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# EXPERIENCE



THE NEXT-GEN

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# EXHIBITING

DX 170 NVU CNC Turning Centre

VMC 850 NVU CNC High Performance VMC

**K3X8 Five NVU** 5-Axis Bridge Type Machining Center DX 200 NVU CNC Turning Centre

VMC 1260 NVU CNC High Performance VMC

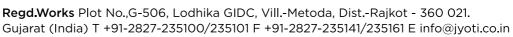
MX 9 NVU 5-Axis Universal Machining Centre VST 160 NVU CNC Vertical Shaft Turning Centre

NX 3222 NVU CNC Double Column Machining Centre (5 Face) VMC 430 NVU CNC VMC

K Mill NVU CNC Bridge Type VMC



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LUBRICANTS DIVISION OF THE MOTUL GROUP

MACHINING CENTER FIXTURES

# **Innovating for Growth**

Asia's leading fixture builder, RV Forms & Gears LLP has been providing complete fixture solutions across the globe for the last 45 years. The company is here at IMTEX 2019 to showcase its latest innovation that has brought in a revolution in its core area of expertise.

**STALL C-105** 



Team RV Forms & Gears at the company booth in IMTEX 2019 show

Started in 1972 by RT Varghese, an Engineer from IIT Kharagpur, RV Forms & Gears LLP started off supplying precision fixtures to

companies in the South of India. It has come a long way making wide strides and is now engaged with most complex and large-scale projects related to the auto, tractor and truck segments in the country. "In addition to India, we now supply fixtures to companies in Indonesia, Thailand, Turkey, the UAE, Qatar, Japan, Germany and Singapore," informs Reji Varghese, RV Forms & Gears LLP.

motul.com

FUTURE

**RV Forms & Gears LLP** 

www.rvformsandgears.com Hall 6, Booth B107

To be continued on 2 🤤

# Asia's Leading **Fixture Builder** Presents **Smorth 10**

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, Turkey, Indonesia and all over India.

- ☑ IoT enabled Industry 4.0 fixtures for High Performance Machining.
- $\ensuremath{\boxtimes}$  Cloud based application that monitors readings from sensors on fixtures.
- ☑ Fixture level analytics to help isolate and troubleshoot faster.

☑ Graphical data with robust analysis.



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Continued from 1 C

#### Innovation is the key

With the aim to further evolve and expand its offerings, the fixture building company did a JV with ASM Technologies, a Bangalorebased public limited company in the Engineering IT and design space. The yoking of the two companies has led to the adoption of Industry 4.0 technologies in Workholding and Fixtures area and has brought in a "revolution" with the name Smartfix 4.0.

"The Industry 4.0- and IoT-enabled Fixtures are being introduced for the first time in India and they are probably among the first few in the world. This is a landmark product launch at IMTEX 2019 that will give the auto and machine makers access to component level analysis using data analytics and Artificial Intelligence that would help them to optimize their processes, make better products, increase shop floor efficiencies and also enhance safety," shares Varghese.

66 The merger of the physical and cyber worlds leads to new opportunities for innovation that optimizes the entire manufacturing industry to create better products, improve productivity, increase energy efficiency, and increase safety on the shop floor.,

**REJI VARGHESE** Managing Director RV Forms & Gears LLP

The company is displaying two products in its own stall and one in the Mazak stall.

#### **Changing the face** of fixtures

Smartfix 4.0 is a Precision Workholding Device with the ability to collect, transmit and analyze data in a useful format to the end user. Developed for the first time in the world, SmartFix 4.0 takes the world of Workholding and Fixtures into the digital and cyber world.

As the fixture is in continuous contact with the component, it is





L-R) Reji Varghese, Managing Director, RV Forms & Gears LLP and Rabindra Srikantan, Managing Director, ASM Technologies Ltd taking pride in showcasing India's first Smart Fixture at the booth.

the ideal device to collect and analyze data at a component level. Sensors to monitor vibration, pressure, and component sensing are mounted on the fixture. And sensors to monitor oil levels and temperature are mounted on the powerpack.

The high volume of data collected from these sensors are continuously transmitted wirelessly to the cloud where it is parsed and stored for analysis.

The raw data is then analysed using Data Analytic and Artificial Intelligence tools and sent back to a custom built Dashboard of the end user, that resembles their factory floor, showing all the machines in action as well as a quick summary on the health of each machine, fixture and powerpack.

#### **User-friendly device**

The user can click on each machine to get a more detailed understanding of the analysed data per fixture. Data per sensor is visualized graphically with an ability to go back and see historical performance of the machine, the fixture and the powerpack.

For example, an analysis of data collected from vibration could reveal a wide variety of information like casting tolerances, vibration level comparison between tools and vibration comparison across machines in the plant. This real time data could result in productivity increases, optimizing tool life and increasing safety.

If the vibration crosses a set upper threshold limit, the system can be designed to shut the machine off remotely through the emergency switch of the machine.

Sensors to monitor pressure would alert the operator via their phone or any smart device and this can again be linked to the machine emergency switch if required to ensure that in case of a sudden pressure drop the machine is switched off.

By monitoring the clamp / decamp cycles, alerts for maintenance of fixtures, ordering of spares and seal kits would also be automatically generated by the system and alerts will be sent via smartphone to the concerned people.

With Artificial Intelligence and Machine Learning, SmartFix 4.0 can also help the user be more proactive on machine, fixture and tool performance as well as how machines are performing compared to each other.

Historical data can be analyzed and a comparison of various parameters can be made across all machines in the plant giving the management useful information to reduce costs, increase efficiencies and improve quality. Smartfix 4.0 can be installed on even existing fixtures running in the plant. Industry 4.0 is commonly referred to as the Fourth Industrial Revolution. It is the ability of machines, devices, sensors and people to connect and communicate with each other via the Internet Of Things. Smartfix 4.0 is that revolution in the fixture building business.

























HALL 4 / STALL B112



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IMTEX

KNOWLEDGE SHARING

IMTEX 2019 Tool 2019

#### **Jagruti IMTMA Youth Programme**

he two day 12th edition of "JAGRUTI – IMTMA Youth Programme" witnessed the participation of students from renowned engineering colleges across the country. The initiative is an attempt to create awareness about the latest developments in the manufacturing industry. The "Jagruti - IMTMA Youth Program" is held during IMTEX with the help of UDAAN members. Under this the engineering students, who are nominated by the colleges, visit the machine tool exhibition. IMTMA on its part bears all their expenses and provides them a guided tour of the exhibition. The idea is to familiarize the engineering students with the machine tool industry and the technological developments in the industry segment. Students from the following colleges participated this year -Amrita School of Engineering; Bapuji Institute of Engineering & Technology; Bharati Vidyapeeth's College of Engineering, Kolhapur; DY Patil School of Engineering Academy; GS Moze College of Engineering, Indian Institute of Technology Madras; K.L.E Technological University; KIT'S College of Engineering, Kolhapur; KLS Gogte Institute of Technology; Sri Sairam Engineering College; Singhad Technical Education Society's Sou.Venutai Chavan Polytechnic; Tatyasaheb Kore Institute of Engineering Technology Warananagar; Vishwakarma Institute of Information Technology and Veltech Rangarajan Dr. Sagunthala R & D Institute of Science & Technology.

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#### IBSM – SELLER'S

### Paving a way for the Indian Manufacturers

The International Buyer Seller Meet (IBSM) witnessed the presence of representatives from 12 countries who interacted with the Indian suppliers. The Indian manufacturers who explored the export opportunities were quite hopeful after the meetings.



**66** I met buyers interested in buying Indian machine tools. Some of them are quite new to India but they appreciate our technology, capability and offerings. This Buyers – Sellers Meet is a great platform for the Indian manufacturers.<sup>99</sup>

PRASHANT GODSE Senior Manager Exports Lakshmi Machine Works Ltd



661 met more than seven people (buyers) in IBSM. Three of them are very interested in Indian machines. IMTMA's IBSM is a superb good initiative."

AGNAY CHUTTANI Director Shobha Industries Pvt Ltd

#### CNC ROTARY TABLES



66 IMTMA & EEPC India created a good platform through IBSM for the Indian Machine Tool companies to help them reach the global market. I met some potential buyers from South Asia, Middle East and Russia as well as few end-users."

RITESH NOKWAL Manager – International Sales Grind Master Machines Pvt Ltd



66 We were looking for a global partner to sell our indigenously manufactured tools. I talked to more than 10 buyers and received good response."

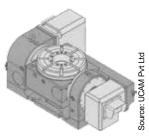
SAGAR WADKAR Manar Tools Pvt Ltd

#### UCAM Pvt Ltd www.ucamind.com Hall 1A. Booth B101

#### Large Bore Tilting Rotary Table

The Rotary Table from UCAM is designed for machining long components.

CAM is a market leader in precision CNC Rotary Table solutions and offers 4th and 5th Axis Rotary Tables from Ø125mm to Ø3000mm. The company's Large Bore Tilting Table is designed for components which are long. The major part of the component can go inside the rotary table and the component can be held at the end near the machining area, thus reducing the need for the



tailstock support. This also helps in reducing the amount of space required and benefits the user by reduction in costs and faster productivity.

#### **Features**

- Pneumatic/Hydraulic Clamping Pre-loaded Axial Radial Roller Bearing
- Dual Lead Worm Gear Set Large Thru Bore



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WORKHOLDING SOLUTIONS

IMTEX 2019 Tool (2019

Andreas Maier Workholding Pvt Ltd www.amf.de Hall 2B, Booth B112

## **Knowing the Dynamics**

Andreas Maier Workholding (AMF) has been participating in IMTEX & Tooltech for the last three decades. "This time we have launched products that are part of Industry 4.0," says Vishwanath Amanangi, MD, Andreas Maier Workholding Pvt Ltd.

IMTEX



Vishwanath Amanangi, Managing Director, Andreas Maier Workholding Pvt Ltd at company booth

MF works very closely with Indian customers and gives them the best clamping solutions to increase their productivity and profitability. "We have a satisfied clientele in India that motivates us further to focus here more," he adds.

#### Start to finish

Smart Manufacturing, On Amanangi says that it can be

66 Machine tools are the backbone of the manufacturing industry and have much scope to adopt smart manufacturing by making energy-efficient and intelligent machines.

VISHWANATH AMANANGI Managing Director Andreas Maier Workholding

applied to various processes in manufacturing. The technologies can also be used right from raw materials till finished products to reduce cost and improve quality. "I see several innovations and revolutionary technologies in the field of Additive Manufacturing (AM) and Industry 4.0 at the show. AMF is well associated with AM and offers clamps as well as successful quickchange products like Zero Point Systems," he adds.

#### MILLING MACHINES

Batliboi Ltd www.batliboi.com Hall 1A, Booth A105

### **Collaboration is the Key**

Batliboi Ltd's partner from Czech Republic, SKODA Machine Tool is here to showcase its products and celebrate its association with India.



**G**We are partners with Batliboi Ltd since 1968 and have finished our 50 years of successful association with the Indian market. We are glad that our exclusive partner is providing us not only sales support, but also effective local service support," says

Otakar Quadrat, Member of Board of Directors, SKODA Machine Tool Co., Czech Republic. Participating in IMTEX for several decades, the company considers

IMTEX as one of the most important exhibitions for machine tools in Asia and the best in India. Quadrat sha-

**66**We strive hard to keep the costs as low as possible, but our basic strategy is not to compromise on quality.

OTAKAR QUADRAT Member of Board of Directors SKODA Machine Tool Co., Czech Republic

res, "IMTEX provides a good base for meeting customers and important players of the sector."

#### **Cutting-edge machines**

IMTEX displays SKODA's machine tools that come with latest concepts and design features. "This is what makes them one of the best in the world," says Quadrat. "We are in the process of finishing of design of a mill-turn machine that will carry all operations on a component - milling, turning, drilling, grinding, etc. - during one set up in a fully automatic mode," he adds.

Visit us at Hall 5 · Stall A103

#### **PMT Machines Limited** Pune • Halo **CUSTOMISED SOLUTIONS CELEBRATING 57 YEARS CNC Internal Grinding CNC Cylindrical Grinding CNC** Turning Automats Surface Grinding CNC HEAVY DUTY LATHE A15/25 AUTO LOADING HYDRAULIC / PLC **BIG BORE GRINDER** ID / OD GRINDER CREEP FEED GRINDER SC-12 Ø400 CHUCK **TD36** LONG SHAFT GRINDER **Built To Last** PMT MACHINES LIMITED Ifice & Works: P. O. Box No.1102, Behind PCMC Building, Mumbai - Pune Road, Pimpri, Pune - 411 018. (India) +91:20:27478219 to 23 • Fax: +91:20:27426231/35 • E-mail: rd@pmtmachines.com, marketing@pmtmachines.com • website: www.pmtmachines.com orks: 178. Kadachak, Haldi - 38930. Gujard (India) -91 02676 246786/87 • Fax: +91 02676 246788 • E-mail : cb@pmtmachines.com, mkt.br/d@pmtmachines.com IMTEX 2019 Tel. No.: Halol Wor

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- Integrated controller for both Machine and Gantry automation enables even a novice to complete setup reliably & simply
- Built in motor spindle 6000rpm with oil cooling
- Servo turret for faster indexing
- High acceleration and deceleration of spindle reduce non-cutting time upto 20%
- High speed, high precision, enhancing the productivity and quality







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#### INDUSTRY DELEGATE

IMTEX 2019 Tool 2019

# Machine Tools Industry, the Growth Accelerator



66 The machine tools industry is forming the chassis of our nation's growth vehicle.»

MAHESH K DESAI Sr Vice Chairman EEPC India

he Indian machine tools industry is the backbone of our manufacturing industry and plays a crucial role in our economy. Pointing to which Mahesh K Desai, Sr Vice Chairman, EEPC India, said, "The potential of Indian machine tools industry is very high. Explaining the status quo of the industry, he said, "The Indian machine tools industry is poised for a big change. We have started manufacturing all types of products in our country. Defence and Avionics sectors are now open to the private manufacturers. There is a 'Make in India' and Skill India programme in place. At the lower level, the MUDRA Yojana (or PMMY) is helping the manufacturers to do something beyond tradition." According to him, the development of the machine tool sector is crucially essential for the development of the other sectors. For example, Metro Railways are being constructed in all major Indian cities which will require high-end components like sophisticated gears etc. on a large scale.



#### ACCOLADES

#### **FIE Foundation Awards IMTEX 2019**

Following its tradition of encouraging ideas, innovations and vision in Indian Machine Tool Sector, FIE Foundation awarded the below companies for their path-breaking innovations at IMTEX 2019 & Tooltech 2019.

Name of the Exhibitor	Hall No.	Stall No.	Name of the Product
Central Manufacturing Technology Institute	5	A122	Ultra Precision Turning Machine – Nanoshape T-250
UCAM Pvt Ltd	1A	B101	Direct Drive Mill Turntable
Kennametal India Ltd	1A	B103	5 Axis CNC Micro Tools Grinding Machine
Fenwick & Ravi	1A	A106	Angular Mill Head
Sunita Engineering Corporation	1 A	B106	5 Axis CNC Desktop Milling Machine JewelMill 5XW
Imaginarium Rapid Pvt Ltd	6	D101	Rapid Online Factory
Sahjanand Laser Technology Ltd	2A	A108	NOVA Multitasking Laser Machine
Abhijat Equipments Pvt Ltd	2A	F101	Ergonomically designed CNC Turning Machine-Turboturn 20
Dynascan Inspection Systems Company	3B	C103	Rapid Profile Projector
Strategi Automation Solutions Pvt Ltd	2A	A117	Compliant Mechanism

#### ROBOTICS

**Gudel India Pvt Ltd** www.gudel.com Hall 2A, Booth A110

#### Leveraging Opportunities

Güdel India has successfully completed challenging projects and is ready to take on more with its new equipment that it is being showcased IMTEX 2019.

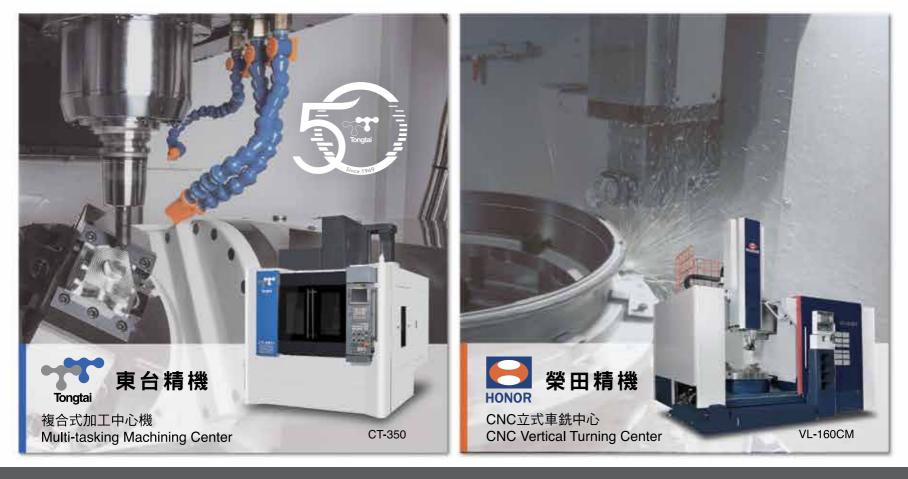
peaking on the company's display at the show, Sunil Raibagi, MD, Gudel India Pvt Ltd, says, "We are displaying Flowmotion, and Gudel's unique vertical integration within components. We are presenting a broad range of products as a solution provider." It has displayed a TMF-2 floor drive axis and a ZP-4 two axis gantry. The drive axis TMF-2 is driven by a Güdel high performance angle gearbox HPG 060. In combination with Güdel's own racks and pinions, this results in an ideal drive train. The static payload is 2.5 tons and a dynamic payload of 900kg can be moved. The drive axis is compatible for all industrial robot models. Up to four carriages can be driven separately or all in one. The combination of the TMF and ZP working in tandem echoes the company's philosophy of putting motion into any process



66 We believe that Industry 4.0 could be India's ticket into the big manufacturing league help us harness opportunities in time.<sup>99</sup>

SUNIL RAIBAGI Managing Director Gudel India Pvt Ltd

with greater accuracy and precision without compromising on the flexibility.





# **Total Solutions Provider** Booth No. Hall5 A120











IMTEX

# PMT Machines Ltd Source:

12

IMTEX 2019 Tool 2019

### **Compact and Modular Turning Machines**

he range of new generation CNC Turning Machines are designed for advanced machining capability and flexibility which allows improved part accuracy and are very efficient. The machines are modular in design and can be configured to suit the machining requirement of the customer. They, being compact, occupy very less floor space. The guide ways are integral with the bed and are hardened and ground. They are then coated with antifriction moglice material which dampens vibration while cutting and hence ensures longer tool life when used for hard turning applications. The unique spindle design can withstand larger cutting force. Turn mill and 'C' axis options are available. The machine is with rear side chip trolley for easy chip removal. PMT makes an entire spectrum of CNC Turning machines ranging from turning diameter 135 mm to 2000 mm and turning length from 200 mm abc to 6000 mm abc.



- Laser system and ball bar for machine calibration
- Dynamic Testing for Mode shapes
- **Static Rigidity Analysis**
- Vibration and Noise analysis of rotating elements
- EMC/EMI Measurements
- Test beds for Machine Testing up to 200Tons weight
- Surface & Contour measurement
- Residual Stress Measurements and analysis
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- Thermal behaviour of Spindle and Linear axe
- Electrohydraulic exciter Machine Dynamic analysis
- Latest international standards on machine testing
- Spindle assembly test rig

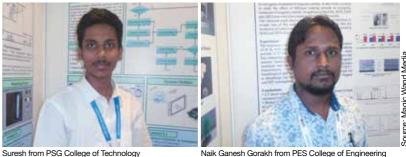
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#### INDUSTRY-ACADEMIA

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Hall 3C

### **Academia Presents** Amazing Innovations

The participating academic institutions have come up with ways that can aid the industry players to substantially reduce their machining and tooling costs, increase life of their tools and minimize waste leading to enhanced productivity and profitability.

xplaining their effort to ensure high level of productivity, Suresh from PSG College of Technology (Department of Robotics & Automation), said, "We are trying to give an Industry 4.0 solution to the machine tool industry. Suppose you have a machine,

using our hardware and software, you can see all the machine details in cloud. If the machine operator reduces the feed speed or otherwise does any mistake in operation, all these details will appear on cloud through our system."

Focusing on environment-friendliness and cost reduction in making quenchant, PERI Institute of Technology is developing an alternative technology. Their aloe vera-based quenchant has shown better properties than the normal water-quenched products. "Soon the industry may want to switch over to aloe vera-based quenchant from the synthetic quenchant," said Arul Nicholas T.

With a view to improving tools' life, PES College of Engineering has developed a process. PhD student Naik Ganesh Gorakh from the college said, "We have developed an improved heat treatment and cryogenic process to improve the life of a punch. The method has already been tested in the shop floor of a company and showed around 60 percent improvement in its lifecycle."

Final year ME student Naveen Kumar drew attention on their plastic substitute, low-cost material development project at SJB Institute of Technology. He said, "Our research target is to reduce cost and develop plastic substitute products for aeroplanes and ships. Compared to plastic, our developed composites are less costly and offer more strength."

#### QUIZ

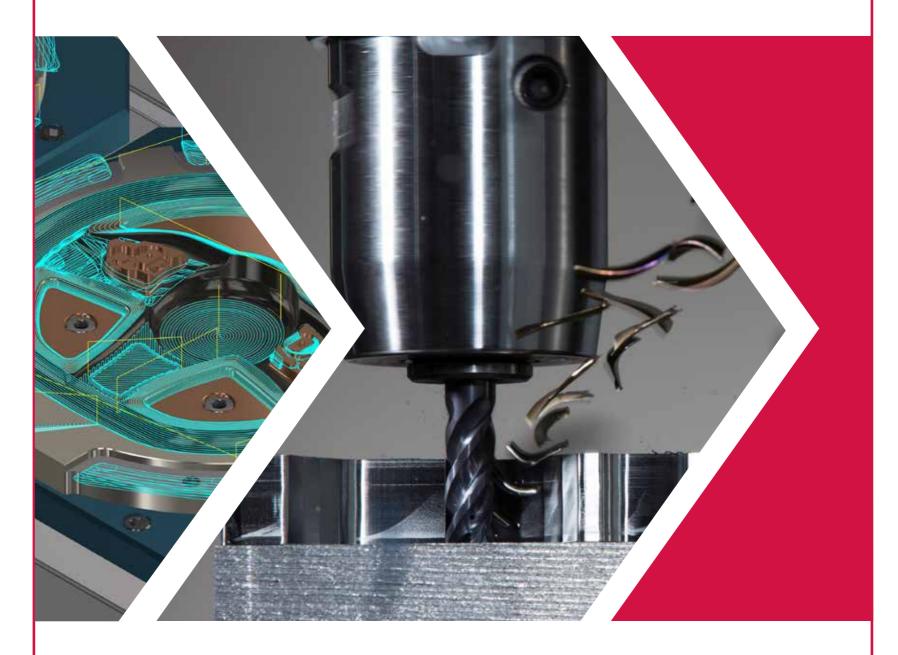
#### Manufacturing Technology **Quiz Contest**

IMTMA has organized an inter-college Quiz contest on manufacturing technology for mechanical engineering students coinciding with IMTEX



2019 & Tooltech 2019. The Quiz facilitated the students to understand, get acquainted with the latest technologies emerging in manufacturing industry, make them competitive and industry-ready.





# Mastercam, 2019

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**Tool Support** 







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#### FROM FAR AND WIDE

IMTEX 2019 Tool 2019

### **Together to Grow**

Italy has been an important trade partner for India. Its representative UCIMU-SISTEMI PER PRODURRE is at IMTEX 2019 to beef up the bond.

**C** Flexibility, high technological standards, marked product

customization, after-sale assistance are the characteristics of 'Made in Italy' brand, and have made us a leader in the international scenario fourth among manufacturers and third among exporters," says MASSIMO Carboniero, President, UCIMU-SISTEMI PER PRODURRE, the Italian manufacturers' association.

High-end numerical control machines, multi-axial systems, technologies capable of ensuring high speed, precision, interconnection, integration, additive manufacturing systems, development in the use of sensors, robotics are what make Italy's strengths and which India can put to good use.

#### 'Made in Italy' in demand

Over a dozen Italian companies are taking part in the show, directly or as members of ITC (Italian Technology Center) network project, whose aim is to promote Italian companies belonging to it.

"In the first nine months of 2018, India turned out to be the 12th destination market for the Italian machine tools, and the second one in Asia. The sector sales of



UCIMU

www.ucimu.it Hall 3C, Booth E107

66 What happened in Italy in the last four years is a perfect example of how digitalization and smart technologies can encourage industry transformation.

**MASSIMO CARBONIERO** President **UCIMU-SISTEMI PER PRODURRE** 

Made in Italy reached an amount of 58 million euro, corresponding to 56.3% more compared with the same period of the previous year. Italian export from India is also growing," shares Carboniero.

#### ADDITIVE MANUFACTURING

Renishaw Metrology Systems Pvt Ltd www.renishaw.com/en/metal-3 Hall 3A, Booth B103 / Hall 6, Booth D102 3d-printing--32084

AME

**Metallic Addiction** 

Metal Additive Manufacturing has come of age globally. The joy of the team at Renishaw Metrology knows no bounds. Finally, an Additive Manufacturing (AM) pavilion at IMTEX 2019!

he company has listed out the issues it wants to address for the industry in terms of Metal AM. According to Nayan Ramesh Patel, Manager, Renishaw Metrology Systems Pvt Ltd, Metal AM is already transforming the way many products are designed and manufactured, leading to improved in-service performance and new innovations. Broadening the adoption of Metal AM depends on increasing processing speed, consistent high product quality and improving process economics. The RenAM 500 series of AM systems is designed to break down the barriers to wider use and enable organizations to create production environments for manufacturing a new generation of highperformance components.

#### India must buck up

Patel opines that the market still thinks that Metal AM is for prototyping at a time when the world has adopted this technology for mainstream production. This has extended to even customized medical implants. He adds, "We must stop comparing Metal AM with conventional manufacturing costs and how it can re-



66 Companies located in India need to invest in Metal AM to ensure they are geared for future needs. Hybrid AM may become cost-effective, but just like every other sector, the demand will dictate its cost effectiveness.

NAYAN RAMESH PATEL Manager **Renishaw Metrology Systems Pvt Ltd** 

place current parts design to be manufactured by current subtractive technologies. We need to think of how we can use this technology for part consolidation and topological optimization of component."

The company believes that 2019 will be a testing year for Metal AM in India. Referring to the Wohler report, global Metal AM will run into billions by 2021.

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MODERN MACHINING SOLUTIONS

IMTEX 2019 Tool 2019

TaeguTec India Pvt Ltd www.taegutec-india.com / www.taegutec.com Hall 3A, Booth A128

(in)

#### **Being Part of the Growth Story**

TaeguTec India has grown together with its partners and wants to continue the same, with each empowering the other.

aeguTec India has over 50 families of products on display at IMTEX 2019 which include around 700 tools and solutions spread across turning, milling, parting, grooving, drilling, and special tooling applications.

#### Going the smart way

Referring to the two pavilions on Industry 4.0 and Additive Manufacturing, L Krishnan, Managing Director, TaeguTec India Pvt Ltd & Past President, IMTMA shares, "I am glad that his year's IMTEX has kept with its tradition of bringing in a lot of excitement." According to him, smart manufacturing will enable organizations to process small to large batches of production more efficiently and bring down the gap between shop floor and top floor in terms of communication and information. "We strongly feel that they will cause significant improvements in efficiency and utilization far above the current levels," he states.

#### **Partners in growth**

TaeguTec India, over the last two decades has been very much been part of the growth story of Indian 66 The future of manufacturing will be driven by several factors, including but not limited to Digitization, Flexible and multi-functional machines, more energy-efficient sub-systems., Automation and Extensive use of sensors

India Pvt

aeguTec

L KRISHNAN Managing Director TaeguTec India Pvt Ltd

enabling Industry 4.0.

manufacturing industry. "It gladdens us to see SME organizations, with whom we started business, have grown significantly. Today, many of them are multi-location and multi-product large-size companies. Looking back, TaeguTec takes great pride in our contribution to, and partnership with, our customers," Krishnan concludes.

**APM Technologies** 

www.whitelightscanning.com Hall 2B, Booth F105

#### FROM FAR AND WIDE

# **Making it Work!**

AMT www.amtonline.org Hall 3C, Booth E101 / Hall 1B, Booth C105

Douglas K Woods, President, The Association for Manufacturing Technology (AMT), analyzes the machine tool industry of India and marvels at its growth.



66 The 50<sup>th</sup> anniversary is well timed as India's machine tool consumption has grown 37% last four years. This is the fastest growth rate of any machine tool market in the world that is larger than a billion US dollars.<sup>99</sup>

DOUGLAS K WOODS President AMT

hen the counterparts at IMTMA shared the data with AMT about a surge of 20% growth at IMTEX 2019 as compared to the 2017 edition, it impressed Woods. He says, "The 50<sup>th</sup> anniversary is well timed as India's machine tool consumption has grown 37% last four years." This is the fastest growth rate of any machine tool market in the world that is larger than a billion US dollars. "And IMTEX has played an important role in that growth," he adds.

Around 76 US and foreign operations of AMT members have booths at IMTEX.

#### **Abreast of technologies**

The key to IMTEX staying on top is its endeavor to keep its attendees abreast of the latest technologies as evidenced by the two new pavilions this year for Additive Manufacturing and Industry 4.0. AMT has been a proponent of promoting the best technology and building awareness with its members' customers on the technologies that will transform their businesses in the next 5-7 years. On its part, AMT operates a technology center for members in Chennai. Interested can contact: Arun Mahajan, GM, Chennai Technology Center, at AMahajan@ amtonline.org or +91 9790887032.

#### AUTOMATED OPTICAL METROLOGY

# **ATOS ScanBox**

The optical 3D measuring machine is devised for one click inspection.

Ith the ATOS ScanBox series, APM offers standardized optical 3D coordinate measuring machines for efficient and serial quality control in the production and manufacturing process. The automated systems allow a high throughput by improving the process reliability at the same time. In nearly all industries, ATOS sensors replace tactile coordinate measuring machines. The full-field data can be easily interpreted and leads to quick solution. ATOS uses the Triple Scan Principle for measuring which enables complete and high-precision

measuring data even with reflective surfaces and highly contoured objects. The ATOS systems use reflection detection to ensure high measuring accuracy on shiny surfaces. The ATOS ScanBox unites all ATOS technologies in an optical 3D coordinate measuring machine, consisting of hardware, ATOS Professional software and an additional software module - the virtual measuring room (VMR). The VMR is the central control station and measurement planning software for all elements of the measuring cells. The Auto Teaching function in the VMR computes the

required sensor positions for all inspection features and CAD surfaces. This minimizes the time required for creating reliable and runtime-optimized robot programs and increases safety. Users do not need special robot knowledge

because they can easily operate the ATOS ScanBox via the Kiosk Interface. The especially developed user interface handles the entire process control and performs the measurement and inspection workflow automatically.









MANUFACTURING SOFTWARE

Mastercam APAC www.mastercamapac.com Hall 1B, Booth C101

# **Look No Further**

Mastercam is showcasing Mastercam 2019, a complete solution to streamline manufacturing from job setup to completion.

Ineet Seth, MD – South Asia & Middle East, Mastercam APAC, says that his team is running special offers for a limited period at its booth to encourage SMEs take to Mastercam as their preferred CAM solution. "We are also running interesting offers with our machine tool and cutting tool partners to help young entrepreneurs invest in our technologies."

#### **Hardcore benefits**

"We are sensitive to local market realities in terms of pricing, cultural variety, language gaps, working methods and perception of technology. The reason we took steps to bridge these gaps

#### seamlessly and benefit all stakeholders. This has helped us reach a level of 'trusted advisor' to customers and are privileged to be a part of their growth," says Seth. At IMTEX, Mastercam is

showcasing its most recent release of Mastercam – Version 2019 along with support for diverse metrology hardware through the Verisurf product range.

Mastercam 2019 was developed to streamline the manufacturing process from job setup to job completion. Not only does it increase machining productivity, it also reduces overall production costs with new 2D through multiaxis milling automation features,



66 With improvements to toolpath and machine simulation, toolpath graphics, and other verification and analysis tools, Mastercam 2019 provides greater programming assurance and allows for better, more informed decisions before a job is run.<sup>99</sup>

VINEET SETH Managing Director (South Asia and Middle East) Mastercam APAC

CAD and model preparation improvements, expanded 3D tooling, Accelerated Finishing, and powerful turning and Mill-Turn enhancements.

machine automation to help Indi-

an customers achieve better

machining accuracy, surface

Sephiroth Chao, Regional Sales

Manager, Ching Hung Machinery

& Electric Industrial Co, Ltd

(CHMER), says, "We are exhibiting

two machines, namely the gantry

type linear motor drive EDM

machine - A6040L and the line

motor drive Wire Cut EDM - GX360L. They find their applications in automobile, home appli-

ances, metal and plastic parts

Chao says he's happy that the In-

dian Prime Minister has proposed

'Make in India' and 'Skill India' to

transform India into a new 'world

factory'. In 2025, the share of ma-

nufacturing to GDP is expected to

increase from 16 percent to 25

percent. He believes that the local

market's demand for Industry 4.0

at this stage will certainly become the direction for future product

development by machine tool ma-

nufacturers.

industries, among others."

**Rooting for India** 

and cost-saving



NEWS BFW www.bfwindia.com Hall 1A, Booth A102

#### **BFW & WIN Join Hands**

harat Fritz Werner Ltd (BFW) announced its partnership with WIN Automation Solutions at IMTEX 2019 to jointly offer to customers modular scalable and comprehensive factory automation solutions with most comprehensive range of offerings in Milling, Turning and Special Purpose Machines. Announcing the partnership, Ravi Raghavan, Managing Director, BFW, said, "In sync with our purpose to "Enable Progress" through solutions, we aim to comprehensively address the future of our clients by deploying digitization."

#### EDM EQUIPMENT

# **Bringing the Best**

Ching Hung Machinery & Electric Industrial Co., Ltd www.chmer.com Hall 1B, Booth A112

roughness

machining.



Source: Ching Hung Machinery & Electric Industrial

**66** It can be seen that with rapid economic development of India, labor costs will become gradually higher in the near future. Therefore, automated production lines, smart manufacturing, and IoT will be priorities."

SEPHIROTH CHAO Regional Sales Manager Ching Hung Machinery & Electric Industrial Co, Ltd

Speaking about his experience with Indian companies, Chao says that earlier most Indian processing plants used ball-screw drive machine for metal-cutting process. As processing requirements increased, the ball-screw drive models failed to complete the machining requirements for high-end automobiles and home appliances. CHMER'S self-made linear motor not only improves shape accuracy and surface roughness, but also cutting speed. On the other hand, compared to other linear motor makers, CHMER dual-track designed linear motor has better cooling efficiency and better positioning accuracy.

The CHMER Group has always looked at bringing in apt equipment to the Indian market so as to further its manufacturing prowess.

HMER Group, as the largest manufacturer of EDM equipment in Taiwan, participates in more than 20 domestic and international exhibitions each year and adjusts the focus of the exhibition

according to the industrial needs of each country.

At 2019 IMTEX, it is exhibiting self-made linear motors, AWT (Automatic Wire Threading) and ATC (Automatic Tool Change) technology, emphasizing single-



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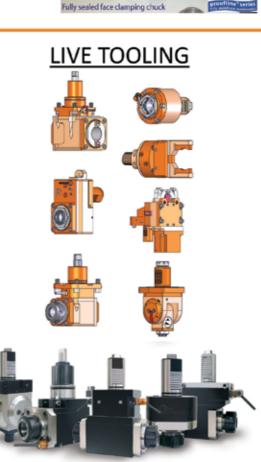












- PATENTED DRIVE TRANSMISSION
- SEALED BEARING

SMW AUTOBLOK

- PATENTED SEALING SYSTEM
- SUPER COMPACT DRIVE SYSTEM www.live-tooling.com

# **SMW AUTOBLOK WORKHOLDING (P) LTD**

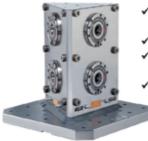
Plot No. 4, Weikfield Industrial Estate, Gat No. 1251, Sanaswadi, Tal. Shirur, Dist. Pune-412208 Phone: 02137-616974 Fax: 02137-616972 Mail: info@smwautoblok.in Web: www.smwautoblok.in / www.smwautoblokgroup.com

### STATIONARY WORKHOLDING

- 3 clamping slides (Basic: clamping slides)
- Repeatability < 0.005 mm
- Protective coating
- Turbo function for increasing the pull-in forces
- Solid base plate (height 28 mm) for maximum stiffness
- Easy mounting on the machine table due to positioning holes



- ✓ Ideal suitable for OP 10 use
- Compact design with best accessibility of the machine spindle
- High adjustable clamping forces
- Jaws with Sinter Grip clamping inserts for clamping of workpieces with lowest depth and without pre-marking
- ✓ Interfaces for all well known zero point clamping systems



- Modular system: wide range of standard products and shortest delivery times
- Highest stiffness and anti-vibration design
- Best accessibility of the machine spindle to the workpiece
- Highest accuracy and precision

www.stationary-workholding.com



#### METROLOGY

IMTEX 2019 Tool (2019

Blum-Novotest Measuring & Testing Technology Pvt Ltd www.blum-novotest.com Hall 4, Booth C147

#### **Measure Matters**

Blum-Novotest Measuring & Testing Technology has been a regular participant in IMTEX and looks forward to it for keeping tabs on new technology and products.

IMTEX

C The show guides us to position ourselves as technology leaders

in our product segment," says BV Shyam, Managing Director, Blum-Novotest Measuring & Testing Technology Pvt Ltd.

The company is presenting the whole range of tool setting and work setting probes for CNC Machines. "The LC50 Laser Measuring system has been introduced to the Indian market for the first time and we believe that it will set the standards for the new generation of Laser-based noncontact tool measurement systems for machining centers," he adds.

#### Part of the growth story

The parent company Blum-Novotest GmbH has completed 50 years of operations in the field of production metrology. In India, the company has been engaged in implementing the products and services required by Automotive, Aerospace, Die & Mold, Heavy engineering, Medical, etc. by improving machine utilization and process reliability. "This brings in huge savings in manufacturing



**66** It is good that a lot of emphasis is being given to emerging technologies that are essential for the Indian Industry to remain globally competitive.<sup>99</sup>

B V SHYAM Managing Director Blum-Novotest Measuring & Testing Technology Pvt Ltd

cost," notes Shyam. Apart from OE business, the company has also played a crucial part in the growth of the SME sector too. "Thanks to the patronage of our customers and successful implementation of the technology," he concludes.

#### ADDITIVE MANUFACTURING

amace Solutions Pvt Ltd www.am-ace.com Hall 6, Booth A110

### **Ace Ventures**

Ace Micromatic's new division, amace solutions, has much ammunition in Additive Manufacturing to showcase at IMTEX.



(Third from left) Dr Vishwas R Puttige, Business Hea amace Solutions Pvt Ltd along with the team at the company booth

t IMTEX 2019, amace exhibits its capability in providing end-to-end solutions in additive manufacturing for different market sectors.

"The focus of this project is to make AM technology available to Indian and global manufacturers cost-effectively. We have the capability to provide services such as developing prototypes with a short turnaround time, production of small batch parts, and re-engineering part designs to suit a specific requirement. Besides this, we hope to reduce the number of parts in an assembly by combining them, developing tooling inserts for moulds with conformal cooling channels for better productivity, topology optimization by incorporating lattice structures, reverse engineering of parts and

66 We have the capability to provide services such as developing prototypes with a short turnaround time, production of small batch parts, and re-engineering part designs to suit a specific requirement.»

Dr VISHWAS R PUTTIGE Business Head amace Solutions Pvt Ltd

assemblies, develop patient specific medical implants, etc., says Dr Vishwas R Puttige, Business Head, amace Solutions Pvt Ltd.

#### **Applauding Initiatives**

Puttige says, "This is the first time an international show in India is providing a focused platform for Additive Manufacturing Technology. I see that some of the best manufacturers of additive machines are exhibiting their products at IMTEX. This technology has evolved rapidly last five years and gained significant adaptation. The pavilion also provides a platform for service bureaus and software developers to demonstrate their offerings for AM. This eco-system will allow customers to find and connect to most of the service providers together."



#### **"Finding True Value"**

66 We deal in different components like control transformers, conveyor chains, bearings etc. Some of our customers are also present here. We can meet them here all together and also develop some new business contacts. It's been a great experience at IMTEX, which will, henceforth, be attended every year."

SURENDRA BABU V Proprietor Garuda Industrial Suppliers



#### "Highly Versatile Trade Show"

**66** I have spent two days here, which fall short to cover such a versatile exhibition. The trade fair has showcased different types of innovations from all over the world. Additive manufacturing is one of the most interesting areas here.<sup>99</sup>

AJIT KUMAR VG

Engineer ISRO – LPSE <complex-block>

For Advertising Contact: Murali Sundaram M: +91 9740048390 • murali.sundaram@mmindia.co.in



CNC MACHINE TOOLS

IMTEX 2019 Tool 2019

Helping Realize Dreams

Hurco India Pvt Ltd is displaying its machines at IMTEX 2019 & Tooltech 2019 that cater to a wide range of industries. To provide local support, the company is setting up two new technology centers for India.

Il our machines are compatible with Industry 4.0. Our latest innovation is the use of 3D printing technology on 3-axis VMC which helps customers perform prototyping tasks on the same VMC at their shop floor," says Sanjib Chakraborty, MD, Hurco India.

#### Latest gen on display

The company's machines are equipped with the world's most preferred and user-friendly controller powered with WINMAX software and patented motion control software. At IMTEX it is showcasing the below machines: **BX40i:** is a high-speed and highperformance 3-axis VMC with bridge type structure suitable for precision components for sectors including Die & Mould, Medical Implants, Aerospace, etc.

**HM1700Ri:** is a newly-launched high-performance 4-axis HMC suitable for Oil & Gas, Die & Mould, and Aerospace.

**VMX42SRTi:** is a high-performance 5-axis VMC suitable for Tool Room, Die & Mould, and Aerospace. It is highly flexible and helps customer use the machine effectively for 3-, 4- and 5-axis applications.

#### **Moving forward**

Congratulating IMTMA on its 50th anniversary, Chakraborty says the rapidly evolving manufacturing industry has made IMTEX one of the preferred platforms for machine tool manufacturers. He believes that Smart Manufacturing has



BX40i, a high-speed 3-axis VMC with bridge type structure suitable for precision components, at Hurco Stall



Hurco India Pvt Ltd

66 Our machines are suitable for high-mix-low-volume manufacturing segments which work for small batch, new component development, prototyping, multiple set up changes in a day, etc."

SANJIB CHAKRABORTY Managing Director Hurco India Pvt Ltd

transcended from being a trend to a necessity to sustain. "It will play an important role in the next Industrial Revolution and there's a need to digitize and connect all operations of production units to make it a Smart Factory. Companies must work on real-time data to make businesses more accurate. Enormous data generated every day must be managed, analyzed and used as an efficient business plan. Smart manufacturing can help run the business with Zero defect," he adds.

Digitization makes remote monitoring possible with the help of Industrial IoT that connects plants, machines, people, and logistics. Deploying this means a boost in revenue, reduction in operational cost and improving total efficiency at all levels. The global Industry will witness a topsy-turvy business atmosphere in the next 10 years, and practicing Smart Manufacturing is the only way to ensure sustainable growth.

#### Value for money

Hurco India believes in offering latest technology, providing local support, interfacing special accessories, etc. Hence, it is setting up technology centers in Chennai and Pune which will play catalytic roles in transferring technology with the local support.

#### NEW LAUNCH

#### U-Tech Associates www.u-techindia.com Hall 3A, Booth E101

### **GULPY – The Sump Cleaner**

The sump cleaner from U-Tech attempts at making the otherwise cumbersome job simple.



-Tech-make Sump Cleaner GULPY is designed keeping in mind the difficulties that every maintenance person faces while cleaning the machine tool coolant tank. Since the cleaning is normally done manually and is cumbersome, maintenance people often neglect the cleaning process.

 $\overline{\delta}$  GULPY uses a vacuum blower to make sure all the chips settled at the bottom of the tank are removed with very less effort. It also is capable to filter the coolant up to 20 microns.

#### The salient features of GULPY are:

Reduces maintenance downtime, labour costs and mess, saving time and money
Removes scrap settled at the bottom of the tank
Extensively cuts waste disposal costs
Filters scrap ranging from 15 mm to 20 microns from coolant
Vacuums out coolant from machine tool tanks, machine beds, drip trays, conveyors and even shop floor
Has pump in/pump out capability
Has no moving parts, making it simple to operate and maintain.

#### **Specifications**

• Clean tank capacity – 200 L • Dirty filter mesh capacity – 50 L • Vacuum Pump – 1200 W • Vacuum – 100 CFM • Filtration – Up to 20 microns

# V P INDUSTRIES > Quality > Speed > Confidence

A Complete Tool Manufacturing Company







Wendt team at IMTEX 2019 & Tooltech 2019

IMTEX 2019 Tool 2019

# Strategic Utilization of the Platform

ne of the leading manufacturers of Super Abrasive Grinding wheels, Wendt (India) Ltd is displaying its high-class products at IMTEX 2019 & Tooltech 2019. This time, the company has increased the floor space of its stall and included products from CUMI, a provider of conventional abrasives, for display. Wendt has 40 percent holding in CUMI, besides 40 percent by 3M and rest by public.

Rajesh Khanna, Executive Director & CEO, Wendt (India),

said, "We have been coming to IMTEX for the last 15 to 20 years. With every passing year, we find it becoming vaster and more versatile. Thus, we keep increasing the size of our stall. The idea behind coming to the event is to showcase all that we



66 With every passing year IMTEX is becoming increasingly better. In certain areas, IMTMA has made the trade event better than any other large-scale international show."

RAJESH KHANNA Executive Director & CEO Wendt (India) Ltd

have done in the previous year and the new products we are bringing in. Last year we launched 7 machines here, and this time again we have launched 5 machines." Commenting on the quality visitors at the show, Khanna said, "This is a platform where we get domestic as well as international customers. This time the footfall is phenomenal; it's 25 to 30 percent more than the last edition. Most visitors are serious and mean business."

#### \_\_\_\_\_

END-USER FEATURE

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NEWS

# Working it Out

hen the demand for

Ringbrothers' automoti-

ve parts continued to

grow, it needed a platform which

could support design prototyping,

one off part development, and low

volume component production.

This led to enhancing the

company's R&D efforts by leveraging SOLIDWORKS design envi-

SOLIDWORKS and CAMWorks VoluMill software

Factory of the FUTURE Www.hcltech.com Hall 6, Booth A114

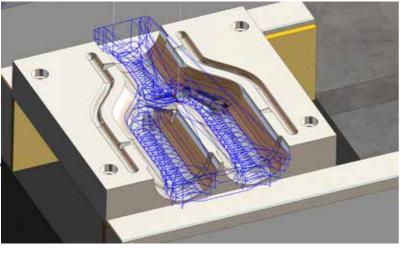
#### The Challenge Accelerate research and devel-

opment into the machining of innovative, unique automotive components and assemblies to support custom muscle-car restorations and associated catalog parts business.

#### **The Solution**

Implement CAMWorks VoluMill hi-speed machining software to establish a fast and cost-effective internal machining & prototyping capability that to support intensified research and development effort.

80 percent of the chips created using that module," Moseman notes. "CAMWorks allows us to max out our feed rate at 600 inches per minute, which really helps us drive R&D forward. Combination of SO-LIDWORKS and CAMWorks software, and the VoluMill module, has improved our time flow in R&D and given us an edge in terms of tooling and productivity. Using CAMWorks machining software and its technical database, we can design and cut parts in a single day, which ultimately drives our R&D effort," he adds.



ronment and investing in tools that supported an efficient design through manufacturing process, according to Product Development Specialist Matt Moseman.

Ringbrothers advances high-end muscle car restoration/parts business with

#### **Choosing CAMWorks**

Ringbrothers chose to combine a Haas VF3 3-Axis CNC Vertical Machining Center – featuring a 15,000-rpm spindle and 21+1 tool changer – and CAMWorks® 3D CNC machining software, and the CAMWorks VoluMill™ high-speed machining module for roughing operations, with SOLIDWORKS design software. Moseman says Ringbrothers chose CAMWorks software because its integration inside SOLIDWORKS and robust CAM capabilities stand out from other CAM applications, and because the VoluMill module better supports the company's highspeed machining requirements.

# Faster R&D Grows Product Offerings

Since implementing CAMWorks software to automate machining, Ringbrothers has accelerated its R&D operation, resulting in a 15 to 20 percent increase in the number of parts that it produces. "I use CAMWorks VoluMill software all the time when I'm roughing, with Certified Partner For

**AUKOM** 



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www.tyrolit.com Hall 3B, Booth A116

# ABRASIVE TOOLS **Measuring Success**

Tyrolit India has comprehensive solutions that can offer customers unique advantages. Tool Scope is one such solution the company is banking on.

ubrahmanya Kumar. Country Sales Manager India, SBU Metal Precision, Tyrolit India Super Abrasive Tools Pvt Ltd, believes that IMTEX 2019 is an excellent opportunity for exhibitors to reach out to thousands of customers in one place. One of the new solutions Tyrolit

is showcasing is 'Tool Scope', a Modular Assistance System for smart grinding process which is a comprehensive

solution for Industry 4.0. Besides this, new product lines from the company include POLARIS LW, MIRA ULTRA SF, MIRA ICE SF and others for automotive, tooling, bearing, gearing and medical industries. All these products have unique advantages by way of easy handling, enhanced life of the wheels and machine tools, reduced machining times, etc. Tyrolit is prepared to support

Industry 4.0 along with its partner KOMET through 'Tool Scope'. This is a comprehensive solution for machining. It creates measurable added value for customers through increased process transparency and numerous process optimization options, thus allowing customers to save costs and time as well as to ensure constant process quality.

#### Increasing productivity

TURNING MACHINE

advanced

Industry standards are changing rapidly. To ensure higher quality products, improved productivity,

entral Manufacturing

Technology Institute

(CMTI) is showcasing

manufacturing

indigenously developed and

technology products such as

Ultra Precision Diamond

Turning Machine (Nanoshape

T250), Hydrostatic slide,

Spindle Error Scope, Scan-



With the cost-effective product lines for various application areas, we have been striving to enhance customers' productivity and be part of their success story."

SUBRAHMANYA KUMAR **Country Sales Manager – India** SBU Metal Precision **Tyrolit India Super Abrasive** Tools Pvt Ltd

increased energy efficiency, it is necessary to implement Smart Manufacturing, says Kumar. This will also make it easy to respond quickly to the varied demands as it consists of fully integrated and collaborative manufacturing system.

This year happens to be the 100<sup>th</sup> Anniversary of Tyrolit, which has earned a reputation for innovations and quality. "With the costeffective product lines for various application areas, we have been striving to enhance customers' productivity and be part of their success story. We put our conscience and efforts towards offering benefits and value the support from our customers," he adds.

#### CUTTING OILS

#### Chlorine-free Neat Cutting Oils

AKUFORM Neat Cutting Oils are manufactured by hydro cracking and catalytic dewaxing processes which provide the base of the oil superior anti-oxidation properties and virtually make all hydrocarbon molecules become

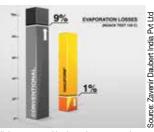
saturated (more that 90%). Higher saturated hydrocarbon content in HAKUFORM neat oils considerably reduces evaporation and oil misting losses. Chlorine-Free Extreme Pressure additives

provide excellent tool life without compromising on environmental norms and risks associated with conventional chlorinated neat oils.

- Advantages abound
- HAKUFORM Neat Cutting Oils provide benefits including:
- Group II Base Oils: Lower evaporation and misting losses, and lower consumption
- Chlorine-free EP additives: Higher productivity with environmentfriendly formulations
- Multi-function and Multi-metal compatibility: Low inventory costs and ease of logistics.

Zavenir Daubert India Pvt Ltd www.zavenir.com Hall 3A, Booth B125

Advanced Manufacturing by CMTI



Higher saturated hydrocarbon content in HAKUFORM Neat Cutting Oils considerably reduces evaporation and oil misting loss

ning Tunneling Microscope (STM), Nanopositioning Stage, IoT enabled legacy machine, Abrasive Flow Finishing Machine (AFFM) and Thread measurement System at IMTEX 2019.

#### **Ultra precision Turning Machine (Nano Shape)**

Developed by CMTI, the NanoshapeT250 is a highly stiff and precise Turning machine, equipped with state-of-the-art technologies for producing non-ferrous, ferrous and IR material components with optical quality surface finish and shape accuracies. The machine accuracies are in the nanometres range.



urce: CMT

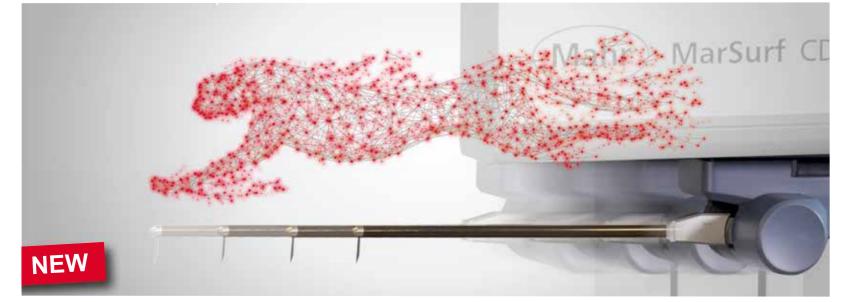


That you receive 360° support so that you can rely 100% on accuracy.

This is what **EXACTLY** means to us.



# MarWin ready: Gear and form measuring station MarGear GMX 600 W



### **METROLOGY - MAHR ADVANCES IN MEASUREMENT**

Mahr is a world leader in many areas of metrology. Our products stand for accuracy, quality and innovation. Mahr constantly exceeds the limits of what is possible and ensures your lead in metrology. As a partner for the future, we will make your quality assurance more reliable, more automatic, faster, more wireless and even more user-friendly.



The cylinder coordinate measuring station MarGear GMX 600 W now with MarWin



The measuring station measures diameter, gear and form in only one clamping

The MarWin software platform has become established as the leading measurement and evaluation software for many Mahr products. Now the user-friendly software tool is also available for the universal gear and form measuring station MarGear GMX 600 W.

Behind MarWin lies the philosophy that there is an optimal solution for every task and type of operation. That's why MarWin has a simple and user-friendly interface for MarGear. Numerous interfaces for data import and export facilitate the automation of the measurement processes. The integrated plausibility check and a 3D optical control model minimize the risk of operator error.

By using the software platform MarWin, working with the universal gearing and forming station MarGear GMX 600 W now becomes even more efficient and convenient.

#### New MarWin functionalities available

The proven MarWin software has also been extended with new functions in the MarGear range: In version 11, evaluations and tolerance tables according to AGMA 2000-A88, DIN 5480, GOST, ANSI B92.1 and CAT 1E2028 / CAT 1E4157 are possible, for example. In addition, the new version allows topographies to be measured and evaluated, well-defined milling valleys to be determined, and tooth length to be determined using k-teeth (Wpk). A new and very fast method for pitch measurement completes the functions of MarWin for MarGear.

### Mahr Metrology India Private Limited

**Corporate Office:** B6, 4th Street, Reddipalayam Road, Mogappair West Estate, Chennai - 600 037. Tel: +91 44 4617 5555

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# **G-SERIES**



# Precision at the highest level

GROB 5-axis universal machining centers stand out due to their absolute precision and reliability in the automotive, medical and mechanical engineering industries, in tool and mold making as well as in the aviation industry. The proven 5-axis simultaneous technology with horizontal spindle position enables you to machine parts of various sizes and materials in a flexible and failure-free way while offering maximum stability of the machine. Fast chip-to-chip times and the innovative further development of our spindle technology guarantee a high economic efficiency and productivity.

008

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