 15	Robots Operation and Programming - Bengaluru
18 - 20	Gear Manufacturing Processes - Bengaluru
19 - 20	Design of Experiments - Pune
21 - 22	Towards Zero Defects in Welding Applications - Gurugram
21 - 22	Effective Maintenance of CNC Machines- Mechanical aspects - Pune
27 - 28	Inspection, Testing and Calibration of CNC Machine Tools - Bengaluru

May 2016	
3 - 4	Cost reduction and Quality enhancement through VA / VE - Pune
5 - 6	Visual Factory / Visual Management : Paving Way for Lean, TQM and TPM Implementation – Bengaluru
10 - 12	Maintenance and Trouble Shooting of Industrial Hydraulic systems - Bengaluru
16 - 17	Defects Analysis of Paint & Powder Coating Applications - Bengaluru
16 - 21	Design of Fixture - Specialization (Machining/Welding/Assembly and Inspection Fixtures) - Pune
18	Gear Metrology and Measurement Methods - Bengaluru
19 - 20	Design of Workholding & Fixturing - Gurugram
19 - 20	Fundamentals and applications of Cold forging - Pune
23 - 27	Basics of Programming and Operation of CNC Machining Centres - Pune
24	Measuring Productivity through OEE - Bengaluru
26	Selection, Assembly and Trouble shooting of Linear Motion Guide ways and Ball Screws for Industrial Machinery – Bengaluru
26 - 27	Implementing Failure Mode & Effects Analysis (FMEA) - Pune

June 2016	
7	ISO System of Limits, Fits & Tolerances for Engineering Parts - Bengaluru
7 - 8	How to Improve the Accuracy of CNC Machines - Pune
9 - 10	Design of Gauges - Bengaluru
9 - 10	Visual Factory / visual management - Paving Way for Lean, TQM and TPM Implementation - Bengaluru
10	Laser Processing Equipment for Cutting, Welding, Cladding & Hardening Applications - Pune
13 - 14	Improving Process Capability - Bengaluru
16 - 17	Product Validation through FEA/FEM - Bengaluru
20 - 25	Design of Spindle - Specialization - Gurugram
21 - 22	Heat Treatment Processes in Metal Working - Bengaluru
21 - 22	Fundamentals of Engineering Metrology – Pune
23 - 24	Towards Zero Defects in Welding - Pune
27	Machine Tool Design - Electrical (4 weeks)- Bengaluru

IMTEX FORMING 2016 & Tooltech 2016



21 - 26 January 2016: BIEC, Bengaluru



IMTMA's flagship event and South East Asia's largest exhibition on metal forming 'IMTEX FORMING 2016 and Tooltech 2016' was held from 21 to 26 January 2016 at Bangalore International Exhibition Centre, Bengaluru. The exhibition was inaugurated by Shri R. V. Deshpande, Minister for Large and Medium Industries & Tourism, Government of Karnataka; Dr. V. K. Saraswat, Member, NITI (National Institution for Transforming India) Aayog; Mr. Vishvajit Sahay, Joint Secretary, Department of Heavy Industry; Mr. Jamshyd N. Godrej, Chairman - Exhibitions, IMTMA; Mr. P. G. Jadeja, President - IMTMA; Mr. P. Ramadas, Vice President - IMTMA; and Mr. V. Anbu, Director General & CEO - IMTMA, also presided over the inauguration ceremony.

The exhibition catered to around 485 exhibitors who displayed over 500 live machines in 3 halls covering an exhibition area of around 30,000 sq.mts. The exhibition witnessed participation from 239 overseas companies and 246 Indian companies. The participation, apart from India, came from 22 countries, including 4 group participations from China, Germany, Japan and Taiwan. The show was visited by around 40,000 visitors, during the 6 day event at BIEC.

The exhibition witnessed many decision makers and business heads from across the spectrum of Indian metalworking industry. It recorded business orders worth Rs.456 crores and generated a high potential of business enquiries to the tune of Rs.4304 crores. Compared to IMTEX FORMING 2014, the orders booked showed an



increase of 13%. With the latest and high-tech innovations displayed, the show was a visual treat to the young engineers visiting the venue as part of the students' initiative of IMTMA.

International delegations from USA, Japan, Turkey, Italy, Germany and China also visited the show. AMT, USA; JFMA, Japan; MIB, Turkey; TAMI, Taiwan; UCIMU, Italy; VDW, Germany; CCPIT, Ribbon, China; and CCPIT, Sub-Council, China were part of the 6 days exhibition. Key domestic delegations from Automotive Component Manufacturers' Association, All India Plastic Manufacturers' Association, Confederation of Indian Industry, Central Manufacturing Technology Institute, National Institute of Design, Tool & Gauge Manufacturers Association and Department of Heavy Industries were also present.

For the first time, around 40 academic institutions participated in the i2 Pavilion (Academia Pavilion). Twelve institutions made presentations to the industry as part of the IMTMA Industry Institution Collaboration initiative. The first prize was shared by IIT, Ropar and PDPM Indian Institute of Information Technology, Design & Manufacturing, Jabalpur. The second prize was shared by the Mechanical and Metallurgy departments of IIT, Bombay. Marathwada Institute of Technology, Ahmedabad won the third prize. Consolation prizes were awarded to SSN College of Engineering, Chennai and BTL Institute of Technology, Bengaluru.

IMTEX FORMING 2016 & Tooltech 2016

Around 300 students participated in 'CONNECT', an awareness programme for imparting knowledge on the machine tool industry for young engineers. Students from both mechanical and electrical engineering streams availed this opportunity to gain more knowledge on machine tool and manufacturing sector and to pursue their career in these industries. By interacting with industry experts they were able to understand how machine tool industry helps in industry growth.

Close to 40 students participated in 'JAGRUTI', a programme to familiarize engineering students with the machine tool industry and the technological happenings in this industry segment. IMTMA organizes JAGRUTI with the help of UDAAN members.



During the inauguration ceremony of IMTEX FORMING 2016 and Tooltech 2016, the Seventh IMTMA - Premier Outstanding Entrepreneur Award in memory of Vinod Doshi was conferred on Mr. P. Ramadas, Managing Director, ACE Manufacturing Systems Limited for his contribution to the industry.

Regional Machine Tool Expos

To address the manufacturing requirements of the original equipment manufacturers (OEMs) of various industry sectors, IMTMA organized the Delhi Machine Tool Expo and Ahmedabad Machine Tool Expo in 2015. The shows unveiled the latest manufacturing technologies and solutions that would enable the OEMs and the small and medium enterprises to leverage and enhance their manufacturing capabilities.

Delhi Machine Tool Expo 2015

The Delhi Machine Tool Expo at Pragati Maidan, New Delhi held from 20 to 23 August 2015, organized by IMTMA had 220 exhibitors displaying over 200 machines from 9 countries with group participation from 3 countries. The Expo attracted footfall of over 13000 visitors. About 180 Indian and 40 overseas exhibitors displayed state-of-the-art technologies. Overseas exhibitors were represented from China, Germany, Italy, Japan, Korea, Taiwan, UK and USA. The machines and accessories on display focused on key industries such as aerospace, defence, railways, automotive and auto components, medical engineering, construction equipment, IT and electronics, and many more. Being exclaimed as one of the best shows in the northern region both by visitors and exhibitors alike, the Delhi Machine Tool Expo 2015 provided a platform for the manufacturing industry to upgrade and improve productivity and quality requirements and demonstrate solutions to manufacturing industries especially, the Small and Medium Enterprise industries.



Ahmedabad Machine Tool Expo 2015

The Ahmedabad Machine Tool Expo at Mahatma Mandir, Gandhinagar held from 24 to 27 September 2015 was organized by IMTMA. The industry's overwhelming response in making the regional machine tool Expo that witnessed a footfall of about 9000 visitors heightened expectations. The Expo gave an opportunity for visitors to meet OEMs and their sub suppliers.

The Expo opened avenues to penetrate niche industry sectors as well as the untapped regional market. There is a sizeable demand emerging in Western India as a result of the growth in manufacturing industry. The Ahmedabad Machine Tool Expo therefore shaped up to be an ideal platform to initiate business in the region.

Major Events and Activities



International Seminar on Forming Technology 2016

20 January 2016 : Bengaluru

Metal Forming technology forms an integral part of manufacturing in many industries and has contributed in the development of many new processing technologies, processing methods, machineries, tools and solutions to design and fabricate end products/finished goods. To address the latest trends, developments and research in metal forming technology, IMTMA organized a one day 'International Seminar on Forming Technology' on 20 January 2016, in Bengaluru coinciding with IMTEX FORMING 2016 & Tooltech 2016 exhibition.

The theme of the International Seminar on Forming Technology was "Shaping the future of Manufacturing" and it had concurrent sessions on Design & Software, Equipment and Tools, and Process.

The highlight of the event was the keynote address titled 'Vehicle Light-Weighting' by Dr. Andreas Sterzing from Fraunhofer Institute for Machine Tools & Forming, Chemnitz, Germany. He spoke about the compulsions and international trends for light weighting of vehicles and diverse approaches ranging from use of new materials, processes and engineering innovations. He also emphasized on the latest information on research and pointers to the future technology transition.

The seminar was attended by over 200 delegates from varied segments of the Indian manufacturing industry such as automotive, aerospace, defence, railway establishments, consumer durables, general engineering, machine tools and other capital goods industries.

Organized every alternative year, the event is recognized as an international platform for global interaction on latest trends in metal forming technology.



National Productivity Summit 2015

20 - 21 November 2015 : Gurugram

Indian Machine Tool Manufacturers' Association (IMTMA) has been in the forefront of championing a productivity movement in Indian metal working industries by organizing the National Productivity Summit. The event showcases the best productivity improvement projects in metal working industries which have excelled in achieving superior performance through sustained productivity improvements.

The Ninth summit in the series was organized at Gurugram, on 20 and 21 November 2015. The key highlight of the National Productivity Summit 2015 were the 4 inspiring keynote presentations, 4 interesting plant visits and 12 live case study presentations.

Plant visits to Hero MotoCorp, Sona BLW Forging, Hitech Gears and Honda Motorcycles & Scooters India were arranged on 19 November, a day prior to the summit. Eighty delegates attended the plant visits where various productivity improvement measures being practiced on the shop floor were demonstrated.

The summit was inaugurated by Dr. V. K. Saraswat, Hon'ble Member, National Institution of Transforming India (NITI) Aayog, and Chief Guest for the event.



Major Events and Activities

Speaking at the event, Dr. Saraswat briefed on the current Indian economic scenario, the challenges and opportunities lying ahead. He impressed upon the importance of productivity and manufacturing to the growth of the nation, in the light of the 'Make in India' campaign.

The summit was attended by about 250 delegates from 110 companies. Leading firms such as Ashok Leyland, Bajaj Auto, Bosch, Keihin, Lucas TVS, Mahindra & Mahindra, Maruti Suzuki, Tata Motors, TVS Motor and Wabco India presented their case studies on productivity practices, all of

which contested for **IMTMA - Ace Micromatic Productivity Championship Awards 2015** that gave away cash awards of Rs.10 lakhs.

Wabco India, TVS Motors, Bajaj Auto, Keihin, Lucas TVS and SKF India were adjudged the winners of the IMTMA-ACE Micromatic Productivity Championship 2015 Awards. Further, a Vox Populi Award was awarded to TVS Motors, voted by the delegates at the summit as the most popular case study presentation.

The next edition of the National Productivity Summit is scheduled to be held in November 2016 in Bengaluru.

6th Machine Tool Industry Summit

12 - 15 May 2016 : Kochi



Held once in every two years, the Machine Tool Industry Summit provides a forum to the entire machine tool fraternity, viz., machine tool builders, sub-suppliers, accessories and allied equipment manufacturers, vendors, R&D institutions, industry experts and individuals to network, collate ideas and set forth a process of organized thinking, analysis and deliberations.

Over 225 delegates from about 75 companies participated in the 6th Machine Tool Industry Summit in Kochi held from 12 - 15 May 2016. The 3 day summit featured panel discussions and presentations from experts and achievers from the Indian machine tool industry. The summit had multiple thought provoking sessions; some of them held concurrently, with company introspections, brain storming and networking.

The Inaugural session addressed the "Portends for Indian machine tool industry from the emerging global and Indian economic scene", presented the linkages between current Indian economic scenario vis-à-vis the Indian machine tool industry and the projected trends and expectations for FY 16-17. The keynote session highlighted "Trends in Global Machine Tool Industry and its impact on India" and also addressed a few specific areas viz. shift in machine tool manufacturing competence centres, status and trends of 'Solution' business and impact of breakthrough concepts.

A special session on "VUCA" and "Industry 4.0", was highlight at this summit, which clearly addressed the challenges facing the industry in a VUCA world.

Major Events and Activities

Symposium on Smart Manufacturing 2016

22 - 23 February 2016 : Bengaluru



Smart Manufacturing is envisioned as the future of manufacturing. It integrates human ingenuity coupled with data and technology to revolutionize the development and application of manufacturing intelligence to all aspects of business.

To address and understand the real-time benefits and applications of 'Automation' in Smart Manufacturing, Indian Machine Tool Manufacturers' Association (IMTMA) organized the first edition of the 'Symposium on Smart Manufacturing - Automation, a key driver' at the Bangalore International Exhibition Centre in Bengaluru on 22 February 2016. 'Automation Buzz', a concurrent exhibition displaying a wide range of automation devices and systems, software and a host of automation solutions was displayed simultaneously.

Mr. Shekhar Viswanathan, Vice Chairman & Whole Time Director, Toyota Kirloskar and Chief Guest for the event, Mr. Arunkumar Janarthanan, Director, Frost & Sullivan's

Middle East, North Africa and South Asia region, Mr. S.G. Shirgurkar, Past President, IMTMA, Mr. P. Ramadas, Vice President, IMTMA and Mr. V. Anbu, Director General, IMTMA presided over the event.

Spread over two days, the Symposium delved into a wide gamut of areas including manufacturing intelligence, strategies for implementing automation, Industry 4.0, collaborative robots, MTConnect, industrial internet of things to name a few. Industry experts from renowned companies addressed the delegates on latest trends and challenges in automation and smart manufacturing.

Overall the event had 15 technical presentations, interactions, panel discussion, etc. The Symposium concluded on 23 February 2016 with a brain storming session – "Drawing up a Roadmap for 'Smart Manufacturing'".

Major Events and Activities

Special Events

EMO 2015

5 - 10 October 2015 : Fiera Milano



IMTMA organized a group participation of 15 Indian companies to EMO Milano 2015 from 5 to 10 October 2015 held in Fiera Milano, Italy. Over 1600 exhibitors from over 40 countries took part in the event. EMO 2015 attracted over 1,50,000 visitors from around 120 countries. Indian

exhibitors had a strong presence. IMTMA partnered with Vogel Business Media and created publicity mediums to promote Indian Exhibitors.

Machine Tool Indonesia 2015

2 - 5 December 2015 : Jakarta

Indonesia is considered a hotspot for Indian automotive sector. To boost the export market for India, IMTMA organized a business-to-business mission to Machine Tool Indonesia 2015 held from 2 - 5 December 2015 in Jakarta. IMTMA organized several meetings with distributors and dealers of Indonesia at the exhibition. IMTMA undertook plant visits to Honda Car and Dharma Precision Part Manufacturing. The show attracted a footfall of around 19,000 visitors in a span of four days. Over 2000 exhibitors from 37 countries took part in the event.



Activities of IMTMA Regional Councils

IMTMA Regional Council (North)



Meeting on 20 August 2015 : New Delhi

The meeting of IMTMA Regional Council (North) was held at Pragati Maidan, New Delhi. The meeting was chaired by Mr. Achal Nath, Chairman, IMTMA RC (N) and Executive Director, Ashok Manufacturing Company. It was attended by 23 regional council (north) members. The members discussed regarding the Joint Study of Auto Component and Machine Tool Companies. Members were urged to provide their inputs for E-Catalogue of 'Guide to Indian Machine Tools'.

Meeting on 8 January 2016 : Ghaziabad

An interactive meeting between IMTMA Regional Council (North) and COFMOW was organized in Ghaziabad. The meeting was attended by around 30 regional council (north) members. Members discussed about reducing the dependency on imported machines, strengthening the design aspects of Indian machine tools, etc.

Meeting on 22 March 2016: Ludhiana

An interactive meeting between regional council members and New Swan group officials was held in Ludhiana. Mr. Ankur Malik from Quality Council of India (QCI) made a brief presentation on 'Salient Features of New Scheme of Lean Manufacturing for MSME'. QCI was appointed as National Monitoring and Implementation unit across India by Development Commissioner, M/o MSME for the up-scaled, Lean Manufacturing Competitiveness Scheme (LMCS); a sub-part of the National Manufacturing Competitiveness Program (NMCP). Lean manufacturing is being hailed as an important cornerstone under the 'Make in India' initiative.

IMTMA Regional Council (South)

Meeting on 19 September 2015: Bengaluru

An interactive meeting of IMTMA Regional Council (South) with officials of Hindustan Aeronautics Limited Engine Division was held on 19 September 2015 in Bengaluru. Plant



visit to CNC Shop and 'Adour' Engine Assembly at Engine Division of Hindustan Aeronautics Limited was undertaken prior to the meeting. Procurement processes (e-portal) and requirements of HAL Engine Division were discussed. IMTMA agreed to share details of candidates passing out of Finishing School as well as Design Institute with all members of regional council (south).

Meeting on 26 February 2016 : Bengaluru

The meeting of IMTMA Regional Council (South) was held on 26 February 2016. The meeting was chaired by Mr. Indradev Babu, Chairman, IMTMA RC (S) and Managing Director, UCAM was attended by 20 regional council (south) members. Prior to the regional council meeting, an 'interactive meeting and plant visit' to Steer Engineering was organised. Steer Engineering team made a presentation showcasing several best practices being followed at Steer Engineering. A presentation on 'Sustainable Leadership Communication' by the Guest Speaker Mr. Ramesh T. K. was another highlight of the regional council (south) meeting.

IMTMA Regional Council (West)

Meeting on 12 February 2016 : Pune

An interactive meeting of IMTMA Regional Council (West) was conducted on 12 February in Pune. Mr. Rajesh Khatri, Chairman, IMTMA RC (W) and Executive Director, TAL Manufacturing Solutions chaired the meeting. Members discussed about the importance of Automation and how MTMs could provide complete solutions to customers.



Activities

82nd UFI Congress



The 82nd UFI Congress was held from 4 to 7 November 2015 in Milan, Italy. The Congress marked a significant milestone in the continuing expansion and growth of the exhibition industry. Delegates from 53 countries attended the Congress. The theme of 82nd UFI Congress was "The Exhibition Industry 2030".

The event gave BIEC a unique opportunity to increase its visibility and promote the brand at the international level. UFI Congress was also a forum to network with exhibition industry representatives.

PATA Travel Mart 2015



The 38th edition of PATA Travel Mart, supported by the Tourism Departments of the Government of Karnataka as well as the Government of India was held from 6 - 8 September 2015 at BIEC. The event facilitated over 10,000 pre-matched appointments and brought together qualified international buyers and sellers for face-to-face meetings, educational forums and networking functions. PATA Travel Mart is Asia Pacific's premier travel trade show, featuring unparalleled networking and contracting opportunities to help organizations access decision makers, meet new clients, expand network and build and maintain existing relationships.

BIEC conferred with Excellence in Services Award



Bangalore International Exhibition Centre (BIEC) won 5 Awards at the Exhibition Excellence Awards 2016 organized by Exhibition Showcase on 23 January 2016 at India Expo Mart in Greater Noida. BIEC was conferred with the Excellence in Services Award. It got the best award for its flagship event IMTEX in the categories of Top Exhibitor Value, Top Global Dominance and the first runner-up in the Royal Show category. The Award was instituted by Exhibition Showcase to honour the Indian exhibition industry for their effort in serving the industry. The nominations were handled by an eminent jury comprising of professionals from exhibition industry.

11th UFI Open Seminar in Asia 2016

The 11th edition of the UFI Open Seminar in Asia on 25 and 26 February 2016, organized by Thailand Convention and Exhibition Bureau in Thailand, brainstormed on the changing trends witnessed in the exhibition industry. Bangalore International Exhibition Centre participated in the seminar as well as in the UFI Focus Meeting on Sustainable Development.

Activities

Operations and Services Focus Meeting



Digitalisation is changing the concept of exhibition venues and their marketing. The Operations and Services Focus Meeting organized by UFI – the Global Association of the Exhibition Industry in Singapore on 21 and 22 April 2016 was an opportunity to explore the latest technologies and look at how events professionals could make the most of these new developments. Delegates discussed the new opportunities that arose from the digitisation of venues.

IEIA Open Seminar 2016



BIEC hosted the Sixth edition of IEIA Open Seminar 2016, held from 6 - 7 May 2016, organized by the Indian Exhibition Industry Association (IEIA) with the theme: "Collaborating to Achieve Excellence". The IEIA Lifetime Achievement Award was awarded to Mr. Indra Mohan Gupta for his contributions to the growth of the Indian exhibition industry at this event. International stalwarts from the exhibition industry such as Mr. Jochen Witt, President & CEO, JWC GmbH, Mr. David DuBois, President & CEO, IAEE, and Mr. Mark Cochrane, Regional Manager, Asia Pacific, UFI addressed the seminar.

Training Programmes

In continuance of its efforts to make skilled manpower available for the machine tool and manufacturing industries, IMTMA has set up Technology Centres in Bengaluru in 2009 and in Pune in 2014. The Technology Centres are closely associated with National Skill Development in skill building initiatives of the Government of India. IMTMA Technology Centre is also affiliated to Automotive Skills Development Council and Capital Goods Skill Council for imparting skill based training to students. The Centres are equipped with state-of-the-art training facilities and training is imparted by experts with domain experience. The classroom sessions are supplemented with practical hands-on sessions, demonstrations and industry visits.

IMTMA's Design Institute in Bengaluru, Pune and Gurugram imparts design training skills in machine tool and its components for engineering graduates and new recruits to the industry. IMTMA was able to help over 70% of the trainees in getting placement in leading manufacturing companies. Over 120 training programmes were conducted by IMTMA across the country in 2015-16. IMTMA recorded close to 15,000 person-days of training during the year 2015-16 and support Indian manufacturing industry in skill development/skill upgradation.

IMTMA Completes 25 Batches of Finishing School



The Finishing School in Production Engineering, an initiative by IMTMA to train engineers on all aspects of production engineering has successfully completed 25 batches of training since September 2010. The Finishing School course enhances the skill sets of fresh engineers. Students are given a blend of theory and practical sessions, hands-on training on CNC Turning and CNC Machining Centres with industry visits. The training programme is a cost-effective option for industry in training their fresh recruits and ensuring that their engineers come well prepared to take over their job responsibilities. More details can be accessed on the website www.imtmatraining.in

New Design Institute in Gurugram



IMTMA opened a Design Institute in Gurugram on 15 February 2016. IMTMA Design Institute has been established to provide world class training to machine tool industrial designers and inculcate in them a sound design knowledge and capabilities to take up the design task with confidence. The initiative aims to create machine tool designer talent pool which can be tapped by industries.

Training Programmes

Some of the new Training Programmes were:

Energy Conservation / Energy Saving in Manufacturing

29 July 2015: Bengaluru

Energy has re-emerged as an issue of national concern as India confronts the challenges of economic recovery, energy affordability, and climate change and energy security. The demand for sustainability is growing stronger every day and manufacturers are looking for ways to reduce energy cost. In a manufacturing plant, energy consumption is one of the major operational expenses and hence energy efficient operations provide a major opportunity for cost reduction. Modern machine tools are equipped with energy saving accessories including hydraulic systems, motors, pumps, etc. Investing in energy efficiency would be equivalent to tapping the fifth source of energy. Given the right choices and investments in the many cost-effective but underutilized energy efficiency technologies, a variety of studies (by ACEEE and others) suggest that India can cost-effectively reduce energy consumption by 25-30% or more over the course of next 20-25 years. Keeping this in view, IMTMA organized a one day programme on Energy Conservation / Energy Saving in Manufacturing on 29 July 2015 at Bengaluru. The programme provided an in depth understanding of energy saving practices and its potential benefits. The programme focused on Energy Efficient features in modern Machine Tools; Energy Saving through intelligent accessories - Hydraulic power packs; Energy Audit in manufacturing industries – Need and benefits, procedure with case studies; Selection of Energy Efficient Pumps and Motors.

Energy Conservation / Energy Saving in Manufacturing

29 July 2015: Bengaluru

Developing safety culture, attitude and behaviour in an organization requires manager's special attention to two major aspects viz. environmental factors like equipments, tools, machines, systems, work place, etc., and People factors like abilities, job skills, attitudes and behaviour etc. These factors have influence on safety culture in an industry. Keeping this in view IMTMA organized a one day programme on Behaviour Based Safety for Accident Prevention on 7 August 2015 at Bengaluru. The programme was conducted by safety officers from National Safety Council, Karnataka Chapter and local industries in Bengaluru.

Maintenance and Trouble Shooting of Bearings of Industrial Machinery

20 August 2015: Bengaluru

Rolling bearings are precision components playing a vital role in the reliable functioning of rotary equipment and industrial machinery. Lack of bearing awareness can lead to premature bearing failure, unexpected machine breakdown and loss of production. Basic knowledge about bearings can avoid these losses and bring in huge savings & benefits to the organisations. Proper selection and mounting of bearings is crucial for achieving the desired levels of accuracy in modern machine tools / Industrial machinery. Keeping this in view IMTMA organized a 1 day programme on "Maintenance and Trouble Shooting of Bearings of Industrial Machinery" on 20 August 2015 at Bengaluru. The programme addressed all the relevant aspects of rolling bearings right from various types, application details, mounting & dismounting methods, lubrication and trouble shooting.

Advanced Product Quality Planning (APQP) and Control Plan

14 October 2015: Bengaluru

New Product Development assumes lot of significance and has become very much essential for sustaining business growth of industries. However often many costly mistakes and time delay happen in new development of Products / Parts as well as processes. APQP mitigates such risks by following a systematic approach right from the beginning. All OEMs now mandate use of APQP as this system helps in development of product / process faster, well in time and within budget. Keeping this in view IMTMA organized a 2 day programme on Advanced Product Quality Planning (APQP) and Control Plan on 13 - 14 October 2015 at Bengaluru. The programme helped in achieving "First Time Right" development of parts resulting in saving time and cost as well as enhanced customer satisfaction.

Training Programmes

Maintenance Management for Hi-Tech Job Shop

16 October 2015: Pune

Maintenance Management for High Technology Job Shop poses quite different challenges since the equipment is costly, often it is unique, it uses nascent technology and the concepts of modularity and "life" of spares do not generally apply. While mass production equipment is clearly "usable" or "non-usable"; Job Shop equipment has many shades of grey in "Quality & Level of Utilization" and "Utilization meeting the Expectations". Keeping this in view IMTMA organized a one day programme on Maintenance Management for Hi Tech Job Shop on 16 October 2015 at Pune. The programme focused on: What are the attributes of equipment reliability; What is special about Job Shop Environment; What it takes to be a pioneer in Hi-tech Capability; Elements of strategy of maintenance; Tricks of Trade to deal with: breakdowns, performance impairments and intermittent problems; Selection of equipment for maintainability; Changing trends and challenges in maintenance.

Improving Productivity and Cost Effectiveness in Sheet Metal Stamping

26 November 2015: Pune

Sheet metal stamping employs capital intensive manufacturing infrastructure comprising of stamping presses, press lines, dies, automation, cranes and large shop floor. The major markets viz., automobile, white goods, electrical are no longer driven by volumes and the focus has shifted to: lean production, larger variety, flexibility, quick change over and being cost competitive. Keeping this in view IMTMA organized a one day training programme on Improving Productivity and Cost Effectiveness in Sheet Metal Stamping on 26 November 2015 at Pune. The programme focused on: Simultaneous engineering for project throughput time reduction; Alternative technology options: hot forming, hydro-forming and laser cutting; Levers of cost management for process design; Ensuring effectiveness in design and manufacturing of stamping tools; SMED (Single Minute Exchange of Die) in press shop; Monitoring and improving cost effectiveness and productivity of existing press shops; Best practices in press maintenance and die repairs.

Hands-on training on Measuring and validation of GD&T Parameters

26 - 27 November: Bengaluru



Implementing Geometric Dimensioning and Tolerancing (GD&T) system helps to reduce the manufacturing and inspection costs drastically. It ensures seamless communication across the entire organization enabling the teams to work in a concurrent engineering environment. However, there are lot of misconceptions in understanding of the parameters and their evaluation procedure. Thorough understanding is a must across the design, manufacturing and quality teams for implementing GD&T and realizing the true benefits in terms of interchangeability, reduced cost, reduced re work, simplified inspection & gauging, etc. Keeping this in view IMTMA organized a 2 day Hands-on training on Measuring and validation of GD&T Parameters on 26 - 27 November at Bengaluru. The programme enabled the participants to get a clear understanding of the parameters and their evaluation method using conventional methods as well as CMM. The programme focused on: Review of GD&T parameters; Maximum Material control (MMC), Least Material Control (LMC) and RFS principles; Measurements of GD&T parameters in open set up using conventional instruments; Measurements of GD&T parameters using CMM and other equipment; Functional gauging principles for GD&T validation.

Training Programmes

Latest Developments in Metal Working Technology

15 - 16 December 2015: Pune



Manufacturing technology has undergone tremendous changes in the recent past, resulting in break through development potential in terms of newer designs, improved productivity and quality. Going further, Technology and Innovation will be the game changer in bringing about "World Class Competence". Though Casting and Forging have been existing as the primary manufacturing processes since ages, newer developments in terms of technology, automation, process monitoring and control assure increased through put and performance level. On similar lines, modern sheet metal forming processes including Hot Forming and Hydro Forming enable light weighting of automotive parts to a great extent. These Technologies are changing the way products are being designed and made. Hybrid manufacturing, combining additive and traditional machining in the same set up will throw open lot of newer possibilities in the future. Keeping this in view, IMTMA organized a 2 day programme on "Latest Developments in Metal Working Technology" on 15 - 16 December 2015 at Pune. The programme focused on: Latest trends in Foundry technology; Latest trends in forging technology; Recent developments in CNC machine tools – multi tasking and 5 axis machines; Lights off machining / unattended machining; Palletised flexible manufacturing cell concept; Advances in Sheet metal forming; Modern presses and press lines; Newer possibilities thro Additive Manufacturing (3D Printing); Hybrid manufacturing; Applications of Laser in cutting, welding and hardening.

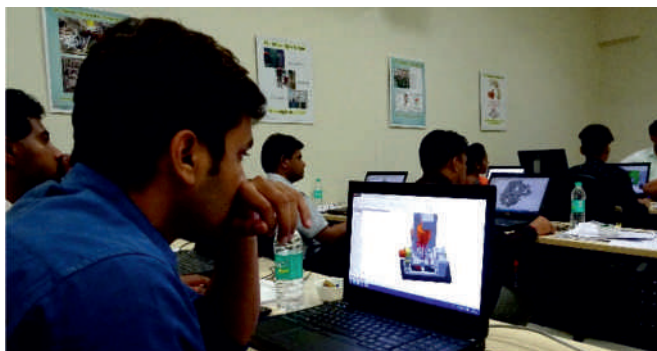
Machine Tool Design – Electrical

8 February - 5 March 2016: Bengaluru



"Design of Fixture - Specialization" (Machining/Welding/Assembly and Inspection Fixtures)

16 - 21 May 2016: Pune



A six-day course on 'Design of Fixture - Specialization' was conducted as an introduction to Fixture Design basics from May 16 - 21 at Pune. Basics of fixture design if not implemented correctly results in poor productivity and quality problems. Set-up time and cycle time reduction, increased accuracy on components, deskilling the job setting operation are the obvious advantages of a good fixture. Competence in right fixture differentiates excellent organizations. This event incorporated not just Machining Fixture but also Welding / Assembly and Inspection Fixture. On 3rd and 4th day, Mr. Deepak Kumar Ravilla, Manager, Head of Fixture division, Kennametal, discussed complete process of designing a fixture from concept to finish. The 5th day witnessed Mr. Raghupati Karanth and Mr. Abhay P Kulkarni from TATA Motors talking on various case studies applied in various industries and a key point of applying at the BIW stations. On the final day, Mr. Avinash (Head Pune Tech Centre - IMTMA), touched upon topics like, Fixture for Machining of Very Large Part, Handling and Transportation of parts, Manual drilling, piercing, nibbling, cutting, de-burring, grinding, painting of parts, Inspection of parts on CMM, Laser Welding / Roll forming / Roll Hemming of parts, etc. The program concluded with half-a-day visit to TATA Motors, Pune for live demonstration of the implementations process of Fixturing learnt during the training.

A four-week course on 'Machine Tool Design - Electrical' was conducted for electrical and electronics engineers on design aspects of CNC Machine tools. Introduction to fundamentals of electrical design, CNC machines, electrical switch gear elements, electrical wiring, design concepts, PLC, circuit diagram selection of electrical elements for CNC and SPMs were covered. A complete design of electrical system for CNC machine was carried out. The course enabled participants to gain hands-on experience on electrical design and SPM for CNC machine tools and SPM.



World Machine Tool Scenario 2015

Global Production of machine tools during 2015 declined by 12.4%. Output by principle producing countries was USD \$ 80.1 billion. Among the major machine tool manufacturing countries larger gainers are Russia with 7.6% increase, India with 1.2% increase.

Top three machine tool producing countries are China followed by Japan and Germany. Output from top three countries account for about 60% of 2015 total world production.

China continues to be largest machine tool consuming country in the world which installed about USD 27.5 billion worth of machine tools. Based on Gardner's world machine tool consumption survey report which comprised of 60 countries, India ranks world 13th in Production and 10th in Consumption during 2015.

Production of Machine Tools

Estimated production of Global Machine Tool amounted to USD 80.1 Billion during 2015 a decline of 12.4 % from revised USD 91.4 Billion during 2014. India's Production now occupies 13th position in the world compared to 14th position during 2014. Top five countries are China (27.6%), Japan (16.8%), Germany (15.5%), Italy (6.6%), & Korea (5.9%) Top 3 countries accounts for 61% of the global output. India accounts for 0.9 percent of global machine tool production during 2015. India's production has increased by 1.1 percent in USD terms during 2015.

Consumption of Machine Tools

Global consumption of machine tools amounted USD 78.9 Billion during 2015 had declined by 11.4% from revised USD 89.4 Billion during 2014. Top 5 machine tool consuming countries are presented in the table below.

Top 5 Machine Tool Consuming countries			
Country	Value in USD (Mn)	Share in Global Consumption	Rank
China	27,500.0	34.8%	1
United States	7,361.0	9.3%	2
Germany	6,360.8	8.1%	3
Japan	5,804.5	7.4%	4
South Korea	3,823.0	4.8%	5
India	1,541.1	2.0%	10

World Machine Tool Scenario 2015

Global Machine Tool Consumption

SI NO	Country	Value in USD Mn		
		2014	2015	Growth (%)
1	China	31,800.00	27,500.00	-13.5%
2	United States	8,811.10	7,361.00	-16.5%
3	Germany	7,347.80	6,360.80	-13.4%
4	Japan	5,307.10	5,804.50	9.4%
5	South Korea	4,927.80	3,823.00	-22.4%
6	Italy	2,866.60	3,136.10	9.4%
7	Mexico	2,047.30	2,214.10	8.1%
8	Russia	2,304.30	2,177.00	-5.5%
9	Taiwan	1,815.30	1,564.00	-13.8%
10	India	1,514.10	1,541.00	1.8%
11	Turkey	1,435.50	1,278.00	-11.0%
12	Canada	1,236.10	1,178.30	-4.7%
13	Thailand	1,843.60	1,173.80	-36.3%
14	Switzerland	1,308.50	1,038.00	-20.7%
15	Vietnam	991.1	969.9	-2.1%
16	France	1,062.80	960.3	-9.6%
17	U.K.	1,129.10	950.5	-15.8%
18	Indonesia	1,033.60	802	-22.4%
19	Brazil	990.1	672.3	-32.1%
20	Austria	612	637.2	4.1%
21	Poland	644.7	599.6	-7.0%
22	Spain	578.5	595.2	2.9%
23	Czech Republic	597.1	558.4	-6.5%
24	Malaysia	591.6	475.3	-19.7%
25	Netherlands	453.6	452.9	-0.2%
26	Singapore	427	388.2	-9.1%
27	Saudi Arabia	309.1	330	6.8%
28	Australia	316.1	291.8	-7.7%
29	Algeria	215.6	286.5	32.9%
30	Slovakia	313.5	277.9	-11.4%
31	Romania	273.8	272.7	-0.4%
32	Belgium	277.8	242	-12.9%
33	Argentina	244.6	241.8	-1.1%
34	Hungary	295.5	218.2	-26.2%
35	UAE	234.2	203	-13.3%
36	Portugal	255	195.4	-23.4%
37	South Africa	199.5	176.7	-11.4%
38	Belarus	243.4	172.3	-29.2%
39	Sweden	202.6	167.6	-17.3%



World Machine Tool Scenario 2015

Global Machine Tool Consumption

SI NO	Country	Value in USD Mn		
		2014	2015	Growth (%)
40	Philippines	110	166.8	51.6%
41	Slovenia	159.7	158.1	-1.0%
42	Israel	180.3	152.8	-15.3%
43	Hong Kong	139.4	144	3.3%
44	Finland	130.1	114.3	-12.1%
45	Bulgaria	136.4	102.3	-25.0%
46	Croatia	116.2	101.2	-12.9%
47	Denmark	111.4	92.1	-17.3%
48	Norway	153.3	91.8	-40.1%
49	Colombia	88.9	82	-7.8%
50	Egypt	85	82	-3.5%
51	Ireland	53.5	65.3	22.1%
52	Kazakhstan	80.4	63.8	-20.6%
53	Chile	88.1	56.4	-36.0%
54	Morocco	47.2	47.6	0.8%
55	Greece	56.6	47.3	-16.4%
56	Ukraine	116.6	41.6	-64.3%
57	Venezuela	35.9	35.5	-1.1%
58	Azerbaijan	22.6	23	1.8%
59	Ghana	15.3	14.4	-5.9%
60	Iran	133.2	0	-100.0%
Total		89,117.10	78,969.60	-11.4%

Source: World Metal Working Consumption report April 2016, Gardner publications Inc.

Top 5 Gainers & Losers in Consumption (among top 20 consumers)

Gainers		Losers	
Country	Percentage Change	Country	Percentage Change
Japan	9.4%	Thailand	-36.3%
Italy	9.4%	Brazil	-32.1%
Mexico	8.1%	Indonesia	-36.3%
Austria	4.1%	South Korea	-36.0%
India	1.8%	Brazil	-32.1%

Source: World Metal Working Consumption report April 2016, Gardner publications Inc.

World Machine Tool Scenario 2015

Global Machine Tool Production

SI NO	Country	Value in USD Mn		
		2014	2015	Change
1	China	24,649.10	22,100.00	-10.3%
2	Japan	14,857.20	13,489.50	-9.2%
3	Germany	14,456.70	12,422.00	-14.1%
4	Italy	5,797.70	5,306.30	-8.5%
5	South Korea	5,675.40	4,758.00	-16.2%
6	United States	5,480.40	4,600.00	-16.1%
7	Taiwan	4,864.20	4,030.00	-17.1%
8	Switzerland	3,681.30	3,052.80	-17.1%
9	Spain	1,177.90	1,003.30	-14.8%
10	Austria	1,049.50	938	-10.6%
11	United Kingdom	956.8	825.3	-13.7%
12	Turkey	762.7	706	-7.4%
13	India	683.4	690.8	1.1%
14	France	763.6	645	-15.5%
15	Czech Republic	754.2	641.6	-14.9%
16	Canada	556.4	530.8	-4.6%
17	Russia	450.6	485	7.6%
18	Thailand	534.7	476	-11.0%
19	Singapore	511.4	448.5	-12.3%
20	Netherlands	468.3	387.4	-17.3%
21	Belgium	373.1	293.1	-21.4%
22	Poland	248.5	235	-5.4%
23	Brazil	293.8	208.3	-29.1%
24	Malaysia	288	178.8	-37.9%
25	Sweden	193.3	159.9	-17.3%
26	Slovakia	189.8	159.2	-16.1%
27	Finland	183.9	155.4	-15.5%
28	Hong Kong	206	150	-27.2%
29	Mexico	145.8	121.9	-16.4%
30	Australia	125.3	110	-12.2%
31	Portugal	130.2	107.7	-17.3%
32	Argentina	94.3	96.7	2.5%
33	Slovenia	79.5	96.1	20.9%
34	Denmark	87.3	81	-7.2%
35	Belarus	75.6	65.8	-13.0%
36	Croatia	78.5	54.7	-30.3%
37	Israel	118.3	50.1	-57.7%
38	Bulgaria	45.7	42.1	-7.9%



World Machine Tool Scenario 2015

Global Machine Tool Production

SI NO	Country	Value in USD Mn		
		2014	2015	Change
39	Greece	45.9	36.9	-19.6%
40	Indonesia	46	35.6	-22.6%
41	Vietnam	38.9	34.9	-10.3%
42	Hungary	36.8	31.2	-15.2%
43	Ukraine	37.1	30.6	-17.5%
44	Romania	40.4	26.3	-34.9%
45	Norway	32.2	25.8	-19.9%
46	Philippines	42.7	21.9	-48.7%
47	South Africa	23.7	17.2	-27.4%
48	Ireland	19.9	16.7	-16.1%
49	Chile	9.3	3.5	-62.4%
50	Colombia	3	3	0.0%
51	Morocco	1.4	1.4	0.0%
52	Saudi Arabia	1.8	1.2	-33.3%
53	Kazakhstan	4.1	1	-75.6%
54	Egypt	0.2	0.2	0.0%
55	Venezuela	0.1	0.1	0.0%
56	Iran	19.9	0	-100.0%
	Total Production	91,491.80	80,189.60	-12.4%

Source: World Metal Working Consumption report April 2016, Gardner publications Inc.

Top Gainers & Losers in Production (among top 20 producers)

Gainers		Losers	
Country	Percentage Change	Country	Percentage Change
Russia	7.6%	Netherlands	-17.3%
India	1.1%	Taiwan	-17.1%
		Switzerland	-17.1%
		South Korea	-16.2%
		United States	-16.1%

Source: World Metal Working Consumption report April 2016, Gardner publications Inc.

Trends in Indian Machine Tool Industry

Production of Metal Working Machine Tools

All Values in Rs. Crores

Machine Tool Segment	2013-14		2014-15		Value Growth (%)	2015-16		Value Growth (%)
	Qty	Value	Qty	Value		Qty	Value	
Metal Forming	1027	508	1010	462	-9%	1149	521	13%
CNC	560	328	371	126	-62%	438	126	0%
Conventional	467	180	639	336	87%	711	395	18%
Metal Cutting	11529	2973	14237	3769	27%	15113	4206	12%
CNC	9681	2601	12280	3296	27%	13335	3755	14%
Conventional	1848	372	1957	473	27%	1778	451	-5%
Total Metal Working	12556	3481	15247	4230	22%	16262	4727	12%
CNC	10241	2929	12651	3422	17%	13773	3881	13%
Conventional	2315	552	2596	809	47%	2489	846	5%

Source: IMTMA

Note: Production turnover adjusted to reflect turnover of companies outside IMTMA database

Export of Metal Working Machine Tools

All Values in Rs. Crores

Machine Tool Segment	2013-14		2014-15		Value Growth (%)	2015-16		Value Growth (%)
	Qty	Value	Qty	Value		Qty	Value	
Metal Forming	35	117	21	41	-65%	34	46	11%
CNC	13	82	-	-	-	4	1	-
Conventional	22	35	21	41	18%	30	45	9%
Metal Cutting	422	129	732	238	85%	684	250	5%
CNC	378	110	662	219	99%	649	244	12%
Conventional	44	19	70	20	3%	35	6	-69%
Total Metal Working	457	246	753	280	14%	718	296	6%
CNC	391	192	662	219	14%	653	245	12%
Conventional	66	54	91	61	13%	65	51	-16%

Source: IMTMA

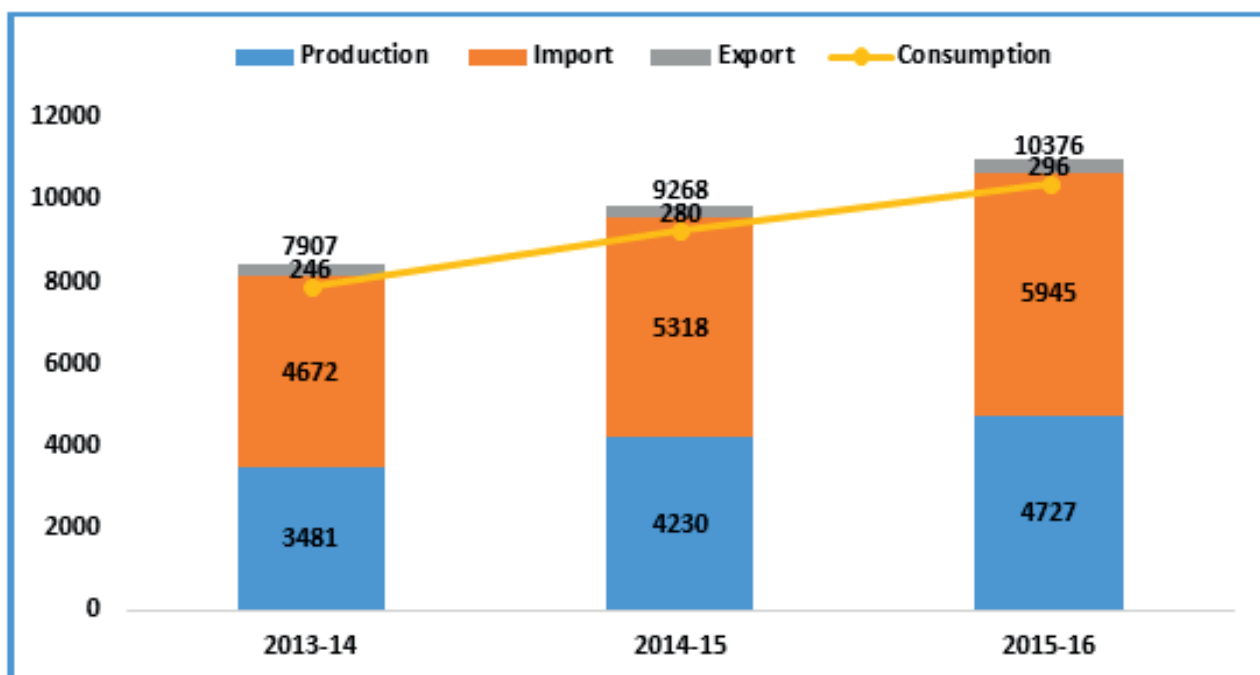
Note: Production turnover adjusted to reflect turnover of companies outside IMTMA database



Trends in Indian Machine Tool Industry

Indian Machine Tool Industry 2013-14 to 2015-16

All Values in Rs. Crores



Source: IMTMA

New Products Developed by Members in 2015-16

ABHIJAT EQUIPMENTS PRIVATE LIMITED

1. CNC product 'Ecoturn-42' turning machine [Model - 'Ecoturn-42']

ABRO TECHNOLOGIES PRIVATE LIMITED

1. ABRO high speed balancing machine for the balancing of PT, shafts of helicopter Engines.
2. High Speed Dynamic Balancing Machine in the Old Tunnel [Model - HR-25K-125T]

ACCURATE GAUGING AND INSTRUMENTS PRIVATE LIMITED

1. Next Generation 5 axis CNC Coordinate Measuring Machine [Model - CMM"XT 400]

ACE MANUFACTURING SYSTEMS LIMITED

1. High Speed Drill Tap Centre with Maximized Cutting Time [Model - DTC-400 XL]
2. Cost Effective Drill Tap Machining Centre With Full Milling [Model - DTC-400 & DTC-400L]
3. Cost Effective Vertical Machining Centre [Model-540V & 740V]

BANSAL BROTHERS

1. Boring Bars and Indexable Tooling Used on Machining Centres, Rough Boring Bars.
2. Finish Boring Bars, Indexable Cutters, Combinational Boring Bars, U-Drills: Spot Face Cutter

CHENNAI METCO PRIVATE LIMITED

1. Refractory Brick Diamond Cutting Machine.

DUCOM INSTRUMENTS PRIVATE LIMITED

1. High Temperature High Pressure Water/Helium Tribometer
2. Single Station Biotribometer
3. Airjet Erosion Tester

ELECTROPNEUMATICS & HYDRAULICS (I) PRIVATE LIMITED

1. All-Indian, State-of-the-Art CNC Package for Metal Cutting Applications
2. 160 Gap Frame Servo Mechanical Press with Electric Cushion
3. 80 T x 13-Station High Speed Servo Mechanical Transfer Press
4. 3T Servo Assembly Monitoring Press
5. CNC Ten-axes Bi-directional All-Electric Tube Bender

ELSCINT AUTOMATION

1. Elscint 4 Outlet Automatic Tapping Machine for M6 Tapping
2. Elscint 4 Outlet Automatic Tapping Machine for M2 Tapping
3. Elscint 4 Outlet Spout Feeding System for Spout Packing Machines
4. Elscint Syringe Feeding, Adhesive Dispensing & Piston Pressing Machine

ETA TECHNOLOGY PRIVATE LIMITED

1. Dynamic Force Exciter
2. Electro Hydro Static Actuator - EHSA
3. ETA Processor

FERROMATIK MILACRON INDIA PRIVATE LIMITED

1. Two Platen Maxima Servo Power Machine for Automotive Part Manufacturing [Model-1400T]
2. Omega Three color machines for 3 Color House Hold Part Manufacturing [Model-660T]
3. Twin Conical Extrusion Machine for Pipe Manufacturing [Model-TC 80]
4. Twin Conical Extrusion Machine for Pipe Manufacturing Static Actuator-EHSA [Model-TC 65]

FUIDTHERM TECHNOLOGY PRIVATE LIMITED

1. Development Of Continuous Furnace With Gas Quenching Facility for Case Hardening of PM Gears

GRIND MASTER MACHINES PRIVATE LIMITED

1. Roboting Deflashing of Aluminium Castings [Model-RCP Series]
2. Roboting Deflashing of aluminium castings [Model-RMT series]
3. Manual Flat Part Grinding 7 Deburring Machine for Batch Volume [Model-TGM-10]
4. Rotogravure Cylinder Super Finishing Machine [Model-SMP 1500]
5. RMC-Robotic Solution for Machining/Sculpting of Various Materials Like Foam, Wood, Soft Metals, Stones, Etc [Model-RMC]
6. CP Series - Square/Rectangular Tube Polisher -4 Slides in One Pass
7. Dynamic Balancing of Automotive Crankshafts [Model-CRH MQL600]

New Products Developed by Members in 2015-16

HI - LIFE MACHINETOOLS LIMITED

1. CNC Cylindrical Grinding Machine (Angular Wheel Head) Heavy Duty
2. 600mm Grinding Wheel Diameter & 80mm Width
3. Gauging for OD & Width Control
4. Grinding Wheel Motor Power 11kw

IND - SPHINX PRECISION LIMITED

1. Single Flute Endmill for Plastic Applications
2. CVD Diamond Coated Tools for CFRP Drilling and Milling with Gama Geometry
3. Micro Drills From 0.10mm to 3.00mm for Machining Austenitic Stainless Steel With Special End Geometry
4. CVD Diamond Coated Drills and Routers For Fr4, High TG, Rogers, Aluminium and PTFE

JASH PRECISION TOOLS LIMITED

1. Optics Precision Table with 7 nos Precision Linear Motion Stages Actuated by Micro-Stepping Motors & Precision Ground Ball Screws.

JENDAMARK TECHCELLENCY AUTOMATION INDIA PVT LTD.

New Automation System:

1. VW Engine Line
2. Lifting Tackle for Rolls Royce

KAWA PRESS SYSTEMS PRIVATE LIMITED

1. Perforating Press for Cable Tray [Model-300T KAWA]

KORTA ENGINEERING INDIA PRIVATE LIMITED

1. Lateral (End) Deflector Series Ball Screws with DN value of 1,50,000
2. Stainless Steel Hollow Ball Screws developed for Nuclear Sector.

LIPSON MACHINETOOLS PRIVATE LIMITED

1. CNC Synchro Press Brak Machine with 5 Axes, With Power Saver Inverter Model, With Flip off Back Gauge Systems (CNC Synchro Front Cylinder).

MAXPRECI MACHINES PRIVATE LIMITED

1. Disc Drum Lathe [Model-DDL500]

PRAGATI AUTOMATION PRIVATE LIMITED

1. Servo Turret [Model - STP]
2. Hydraulic Turret [Model - HTP]
3. Single Servo Motor Turret-Radial Tooling [Model - SMT-R]

SIGMA ENGINEERS

1. Anti-Vibration Tools
2. Fine Boring Units
3. Valve Seat Valve Guide Tools

SPM TOOLS

1. Circular Sawing Machine
2. Horizontal Gun Drilling Machine

New Members Enrolled in 2015-16

[As on 30 June 2016]

KABELSCHLEPP INDIA PRIVATE LIMITED

B-14, ITI Ancillary Industrial Estate
Mahadevapura Post
Bengaluru - 560048, Karnataka
(Manufacturer - Parts & Accessories for Machine Tools, Cables Carriers & Guideway, Protection Systems)

INNOVATION FILTER SYSTEMS PRIVATE LIMITED

Block No. 7, Gat No. 281/1 Kasar Amboli, Pirangut
Pune - 412111, Maharashtra
(Manufacturer - Tramp Oil Separator, Filtration System For Carbide Tools, Coolant Filtration Systems, Other Filtration Systems)

BILTZ CUTTING TOOLS COMPANY

J-351, MIDC Bhosari, Pune - 411026, Maharashtra
(Manufacturer - Cutting Tools, HSS/Carbide/Ceramic/CBN/Diamond Cutting Tools)

QUAKER CHEMICAL INDIA LIMITED

7B, Pretoria Street, Kolkata - 700071, West Bengal
(Manufacturer - Coolant, Cleaners, Rust Prevention, Hydraulics Fluids, Metal Forming Fluids, Hot and Cold Rolling Oils)

PRAGATI ENGINEERING BELGAUM PRIVATE LIMITED

R.S. No. 664, Hissa No. 2 Waghvade Road, Machhe Belgaum - 590014, Karnataka
(Manufacturer - Drive Unit Components, Mounting Brackets, Turret Components, Precision Machined Components for Machine Tool Industry)

CIMTRIX SYSTEMS PRIVATE LIMITED

No. 320, 8th Cross, 4th Phase
Peenya Industrial Area, Bengaluru - 560058, Karnataka
(Manufacturer - SPMs for Manufacturing Industry, SPMs for Bearing Industry, CMMs, VMMs, Laser Scanners, WI Scanners & Portable Laser Scanning Systems)

JENDAMARK TECHCELLENCY AUTOMATION INDIA PRIVATE LIMITED

Gat No. 736, Shed No. 1, A/P. Velu,
Pune-Bengaluru Highway, Tal. Bhor, Dist,
Pune - 412205, Maharashtra
(Manufacturer - Dies, Jigs & Fixture, Automation Systems, Aerospace Tooling, Machining Fixtures)

KYOCERA CTC PRECISION TOOLS PRIVATE LIMITED

M-22, Phase VII, Adityapur Industrial Area, Gamharia Jamshedpur - 832108, Jharkhand
(Manufacturer - Cutting Tools, Inserts & Holders)

TSUGAMI PRECISION ENGINEERING INDIA PRIVATE LIMITED

Plot. No. A-8, SIPCOT Industrial Growth Center, Oragadam, Kancheepuram, - 602105, Tamil Nadu
(Manufacturer - CNC Precision Lathe, Grinding Machine, Machining Centre)

UNITY CONTROLS PRIVATE LIMITED

405, Sapphire Arcade,
42 MG Road, Ghatkopar (East)
Mumbai - 400077, Maharashtra
(Manufacturer - Sekvo Voltage Stabilizers Ultra Isolation Transformer Harmonic Filters APFC Thyristorised)

YOGESHWAR ENGINEERING PRIVATE LIMITED

W-150 (A), MIDC. Area, Ambad
Nashik - 422010, Maharashtra
(Manufacturer - Tungsten Carbide Products for Cutting, Mining, Oil Industry, Wear Applications, Impact Resistance Products, Rigid Bars, EDM Electrodes, Etc)

EDGE GRINDING TECHNOLOGIES PRIVATE LIMITED

Office: H-69 & 70 UPSIDC Industrial Area
M. G. Road, Dasna,
Ghaziabad - 201015, Uttar Pradesh
(Manufacturer - Cylindrical Grinding Machines, Centreless Grinding Machines, Camshaft Grinding Machines, Special Purpose Machines, Angular Plunge Grinding Machine)

IGUS INDIA PRIVATE LIMITED

No. 36/1, Sy. No. 17/3, Euro School Road,
Dodda Nekkundi Industrial Area - 2nd Stage,
Mahadevapura Post
Bengaluru - 560048, Karnataka
(Manufacturer - Parts & Accessories for Machine Tools)

ZAVENIR DAUBERT INDIA PRIVATE LIMITED

57th Km Stone
Delhi, Jaipur Highway, Binola
Gurugram - 122413, New Delhi
(Manufacturer - Metal Working Fluids, Rust Preventive Liquids 7 VCI Packaging Materials)

TEKCEL AUTOMATION PRIVATE LIMITED

No. 72/73, Bommasandra, Jagani Link Road
Bandenallasandra Hobli, Anekal Taluk, Jagani
Bengaluru - 562106, Karnataka
(Manufacturer - Axis Tool & Cutter CNC Turn Mill Centre Grinding Machine)

Total Membership of IMTMA as on June 2016: 484 members



IMTMA Initiatives



In The Press

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IMTEX FORMING 2016 delivers success

IMTEX FORMING 2016, an international show on forming, held up to the 10th day at the Jai Hind Convention Centre, Bengaluru. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

IMTEX: opportunity to demonstrate

IMTEX FORMING 2016 is an opportunity to demonstrate the features, functions, and capabilities of our state-of-the-art equipment.

The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

EPHL offers new facility to Myanmar Navy

EPHL offers new facility to Myanmar Navy. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

Bridging Industry-Academia Gaps will Pay Rich Dividends

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IMTEX FORMING 2016 Gets Underway

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Forming Growth

Forming Growth. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

IMTEX FORMING 2016 Gets Underway

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Make in India gets realised more with IMTEX 2016

Make in India gets realised more with IMTEX 2016. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

THE CHANGING ECONOMICS OF PRODUCTION

Manufacturing leaders' perspectives. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

IMTEX FORMING 2016

IMTEX FORMING 2016. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

Tooltech 2016

Tooltech 2016. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

SHOW DAILY

SHOW DAILY. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

Revamping manufacturing solutions

Revamping manufacturing solutions. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors. The show was a success, with over 10,000 visitors and 100 exhibitors.

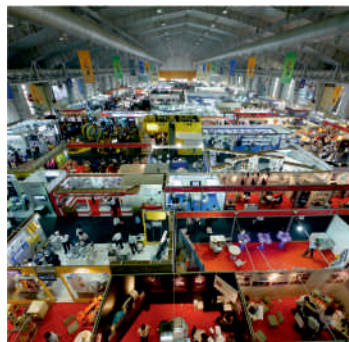
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Glimpses of BIEC



Notes.....

This image shows a full page of white paper with horizontal dotted lines. The lines are evenly spaced and run across the width of the page, providing a guide for handwriting practice. There are no margins, text, or other markings on the page.

Notes.....