

# THE MACHINIST

RNI No 71129/98

Volume 18 Issue 3 • March 2023 • Rs 75

www.themachinist.in

## DESIGN & SUSTAINABILITY

WSP MEETS THE U.K.'S STRICT CARBON EMISSION REDUCTION GOAL WITH INNOVATIVE BUILDING DESIGN

## SPOTLIGHT

DELIVERING BEYOND EXPECTATIONS

## GE AEROSPACE WILL CONTINUE TO BUILD STRATEGIC PARTNERSHIPS WITH INDIA

In an interview **Amol Nagar**, Managing Director, GE's Multi-modal Factory, GE Aerospace India talks about how the company, along with its Indian partners establishing aero-engine manufacturing infrastructure needs to achieve its self-reliance goals.





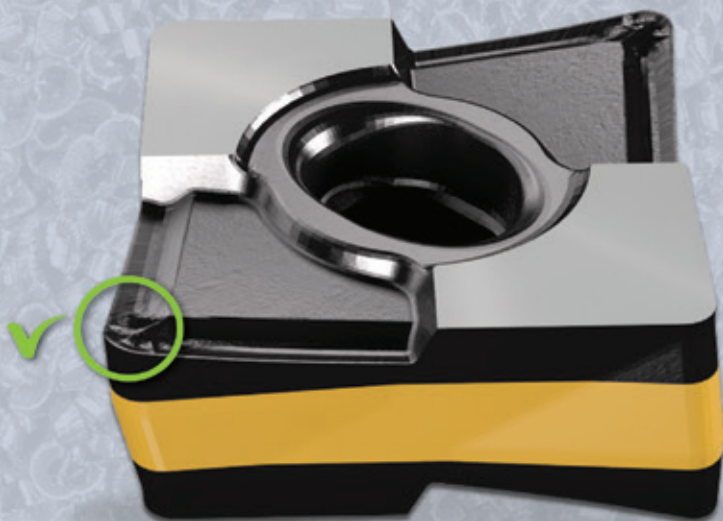
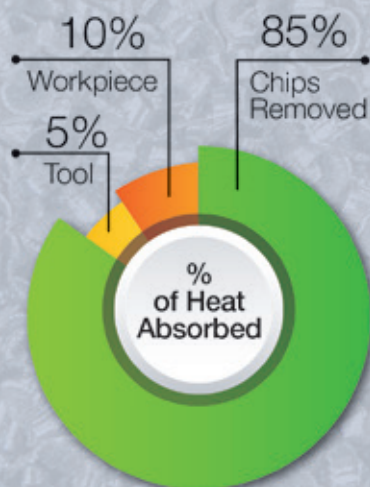
# High Positive Turning

**LOGIQ 4TURN**  
POSITIVE DOUBLE SIDED

**ISCAR's Intelligent Chip Movers**  
80° Double-Sided Positive Insert Clamped in a Dove-Tail Shaped Pocket for Better Insert Stability and Tool Life.

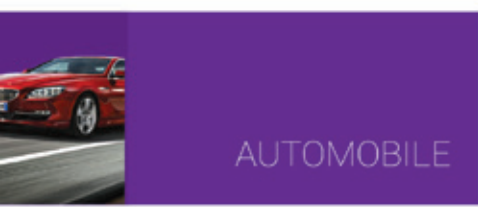


**Double-Sided Positive Insert**  
for Light Cut and Cost Benefits



**ISCAR's Turning Chipbreakers**  
Guarantee Optimal Balance of Heat Generation and Dissipation in Metal Cutting





AUTOMOBILE



ENERGY



DEFENCE



INFRASTRUCTURE



HEALTHCARE



TEXTILE



OIL & GAS



PUMPS & VALVES



AEROSPACE



**DX Large Series**  
CNC Large Turning Centre



**AX Series**  
CNC Turn Mill Centre



**EX Series**  
5-Axis CNC Moving Column  
Machining Centre



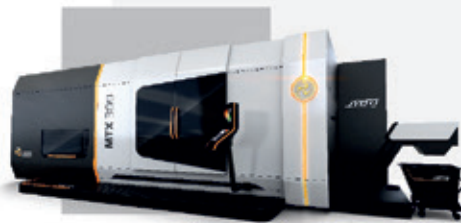
**K3X8 FIVE**  
5-Axis CNC High Speed Bridge Type  
Vertical Machining Centre



**MX 12**  
5-Axis CNC Universal Machining Centre



**MTX Series**  
CNC Multi Tasking Machining Centre



**JYOTI CNC AUTOMATION LTD.**

G - 506, G.I.D.C. Lodhika, Village : Metoda, Dist : Rajkot - 360021, Gujarat (INDIA).

T + 91-2827-235100/101, E info@jyoti.co.in, sales@jyoti.co.in jyoti.co.in

JyotiHuron



# FESTIVAL OF MANUFACTURING: LET'S KEEP CELEBRATING!

**T**he Festival of Manufacturing is an annual symposium that aims to bring together professionals, researchers, and policymakers from the manufacturing industry to share knowledge and ideas on the latest developments, challenges, and opportunities in the sector. The 2023 edition of the conference, held at Dr Ambedkar International Centre, Delhi on 24th March 2023, was a resounding success, attracting over 600 attendees in the manufacturing sector from all over the country.

The Festival of Manufacturing kicked off on 23rd March with a Gala Dinner which was attended by our Brand Ambassador, partners, concerned ministries and delegates from the manufacturing sector. In fact, on behalf of our Brand Ambassadors, our team did a tree plantation drive which will be managed by ET Edge in future.

That said, the conference, which took place on 24th March was organised around several themes, including Industry 4.0, sustainable manufacturing, digital transformation, and skills development. The keynote speeches by Dr Bhagwat Karad, Minister of State, Ministry of Finance, Government of India and Mr Narayan Rane, Union Minister, Ministry of Micro, Small & Medium Enterprises, Government of India and panel discussions featured a diverse range of perspectives from industry leaders, academics, and government officials, providing valuable insights into the current state of manufacturing and the future direction of the industry.

One of the main topics of discussion was Vision 2030: SAMARTH and SASHAKTA Udyog Bharat. Where the panel discussed and deliberated on how a thriving manufacturing sector could potentially be the most critical building block for India's economic growth in the coming year. One of the opportunities that a lot of people are talking about is China + 1 model. Global companies are reconfiguring their value chains and sourcing manufacturing footprints. Can India realistically take advantage of this shift?

Another key attraction was Mr Sudhanshu Mani, Creator of Vande Bharat Express which was a big hit and attended by several industry leaders.

Another key theme was sustainable manufacturing, which involves reducing the environmental impact of manufacturing processes and products. Many companies are adopting sustainable practices such as using renewable energy, reducing waste and designing products for recyclability. One of the main attractions of FOM was the performance in the Atrium Lounge by Colors of India and Inspiring Stories in Nalanda Hall.

What's more? Digital transformation was also a prominent topic, with speakers discussing the challenges and opportunities of digitising manufacturing processes. Digital transformation can improve efficiency, reduce costs, and enable new business models, but it requires significant investment and organisational change. The conference featured several presentations on best practices for digital transformation and the importance of developing a comprehensive digital strategy.

Overall, the Festival of Manufacturing 2023 was a highly informative and engaging celebration that provided valuable insights into the current state and future direction of the manufacturing industry. The conference demonstrated that the industry is undergoing significant transformation, driven by advanced technologies, sustainability imperatives, and changing customer demands. To succeed in this new environment, companies will need to be agile, innovative, and willing to invest in new technologies and skills development.

*R Kamat*  
Editor

## ADVISORY BOARD

**Abhimanyu Barthwal**  
Director, Oemeta India

**Arunhati Thomas**  
Managing Director, Plazma Technologies

**Bipul Chandra**  
Managing Director, Ducati India

**Diego Graffi**  
Managing Director and CEO, Piaggio

**Dr. Rishi Mohan Bhatnagar**  
President - Aeris Communications India

**Hrishikesh Kulkarni**  
COO, Zimmer Automation

**K Krishnamoorthy**  
CEO & President, IESA

**Krishnan Sadagopan**  
Sr VP, Ashok Leyland and Independent Director Indian Oil

**Mahesh Babu**  
Director & CEO - Switch Mobility, India,  
and COO - Switch Mobility Ltd

**Navid Talib**  
President & Chief Operating Officer Hero E Cycles  
(A Hero Motors Company)

**Rajiv Bajaj**  
Managing Director - India and SEA, Stratays

**Sagar Bhosale**  
Managing Director, Schmersal India

**Senator Dr. PKC Bose**  
Vice Chairman & Managing Director, Enercon WindEnergy

**Sudhir Gurtoo**  
Managing Director, Leadee India

**Vijay Pankhawala**  
Deputy Director, ARAI

**Vinod Kumar Wuthoo**  
President, Indian SME Forum

**Vinod Mittal**  
Chairman, Ispat Corp & Founder Avan Motors

**Vivek Vikram Singh**  
MD and Group CEO, Sonata Comstar

THE ULTIMATE GUIDE TO PROFITABLE MANUFACTURING  
**MACHINIST**  
Volume 18 Issue 3 March 2023



Chief Executive Officer **Deepak Lamba**

Chief Financial Officer **Subramaniam S**

Head Human Resource **Meghna Puthawala**

Vice President Marketing **Viduyt Patara**

Brand Publisher **Rishi Sutrave**  
*rishi.sutrave@wmm.co.in*  
+91 9820580009

Corporate Strategy and Subscriptions Lead **Ritika Masand**  
*ritika.masand@wmm.co.in*

Editor **Rahul Kamat**  
*rahul.kamat@wmm.co.in*  
+91 9892612075

Assistant Editor **Nisha Shukla**  
*nisha.shukla@wmm.co.in*  
+91 8830116335

Associate Art Director **Sanjay Dalvi**  
*sanjay.dalvi@wmm.co.in*

Executive Delegate Acquisition **Shruti Nair**  
*shruti.nair@wmm.co.in*

## ADVERTISING

West & North **Ranjan Haldar**  
*ranjan.haldar@wmm.co.in*  
+91 9167267474

South **Mahadev B**  
*mahadev.b@wmm.co.in*  
+91 9448483475

**Vaishnavi B Ravindran**  
*vaishnavi.ravindran@wmm.co.in*  
+91 9962741430

## CAREERS

*careers@wmm.co.in*

## SUBSCRIPTIONS

*subscriptions.wmm@wmm.co.in*

Printed and published by Sunil Dad for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at Print Plus Pvt Ltd, 212, Swastik Chambers, ST Road, Chembur, Mumbai- 400 071.  
Editor: Rahul Kamat. Published for March 2023.

Disclaimer: All rights reserved worldwide. Reproducing or transmitting in any manner without prior written permission prohibited. All photographs, unless otherwise specified, are used for illustrative purposes only. The publisher makes every effort to ensure that the magazine's contents are correct. However, we accept no responsibility for any errors or omissions and accept no responsibility for any loss or damage caused as an effect thereof. The information provided in this publication is for general use and may not be appropriate for the specific requirements and / or conditions of the reader/s. The opinions expressed by experts are their own and in no way reflect those of the publisher.



# MOTUL **TECH**

**THE INDUSTRIAL  
LUBRICANTS DIVISION  
OF THE **MOTUL** GROUP**



**SOLUBLE FLUIDS**

**INDUSTRIAL LUBRICANTS**

**FORMING OILS**

**QUENCHING FLUIDS**

**NEAT MACHINING OILS**

**HIGH PERFORMANCE GREASES**

**HIGH PRESSURE DIE CASTING**

**RUST PROTECTION**

**CLEANING**

[motul.com](http://motul.com)

**Motul**  
119 boulevard Felix Faure  
93300 AUBERVILLERS - France  
Tel.: +33.1.48.11.70.30  
Fax: +33.148.11.70.38

Atlantic Lubricants & Specialities Pvt. Ltd.  
301, Ketan Apts., 233, R. B. Mehta Marg,  
Ghatkopar East, Mumbai - 400 077  
Tel.: +91 22 2501 1960 / 2501 1961  
Fax: +91 22 2501 1928

# CONTENTS



## COVER STORY

**GE Aerospace Will Continue To Build Strategic Partnerships With India ..... 20**



## DESIGN & SUSTAINABILITY

**WSP Meets The U.K.'s Strict Carbon Emission Reduction Goal With Innovative Building Design..... 36**

Editorial ..... 4

News ..... 8

Automation: Enabling an automated future ..... 16

Operations & Maintenance: Mobil's Superior Lubrication Solutions For Profitable & Efficient Manufacturing Operations ..... 27

Finance: Fuelling Growth & Enabling Business Continuity ..... 34

Cutting & Tooling: Cutting Tools for Orthopaedic Medical Components... 39

Products ..... 44



## SPOTLIGHT

**Delivering Beyond Expectations ..... 25**



## MSME

**Will The Upcoming G20 Summit Come Bearing Good News For The MSME Sector? ..... 30**



## SHOPFLOOR

**Paving The Way For Shop Floor Diversity ..... 32**



## EV

**Frontline Automobile Players In The Cause For Efficient Urban Lifestyle ..... 41**



# MOST TRUSTED TOOLING PARTNER

FOR AUTOMOTIVE COMPONENT  
MANUFACTURING



**MMC Hardmetal India Pvt. Ltd.**  
A Subsidiary of MITSUBISHI MATERIALS

Tel : +91 80 2204 3600 - 2204 3699  
Website : [www.mitsubishicarbide.com](http://www.mitsubishicarbide.com)  
Email : [mmcindia@mmc.co.jp](mailto:mmcindia@mmc.co.jp)



YOUR GLOBAL CRAFTSMAN STUDIO

## Bengaluru's Peenya Industrial Area to get Second 'Model Road' with citizen-friendly Infrastructure

### WITH AN AIM TO

improve the infrastructure of Bengaluru's roads, a new model road project is being constructed in Peenya Industrial Area. This project will be funded by private company Radiall® under its CSR initiative and will be executed by social venture PotHoleRaja® in collaboration with Bruhat Bengaluru Mahanagara Palike (BBMP). The Bhoomi Puja of the model road project was held on 27th March 2023, Monday at 9 am, at NTTF Road, Peenya, near Radiall Factory. The event was officiated by R Manjunatha, Honourable MLA, T-Dasarahalli Constituency, Bengaluru, Karnataka.

Model roads are specifically designed with citizen-friendly infrastructure, which includes wide footpaths, high rise pedestrian medians, and steel barricades that prevent two-wheelers from riding on footpaths. For footpaths, PotHoleRaja® Gridmats will be used which are made from 100 per cent recycled plastic. The model road will also have an efficient drainage system that will prevent flooding during monsoons, and



utility trenches for cross wiring will be constructed to avoid disruption of any public utility services. Clear and visible road markings, as well as reflectors, will be installed to ensure the safety of drivers and pedestrians. Furthermore, the roads will be made disabled-friendly with footpaths that are on the same level, with no breaks in between. In the later phase, 24/7 continuous CCTV surveillance will be set up to monitor the security of the model road. A similar project was earlier executed from Dasarahalli Junction to ABB-Wistron Road connecting to TVS Junction, Peenya.

Commenting on the project,

Sourabh Kumar, Director, said, "We are proud to partner with Radiall® and BBMP to build Bengaluru's second model road in Peenya. We need more CSR initiatives like this that can help us in creating citizen-friendly infrastructure that can have a large impact on the quality of life of the citizens in the area and improve road safety. We encourage more corporates to set aside their CSR funds for impactful projects like these and

join us in our endeavor to improve roads infrastructure across the country".

Biju George, Managing Director, Radiall®, said, "We believe in giving back to society and making a positive impact in the communities that we operate in globally. Our CSR initiative with PotholeRaja and BBMP to build a model road in Peenya is a step in that direction. We hope that this road will not only enhance the safety and convenience of the citizens but also encourage many more corporates to contribute towards improving infrastructure in our cities. Together we can make a difference."

## Inovance India recognised as 'a Great Place to Work'



**INOVANCE INDIA** has been certified a "Great Workplace" by an internationally recognized organisation. Conferred by global authority on high-trust, high-performance workplace culture Great Place to Work, the status means Inovance India has once again been acknowledged as an employer that creates an outstanding employee experience. The status was awarded to Inovance India following an extensive two-stage certification process, which included employee surveys and independent analysis.

Inovance India stands by and support all its employees, both personally and professionally, by providing them with a quality workspace and encouraging mentors to help them build powerful

teams, develop good work-life balance, and maintain job satisfaction.

Anil Kumar, Director of Inovance India, says, "Great Workplace status is a big achievement for us, and we are delighted to have our efforts to make sure we create a good place to work internationally recognized. Jobseekers often use Great Workplace certification to identify which organizations offer a great company culture.

"Inovance is an employee-oriented company which strongly supports its employees' opinions, uniqueness, and wellbeing. This certification process has given us the opportunity to understand our employees better and analyse our strengths as well as weaknesses as a company."



# BAKER

....a passion for precision

## HIGH PRECISION DIAL GAUGES



- Shock proof mechanism
- Spindle made of stainless steel
- Fitted with tungsten carbide ball anvil
- Rigid brass case for increased rigidity
- Strong and smooth metal bezel
- Lever type dial gauges fitted with jewels & Swiss miniature bearings
- Every gauge carries a calibration certificate giving actual values
- Digital dial gauges manufactured using Swiss electronics
- Proudly made in India since 1962

### BAKER GAUGES INDIA PRIVATE LIMITED

An ISO 9001 : 2015 Company

Head Office-Pune

Tel. : (020) 66250600

Mob. : 7447449621

E-mail : bakerhip@bakergauges.com

Tel. : (020) 66093800

Mob. : 7447438251

E-mail : bakerbmi@bakergauges.com

[www.bakergauges.com](http://www.bakergauges.com)

#### Branch Offices :

Mumbai Tel. (022) 43471701 / 02 / 03

New Delhi Tel. (011) 23328186

Chennai Tel. (044) 28140963

Bangalore Tel. (080) 22217336

Ahmedabad Tel. (079) 27540665

Indore

Rajkot

Kolkata Tel. (033) 22156387

Chandigarh Tel. (0172) 4631027

Ludhiana

Hyderabad

Nashik

Jamshedpur

Coimbatore

• Mob. 7400199752

• Mob. 9810160313

• Mob. 7550055245

• Mob. 7618720651

• Mob. 7435041140

• Mob. 7447438257

• Mob. 7435041142

• Mob. 7447444980

• Mob. 9815601027

• Mob. 7447444098

• Mob. 7447443439

• Mob. 7447438256

• Mob. 7447444978

• Mob. 9884480963

• E-mail : bakermum@bakergauges.com

• E-mail : bakerdlh@bakergauges.com

• E-mail : bakerche@bakergauges.com

• E-mail : bakerblr@bakergauges.com

• E-mail : bakerbar@bakergauges.com

• E-mail : bakermp@bakergauges.com

• E-mail : bakerrajkot@bakergauges.com

• E-mail : bakercal@bakergauges.com

• E-mail : bakerchd@bakergauges.com

• E-mail : bakerldh@bakergauges.com

• E-mail : bakerhyd@bakergauges.com

• E-mail : baker\_nsk@bakergauges.com

• E-mail : bakercal@bakergauges.com

• E-mail : bakerche@bakergauges.com



## Siemens Scholarship Program completes 10 years

**SIEMENS SCHOLARSHIP PROGRAM**, based on the German model of Dual Education, completed 10 years with the induction of 200 students. The program hones youth to become industry-ready engineers and launch a sustainable career in engineering, R&D, or manufacturing. As of 2023, over 1,300 students from 125 government engineering colleges across 27 states in India have been part of the Siemens Scholarship Program.

Under this program, Siemens provides financial assistance to deserving meritorious students who are unable



to afford the education expenses. The students receive full scholarships covering the college fees and allowances for books, stationery, etc. Based on the German model of Dual Education, the students

are provided with internships, training on mechatronics, soft skills, projects, and mentorships throughout the four years of engineering to make them truly industry ready. Fifty percent of the students are young women.

Sunil Mathur, Managing Director, and Chief Executive Officer, Siemens Limited, said “It is inspiring to see the high level of untapped potential that we have in this country.

Through the Siemens Scholarship Program, we hope we can provide these young engineering graduates with equal opportunities to realize the true potential that India has to offer.”

## Thermax forays into the green hydrogen market, partners with Fortescue Future Industries

**THERMAX LIMITED**, a leading energy and environment solutions provider, and Fortescue Future Industries (FFI), an Australia-based green energy and green technology company, have signed a Memorandum of Understanding (MoU) to explore green hydrogen projects – including new manufacturing facilities – in India.

Under the MoU, Thermax and FFI plan to explore opportunities to jointly develop fully integrated green hydrogen projects for commercial and industrial customers in India.

The production of green hydrogen at an industrial scale would be a major step forward in decarbonising hard-to-abate industries in India, such as refineries, fertilisers, and steel.

The MoU between Thermax and FFI also contemplates the potential collaboration of the parties in the development of new manufacturing facilities to support green energy projects in India.

The Performance Linked Incentive (PLI scheme), under India’s National Green Hydrogen Mission, could be leveraged for setting up any new manufacturing capacity.

In addition to meeting the domestic requirements, electrolyzers and subsystems could potentially be used for export internationally.

Fortescue Metals Group’s experience in managing large-scale projects in its iron ore business provides FFI – Fortescue’s green energy arm – with a strong platform to expand into manufacturing projects in green hydrogen.

FFI is in the process of constructing a world-leading Green Energy Manufacturing Centre in Gladstone, Queensland. The first phase of the project involves the construction of an electrolyser manufacturing facility, with a targeted initial output capacity of 2GW per annum. Thermax will bring its vast experience in EPC and supply chain to the collaboration.

## Tool Room: Enhancing the Skilling in Petrochemical Vertical



**WITH A VIEW** to bolster the drive to enhance the youth with Skills, Rubber, Chemical & Petrochemical Skill Development Council (RCPSDC) signed an MoU with Government Tool Room & Training Centre, Karnataka (GTTC). The collaboration is a strategy that seeks to enhance skill development, research and development, and related services.

The MoU was signed by Mr. Saif Mohammad, CEO, RCPSDC and Dr Ramesh N, Deputy Manager, GTTC at RCPSDC’s Annual Awards.

The objective of this agreement is to strengthen industry-student interactions by exposing students to technical advancements, innovations, and industry competitiveness through skill-based training.

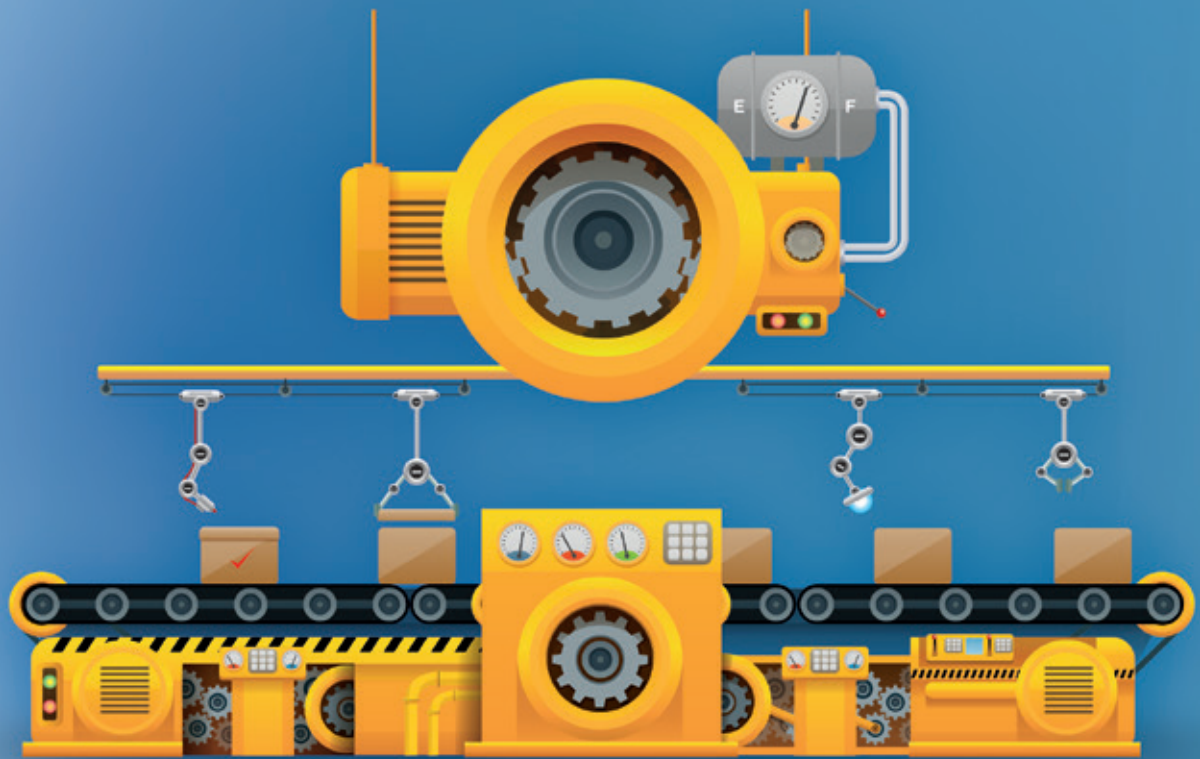
Mr. Saif Mohammad, CEO, RCPSDC visited GTTC and interacted with the students enrolled for the training for RCPSDC’s CAD/CAM course. He also encouraged the candidates enrolled for CAD CAM Designer - Plastic Product job role and educated them on the prospects of the Petrochemical Industry.

The course will be one-of-its-kind in addition to their regular certification course. The enrolled candidates will be awarded dual certification along with their regular Post Diploma.

The Courses have been designed so that a student can acquire an in-depth knowledge of the concepts of CAD/CAM designing and refine the skills needed in the Petrochemical (Plastic) Industry.



# Your partner for industrial automation solutions



SUITABLE FOR ALL MACHINE TYPES



Packaging



Printing



Metals



Pharmaceuticals



Rubber & Plastics



Cranes



Textiles



AC drives | Servos | Motion control | CNCs  
PLCs | HMIs | Industrial robots

- Innovative products and expert application knowledge
- Comprehensive pan-India technical and after-sales support
- A complete industrial automation portfolio, with intelligent controllers tailored to OEM needs

## INOVANCE

Advancing industrial technology, for a better world

[www.inovance.eu/india](http://www.inovance.eu/india)  
Email: [info@inovance.ind.in](mailto:info@inovance.ind.in)



## Rajoo launches Lamina è, India's first Mono and multi-layer EVA/POE encapsulant sheet for solar cells

**MARKING ITS FORAY** into the renewable energy sector, with Lamina è sheet extrusion lines, Rajoo takes a giant step forward, matching extrusion excellence with functionality, building a sort-after solution in the world to produce the highly complex EVA/POE sheet for solar cells; an approach that would certainly turn out to be a trend-setter.

Well understanding that if India has to realise the vision of its renewable energy programme, local manufacturing of related equipment will play a pivotal role, believes Rajoo. Extending its skills of extrusion, leveraging its strong understanding of the polymer chemistry (EVA being a rubbery material, and low shrinkage being a crucial parameter) and its 15 years of experience of producing sheet extrusion lines for EVA, Rajoo Engineers, smartly builds India's first line to produce EVA/POE encapsulant sheet for solar cells. A move that would save the country precious foreign exchange and, at the same time, empower solar panel manufacturers, while presenting an opportunity for plastic processors to get a solution that is more cost-effective to buy and operate. The confidence that Rajoo



**Lamina è – Sheet extrusion technology for solar modules**

commands as regards the local availability of parts and service support will only further the comfort of this growing solar panel industry.

The versatile solution of Lamina è series of sheet extrusion lines comes with an output range of 300 to 900 kg/hr (in both monolayer and multilayer versions), width of 1,300 - 3,000 mm and a thickness range of 0.30 - 0.90 mm. The line is equipped with a fully automatic and Lamina è – Sheet extrusion technology for solar modules continuous gravimetric feeding system and has energy-efficient extruders with universal barrier screws. The screw elements and screw profiles are designed according to the physical and chemical nature of EVA and POE resin. Furthermore, the peculiar

EVA-use T-die is designed as per the extrusion rheology.

This solution has chartered a diversification for Rajoo to look beyond 'extrusion for packaging alone' and enter newer and upcoming markets. While bringing in a lot of cheer to the solar panel manufacturers, this launch has provided a diversification opportunity for Rajoo's existing and sizeable customer base with a reliable

business model into which Rajoo can provide a good insight! This fascinating solution is another 'Rajoo Step' towards Make-in-India and will once again put Indian manufacturing on the global map.

"We are very excited as we have commissioned our first line. A lot of research has gone into conceptualising this machine. The EVA sheets used for encapsulation in solar cells are a very crucial element in the manufacture of the solar panels and I am glad that we took this bold step that would make a difference to India's energy programme and India's journey towards energy independence by 2047," highlights a buoyant Khushboo Chandrakant Doshi, Managing Director, Rajoo Engineers Limited.

## TVS Eurogrip showcases off-highway tyre range at CONEXPO

**TVS EUROGRIP**, one of the fastest-growing global brands in the powered 2-wheeler and 3-wheeler tyres, and Off-Highway Tyres, participated in the CONEXPO-CON/AGG at Las Vegas, NV, USA.

TVS Eurogrip has been making significant investments for technology, products, and capacity expansion of its off-highway tyres for Construction, Industrial and Agricultural sectors. On display are products from Construction and Industrial range apart from the recent Agri Radial and Steel Belted Flotation Radial tyres.

Speaking about the event, the company highlighted that this is a strategic focus segment, and they are geared up to strengthen and increase global footprint. Apart from

demonstrating its innovation in tyre technology and development, the display garnered very positive feedback from all their North America customers and has been a platform to reach out to new distributors for few key LatAm Markets.

TVS Eurogrip products are available in over 85 countries across the world and USA is one of the important markets for Off-Highway tyres business, and business platforms like CONEXPO play an important part in engaging with customers.



CONEXPO is the largest construction show in North America – CONEXPO-CON/AGG - spread over more than 2.7 million sq. feet, was held from March 14-18, 2023.





SCHUNK



Your specialist for  
clamping, gripping  
and automation

SCHUNK is a global leader in the equipment  
of modern production lines and robot systems.

[schunk.com](http://schunk.com) →

Hand in hand for tomorrow

## Godrej & Boyce partners with Renmakch to develop a 'Make-in-India' value chain for Indian Railways

**GODREJ & BOYCE**, the flagship company of the Godrej Group, announced that its business Godrej Tooling has partnered with Renmakch, to collaborate on Machinery & Plant (M&P) projects for Railways and Metro Rail, offering world-class equipment that is 'Made in India'. With this alliance, Godrej & Boyce will now be able to offer a complete value chain ranging from design to build for the Railways and bid on larger projects. The Company has been a trusted partner of the Indian Railways for over 15 years.

Godrej Tooling has signed a Memorandum of Understanding (MoU) with Renmakch for developing workshop equipment. The collaboration will introduce the latest technology for the Rail industry from Europe and other developed countries and indigenise it for India.

With the Indian Railways announcing their plans to invest in new



generation trains such as Vande Bharat and subsequently new workshops and depots, Godrej & Boyce aims to harness this opportunity by offering a turnkey solution to the Indian Railways. This will not just fuel India's self-reliance but also improve the speed, quality, and safety of railway and metro coaches during maintenance. The Company expects to acquire a 20-30 per cent market share in this sector over the next 5 years.

Speaking on the occasion, Pankaj Abhyankar, Senior Vice President & Business Head, Godrej Tooling, said, "With India's commitment to introduce new generation trains such as Vande Bharat, we are happy to partner with Renmakch to contribute in the strengthening of the railway network across the nation. By utilising

our collective strengths and together introducing global technology from Europe and Japan, we aim to promote the indigenisation of products and offer turnkey solutions for major M&P investments in modern technologies. This collaboration will contribute to improving the speed, quality, and safety of railway and metro coaches during maintenance. We look forward to a long and fruitful association with Renmakch on many important public projects for the Indian Railways and Metro Rail."

Godrej Tooling and Renmakch will have a ten-year-strong partnership. The association will contribute to the 'Make in India' and 'Atmanirbhar Bharat' initiatives by developing depot equipment, which is an import substitute. Godrej Tooling supplies jigs and fixtures, automation solutions, and workshop equipment for Railway workshops and Metro depots.

## Palo Alto Networks Global State of Cloud-Native Security survey reveals top security gaps and challenges for organisations operating in the cloud

**PALO ALTO NETWORKS**, the global cybersecurity leader, published its 2023 State of Cloud-Native Security Report. The report surveyed more than 2,500 C-level executives around the world to better understand their cloud adoption strategies, and how those strategies work.

With organisations of all sizes moving more of their operations to the cloud, a majority are struggling to automate cloud security and mitigate risks. It's one reason why many companies are trying to improve security earlier in the development process, and looking for fewer vendors that can offer more security capabilities.

**Cloud Use has grown, along with security concerns** - The expansion of hybrid work during the pandemic drove organizations to expand their use of clouds by more than 25 per cent. As a result, DevOps teams are being pressed to deliver production code at warp speed — making application security more complex and putting pressure on security organizations to keep pace.

**Most organizations are slow to detect and respond to threats** — 90 per cent of organizations we surveyed said they

cannot detect, contain, and resolve cyber threats within an hour. A majority reported a weak security posture, and believe they need to improve their underlying activities —from gaining visibility into multiple clouds, to applying more consistent governance across accounts, to streamlining incident response and investigation.

**Teams don't understand their security responsibilities** - When asked about the challenges of moving to the cloud, respondents' top concerns remained unchanged from our 2020 report: struggles with comprehensive security, compliance, and technical complexity. A large majority (78 per cent) of organisations said they have distributed responsibility for cloud security to individual teams, but almost half (47 per cent) said a majority of their workforce does not understand their security responsibilities.

**A greater need for code-to-cloud security** - As more applications are being built in the cloud using off-the-shelf software, there's a risk that any vulnerability in the development process could compromise

an entire application later. That's why more companies are encouraging a deeper level of engagement between application developers and security tools and teams — with 81 per cent of respondents saying they have embedded security professionals inside their DevOps teams.

**Moving towards consolidation** - Three quarters of the leaders we surveyed say they struggle to identify which security tools are necessary to achieve their objectives. This has led many of them to implement numerous single point solutions — with the average organization using more than 30 security tools, including six to 10 dedicated to cloud security.

The sheer number of security tools makes it difficult for leaders to have in-depth visibility into their entire cloud portfolio. 76 per cent of survey respondents reported that using multiple security tools creates blind spots that affect their ability to prioritize risk and prevent threats. And 80 per cent said they would benefit from a centralized security solution that sits across all their cloud accounts and services.



# INVERTER CHILLERS

3.5 - 70 KW (1-20 TR)

Wide range of Cooling Solutions for  
Automotive Industry...



## APPLICATION



- Manufacturing
- Analytical Instruments
- Others

## FEATURES



- Packaged with tank and pump
- Temp accuracy of  $\pm 0.5$  deg C
- Low noise level 65 db



Save up to  
30% Energy



**24/7**  
CUSTOMER  
SUPPORT

## ENABLING AN AUTOMATED FUTURE

With automation gradually making inroads in the manufacturing sector, **Pamela Kundu**, Senior Director, Sales Engineering for UiPath, shares her perspective on how organised deployment of this business tool could further fortify growth, leverage operations and revolutionise processes of this developing sector.

### **How can automation help in manufacturing processes, and what is the future of manufacturing?**

Organizations in India have recognized that automation will become a powerful business tool. About 88 per cent agree that automation will be a critical requirement for business excellence, customer experience, and competitive success within the next three years, according to the IDC APJ Automation Survey 2022 commissioned by UiPath. Instead of replacing the workforce, automation today complements the modus operandi of organizations – allowing them to work smarter and more effectively. For the manufacturing sector deploying automation in their processes can keep the service lines efficient, get product delivery faster, and manage back-end finances, more efficiently. By integrating and optimising legacy systems, automation can help organizations reach new levels of efficiency and generate better ROI faster.

In the Indian manufacturing sector, we have successfully worked with large corporations such as JSW, Clariant, and Tata Voltas, amongst others. With the help of the UiPath Enterprise Platform, JSW created robots to automate vendor invoice processing, logistics invoice, payment and vendor support cell. These robots- Chanakya, Druva, and Saathi- helped JWS achieve a 300 per cent reduction in overall processing time and have helped the company become four times more productive. On the other hand, Clariant was looking for ways to streamline and digitise its invoice handling and logistics management processes. By implementing the UiPath Enterprise Automation platform, almost 50 per cent of invoice processing in Clariant is now automated.

### **The importance of leveraging automation in a post-pandemic world?**

The manufacturing industry is certainly undergoing disruption and streamlining operational capabilities will always remain a competitive differentiator. Labour constraints, increasing labour costs, and the residual impacts of the pandemic will force many



For the manufacturing sector, deploying automation in their processes can keep the service lines efficient, get product delivery faster, and manage back-end finances, more efficiently

organizations to invest more in automation systems that can be deployed in warehouses and distribution centers to supplement the workforce. By reducing the mundaneness of repetitive tasks, automation will help in developing a more productive future workforce where employees and robots work in tandem. Organizations can increase efficiency and productivity with the help of automation technology that supports intelligent automation of processes.





### What benefits at scale can be achieved by deploying RPA in the manufacturing process in India?

The execution of automation in the Indian manufacturing sector will be vital in the journey to becoming the global manufacturing hub. With the apt implementation of automation, Indian manufacturers can focus on product innovation and core strengths instead of repetitive tasks that are critical but monotonous. Predictive maintenance, pricing forecasting, and quality control are just a few examples of operations that can be automated using RPA in combination with technologies like AI. These tasks are too complex to be handled by RPA alone. The development of these capabilities will assist businesses operating in this sector in maximizing benefits, enhancing the customer and employee experience, and creating a sustainable competitive edge.


### What is UiPath doing to revolutionize manufacturing processes?

Although the manufacturing sector has not been too quick in adopting automation, several firms are making consistent investments and efforts to accelerate their automation efforts within the coming years. The manufacturing firms in India are looking to leverage automation in operations, especially to support remote capabilities, assess equipment monitoring to reduce downtime, and increase utilisation and efficiency. For instance, according to the IDC survey commissioned by UiPath, 74 per cent of Indian organizations are poised to focus more on intelligent automation. Similarly, 92 per cent of Indian organizations will use IPA in more than



About 88 per cent agree that automation will be a critical requirement for business excellence, customer experience, and competitive success within the next three years

20 per cent of their total automation deployments in the next three years to address the needs of high business performance, new customer expectations, and talent shortages. The organized deployment of automation in India's manufacturing sector could further fortify the growth of this developing sector.

With the revamped UiPath Business Automation Platform, we are revolutionising manufacturing processes for Indian enterprises. The platform is designed with a comprehensive vision that encompasses personal productivity and enterprise processes. This will help in making digital transformation a reality for all enterprises. The automation platform has three layers that work together to accomplish this goal, and they are: discover, automate, and operate. Our core automation platform continues to expand, combining leading UI automation and API integration, integrated document processing, long-running workflow, seamless access to artificial intelligence (AI)/ machine learning (ML) models and skills and many more capabilities. With the UiPath Business Automation Platform, businesses can do more on a single platform. 

# Enjoy a break from breakdowns.

## Mobil™ Lubrication Solutions



**Machine  
Tool Lubricants**



**Services**



**Mobil™  
Solcare App**



#MadeForMachinesImaginedForYou



[mobil.in/business](https://mobil.in/business)



[mobil.b2b@exxonmobil.com](mailto:mobil.b2b@exxonmobil.com)

© 2023 ExxonMobil. All trademarks used herein are trademarks or registered trademarks of Exxon Mobil Corporation or one of its subsidiaries.





**Mobil**<sup>TM</sup>

# " GE AEROSPACE WILL CONTINUE TO BUILD STRATEGIC PARTNERSHIPS WITH INDIA "

By Rahul Kamat

From building Asia's first hydropower plant in India to supplying F404 engines for Tejas Aircraft, GE's journey of proven, matured technology solutions provider for India's requirements of the future is commendable. In an interview **Amol Nagar, Managing Director, GE's Multi-modal Factory, GE Aerospace India** talks about how the company, along with its Indian partners establishing aero-engine manufacturing infrastructure needs to achieve its self-reliance goals. Edited excerpts:

**Let's start with GE's journey in India. Can you give us a brief outlook on how your India business has evolved over the years, the challenges, the major achievements, etc?**

GE has been operating in India since 1902. We helped built Asia's first Hydropower plant near Mysore. Since then, we have set up and grown several different businesses in the country. Today, we operate in the areas of aerospace and energy. Our over 14,000 employees work across 20+ offices, 12 factories and four technology centres. I am proud to mention that 50 per cent of all electricity transmitted and distributed in India is done using GE technology. That said, we

//

**WE ARE HAPPY TO SUPPORT OUR CUSTOMERS THROUGH THEIR GROWTH PHASE**

are a proud partner to Indian commercial and military aviation. Importantly, most commercial airlines use planes powered by GE or partner engines. In the defence sector, the Indian Air Force's Light Combat Aircraft is powered by GE's F404 engine.



**GE last year entered into a partnership with HAL 99 F404-GE-IN20 engines for Tejas Light Combat Aircraft. These engines have been in use in Tejas since 2004. Can you detail the deal and what kind of further enhancement comes as part of the deal?**

In Aug 2021, we received an additional order for 99 F404 engines from HAL for the LCA Mk1A Tejas Aircraft. GE is working diligently to manufacture these engines, which will be shipped to HAL for installation on the aircraft. Indian Government has also approved \$800 million (Rs 5,375 crore) for the prototype development, testing and certification of the Light Combat Aircraft (LCA) Tejas Mk2 powered by GE F414 INS6 engine.

GE Aerospace is proud to continue







## GE HAS INVESTED OVER \$200 MILLION IN THE PUNE MULTI-MODAL FACTORY THAT SERVES BOTH OUR AVIATION AND ENERGY SECTOR NEEDS

building our strategic partnership with India, including new development opportunities. GE military engines have a strong history in the country, and it currently provides jet engines and marine gas turbines for many military applications including the Air Force's light combat aircraft, Tejas MK1, the Navy's P-8i aircraft, P-17 Shivalik class frigates, recently commissioned Vikrant Indigenized Aircraft Carrier, Apache and



MH60R Helicopters and F-414 engines will power LCA Mk2.

GE offers proven, matured technology solutions for meeting the requirements of future military applications. We are committed to continuing to bring new opportunities to India through our engineering presence, manufacturing operations, local partnerships, and growing fleet of military and commercial aircraft engines.

### **GE signed an MOU with IIT-M for the R&D of Micro Turbomachine, which was undergoing testing earlier this year. Can you give us an update on the test status and steps ahead?**

The Indian Institute of Technology-Madras and GE signed an MoU in 2016 to collaborate on research and development with an investment of Rs 10 crore over five years. Under this program, a new high-speed Micro Turbomachine was designed. It is now being tested at the National Aerospace Laboratories. During the product design process, GE and IIT-M engineers and researchers worked together to develop a local aviation supplier ecosystem for the manufacture of high-precision and high-speed turbomachinery that adhered to global aviation industry manufacturing standards. Two local aviation industry companies - Pragati Transmission Pvt. Ltd. and Turbocam India Pvt. Ltd. - participated in the manufacture and assembly of the prototype.

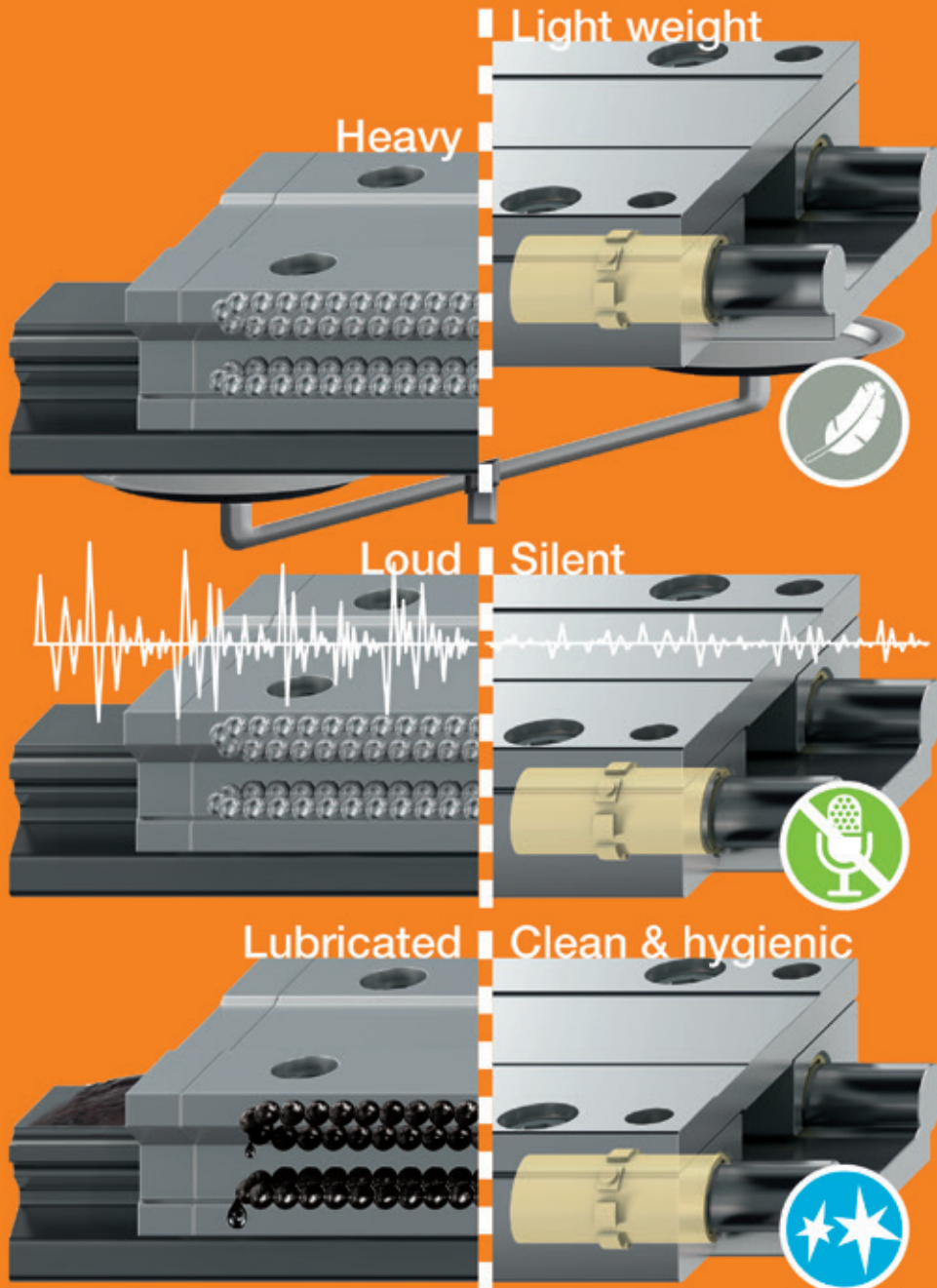
### **Earlier this year, GE also announced its Indian aero-engine supply chain. How does it impact your Indian business as well as your business counterparts such as Tata Advanced Systems, HAL, etc.?**

GE Aerospace and our Indian partners are in the process of establishing the aero-engine manufacturing infrastructure India needs to achieve its self-reliance goals. Our Indian partners have demonstrated the ability to handle complex



# Change your bearing now!!!

... and save up to 40% cost with drylin® linear bearings



motion? plastics! Plastic instead of metal: Replace re-circulating ball guides and take advantage of the drylin® dry running technology. Calculate the exchange potential directly online and configure the drylin® linear bearings solution. Your application with drylin® can be reliably solved, please also check the factsheet: [www.igus.in/change-linearbearing](http://www.igus.in/change-linearbearing)



igus® (India) Pvt. Ltd.  
36/1, Sy. No. 17/3, Euro School Road,  
Dodda Nekkundi Industrial Area - 2nd Stage  
Mahadevapura Post Bangalore - 560048  
Phone +91-80-69116900 Fax +91-80-68127802

igus®.in  
plastics for longer life®

manufacturing and special processes required for aero-engine manufacturing while simultaneously maintaining a focus on quality. GE Aerospace has 13 Indian companies supplying aero-engine parts to our global commercial aviation factories. This includes a large multi-year order with Tata Advanced Systems Limited worth USD 1 billion.

GE is developing a robust network of medium and small business suppliers (MSMEs) in India as well.



## GE WE WILL CONTINUE TO STAY FOCUSED ON BOTH AEROSPACE AND ENERGY AREAS IN INDIA

This growing network provides a lengthening list of essential components and services to ensure a fully indigenous manufacturing infrastructure.

### **Aatmanirbhar Bharat has picked up pace in India. How is GE India becoming a key contributor to the mission?**

With our manufacturing facilities in Pune and our expanding Indian supplier ecosystem of local companies, we are already a significant local aero-engine manufacturer. GE Aerospace has been proactively growing its aero-engine skills and manufacturing capabilities in India. This includes engineering capabilities at our technology centre, and in collaboration with industry; aftermarket services; and advanced precision manufacturing technologies.

Over the past two years, a GE-funded skills program trained more than 150 manufacturing staff at various partner organizations, and these trained workers have then gained employment with one of several GE suppliers in India.

In addition, we run a centre of excellence along with the Tamil Nadu Government for additive (3D printing) technology in aviation.

### **What are some trends in your opinion picking up in the civil aviation sector in 2023?**

India is emerging as the third-largest passenger traffic

market in the world. With travel returning to pre-pandemic levels the demand for air travel is exploding. We are a strong partner in the civil aviation space with 600 GE and partner engines servicing most airlines in the country. We expect civil aviation in India to continue to grow over the next decade and demand for more planes and engines will remain steady.


### **Further, with the risk of COVID-19 resurfacing, what are the impact and implications of it expected in the civil aviation sector? How can it stay resilient and prepare for adverse situations?**

Thankfully the fear of a new Covid wave in the region in early 2023 did not materialise. The positive development in the aviation sector – be it Government led infrastructure or industry-led services, continues to see steady progress. We are happy to support our customers through their growth phase.

### **What are the areas where GE is likely to remain invested? Further, what segments are expected to propel growth for your organisation in the coming years?**

As GE we will continue to stay focused on both aerospace and energy areas in India. We see opportunities to partner with our customers to move India forward across both those industries.

### **Going further, what would be your emphasis in terms of investments in India?**

GE has invested over \$200 million in the Pune multi-modal factory that serves both our aviation and energy sector needs. We produce jet engine parts and wind, gas and steam turbine parts at the factory. This factory remains a huge focus for us. 



## DELIVERING BEYOND EXPECTATIONS

**Shreegopal Kabra**, *Managing Director, RR Kabel & President, RR Global* outlines that the innovation in the electrical wire space is limited and there is a dire need for setting up a regulatory body for implementing stricter standards. He also talks about key trends, need to adhere global quality standards and new offerings his company will be launching soon in an interview with **Nisha Shukla**.

### **How is the market evolving for RR Kabel?**

The investment in infrastructure and resurgence of the construction markets are a good sign. The Government has initiated the PLI programs and is extending the same to cover chips now. The ramp up is visible, and



we have big names announcing billions of dollars in investment. RR Kabel has a wide range of products and solutions to cater to these emerging needs and we are positive about these developments which can spell opportunities for us.

### **What are the new trends you are witnessing in the industrial wire and cable segment?**

IoT based applications and industry 4.0 requirements are redefining shop floor requirements. This calls for precise, quicker, and smarter solutions combined with sustainable productivity. Power is a critical resource that is required to drive the entire process. The connectivity is to be provided with a network of wiring solutions that can seamlessly be integrated with the requirements on a continued basis. Therefore safe, reliable wire and cable solutions are much sought after now more than ever before.

### **What sets RR Kabel apart from your competitors? How does RR Kabel ensure the quality of its products?**

The range of products and solutions from the RR Kabel stable has always adhered to global standards, even in the national market. The philosophy has been to elevate our standards and deliver beyond customer expectations. This helps RR Kabel to stand out against the competition which is offering products just barely to match domestic standards, which needs a complete overhaul.

### **What is your growth outlook for the next five years?**

It is expected to be in high double-digit growth for existing players since new facilities will need time to gain traction.

### **What are the new products and services you will be launching for the industrial and commercial segments?**

We are looking at a combination of digital and

automation solutions that can cater to the net zero environment with sustainable options.

**What are the innovations and technologies you will be introducing in your products and services?**

Innovations in the electrical wire space are fairly limited for us now, as we are fighting hard to overcome the inertia in the implementation of stricter standards. Once we can get the regulatory bodies to comprehend this lacuna, then we will focus our priorities on the innovation aspect. There is a great deal of space to be covered in the current playing field itself.

**How does RR Kabel ensure the safety of its cable?**

We follow the mantra of adopting Global standards for our products which automatically calls for the right raw materials and production processes driven by qualified and committed manpower.

**What are the international standards and certifications that RR Kabel's cable complies with?**

We have a host of approvals and accreditations that run up to 33 like BASEC, VDE, SASO etc right now from a single manufacturing location. No one else has this capability.

**RR Kabel recently announced the acquisition of Luminous Home Electrical business from Schneider and of Arraystorm Lighting. Tell us in detail about these acquisitions. Are you looking forward to further expanding your portfolio?**

Luminous Home Electrical Business of Schneider has a range of well-engineered, top of the line products for the Consumer market which fits in with our plan of offering the end user a better product experience. Similarly, Arraystorm offers a superior range of professional lighting solutions with a high degree of customisation.

Both these ranges are yet to gain traction in numerous markets across the country. We have a reasonable presence with our Wires & Cable solution, and we see great synergy in presenting a wider bouquet of products to our clients and leverage on the combined strengths of all three entities.

**There were several fire accidents reported in the past at Indian manufacturing facilities. And now the advent of Industry 4.0 has exposed traditional manufacturing facilities to another challenge. How can manufacturing facilities ensure a smooth transition?**

Indian manufacturing must recognize the fact that we cannot be oblivious to the reality that we are global. There is tremendous focus on assessing the capabilities of our manufacturing sector by global players.



**We are looking at a combination of digital and automation solutions that can cater to the net zero environment with sustainable options.**

We need to look at higher levels of productivity, scaling up, safety of the facilities, standards to be adhered to and delivering competitive pricing.

We cannot hope to attract even our domestic market requirements with slip shod product standards in a fast-changing environment that the Indian consumer is being exposed to. Increased mobility knowledge and information sharing is making the Indian consumer value driven and clear about the deliverables.

So therefore, there are two options available to Indian manufacturers – first, the easy way out – continue old methods, processes and deliver sub-par products for the domestic markets. These are driven by short-term goals and price based. The second is to look around, embrace a global outlook, invest in state-of-art infrastructure/technologies, and deliver products to the world.

It is a no brainer choice – the first option will go up in flames literally in a short period of time and go belly up while the second option will survive cater to the changing new world order.


**How can businesses improve productivity with future-oriented data cabling?**

Digitization is here to stay. Huge mountains of data will lead to data mining and monitoring. This will eventually lead to corrective actions to plug gaps and improve productivity.

**What are the various sustainability initiatives taken by RR Kabel?**

We had started our sustainability initiatives a few years ago even before it was being contemplated by others with our manufacturing facilities opting for roof top solar after tapping water and waste recycling. Now our focus is on decarbonizing towards our net zero goals.

**What, according to you, are the dos and don'ts that manufacturers should follow to ensure electrical safety at their production facilities?**

When you are producing world-class products, you cannot but follow the best practices. Instilling safe practices with zero compromise goes a long way. Primary to this is electrical safety and it is our recommendation that safety audits are taken very rigorously by Senior Management. 



## MOBIL'S SUPERIOR LUBRICATION SOLUTIONS FOR PROFITABLE & EFFICIENT MANUFACTURING OPERATIONS

A look at how Exxon Mobil's cutting-edge solutions are transforming the manufacturing operations and helping customers enhance productivity, efficiency, and overall profitability.

**A**s a developing economy, India is currently experiencing rising demand across sectors including manufacturing – a core pillar of economic progress. As reports suggest, India has the potential to become a global manufacturing hub and by 2030, it can add more than USD 500 billion annually to the global economy. Aligning with this projected growth, businesses in the sector, today, are focusing their attention on utilising the most sophisticated machinery while adopting methods to achieve efficiency in operations.

Duly, for profitable operations, manufacturing plants require adequate and superior quality lubrication solutions to increase reliability and improve the total cost of ownership. Addressing these challenges for the sector, Mobil™ has been providing exceptional performance lubrication solutions that have been designed to provide outstanding service in terms of equipment protection, oil life, and problem-free operations helping customers enhance productivity, efficiency, and overall profitability.

### PROVIDING SOLUTIONS THROUGH PREMIUM LUBRICATION

Recently, Mobil associated with a leading industrial product supplier and manufacturer of hydraulic piston rod components for automobile industries in Bangalore. The companies host a fleet of 7 CNC & VMC machines in their plant. These machines were previously lubricated with a competitive water-soluble mineral cutting oil. The oil, however, caused an extreme foul smell and component rusting issues which led to a higher rejection rate of finished components.

To thoroughly understand the issue, Mobil's Field Engineering Services (FES) team studied the equipment and, thereafter, recommended the use of a water-soluble cutting oil, such as the Mobilcut™ 220 – a high performance, translucent, semi-synthetic metalworking fluid, suitable for grinding and moderate to heavy cutting, milling, drilling, tapping, and reaming applications of cast iron, steel, and its alloys. Along with recommending the lubrication solution, Mobil also offered its digitised coolant monitoring tool,



the Mobil™ Solcare Service app, to enhance machine shop productivity with data-driven insights and tailor-made recommendations.

Post the switch, the product performance of Mobilcut 220 along with the application expertise helped the company resolve the problem of foul smell and eliminated the component rusting challenge. The company experienced a 58 per cent reduction in coolant consumption, and environmental improvement by 1,470 litres – resulting in an overall annual savings of USD 1,451.

#### LEADING LUBRICATION INNOVATION

The Mobil™ Series includes Mobil's line of high-performance water miscible metal removal fluids. Formulated with leading edge-base oils, additives, and emulsifiers, the Mobilcut series of non-chlorinated products provides dependable performance in a wide array of metal removal processes. Low maintenance and inherently stable, Mobilcut products are designed for the modern machine shop where long service life, excellent machining performance and health and environmental concerns are important factors for increased productivity. Mobilcut 220 is a high performance and long life semi-synthetic metalworking fluid concentrate, suitable for all moderate machining and grinding operations. It has unique formula with high-performance extreme pressure

additives, corrosion inhibitor packages and biocides which prevent bacterial and fungal attack and provides long life as well as stable performance during the application. It works very well in general machining and grinding of cast iron, grey iron, steel, and its alloys where traditional soluble oil may not perform adequately.

Further, services are today playing a leading role in ensuring the success of the machine tools sector – as has been seen in this current case too. Here, Mobil has been establishing industry-leading standards for the sector by implementing the most advanced digital solutions to streamline equipment monitoring and enhance efficiency. For instance, the Mobil™ Solcare app digitises services and addresses challenges faced by customers. Continuous real-time monitoring, simple historical data access, trendline insight, open communication, reduced environmental impact due to paperless reporting, and other benefits are all possible. The app automates paperwork, saves completed tasks, and provides access to all data, assisting engineers in a variety of tasks such as staying informed, creating advance schedules, producing instant reports, and receiving performance evaluations.

Focusing on delivering the most robust combination of products and services, Mobil is committed to further customer experience by innovating and supporting the growth of the manufacturing and machine tools segment in India. 

## AG5 RAISES €6 MILLION FROM HEADLINE, PEAK TO SAVE THE MANUFACTURING INDUSTRY FROM EXCEL

**A**G5, the SaaS platform used to map and track employees' skills and qualifications, has raised €6 million in a new round of investment. Last year, the company received €1.2 million from tech investor Peak. Since then, AG5 has grown exponentially, and its annual revenue has tripled. Now, together with SaaS experts Headline and Acadian Ventures, Peak is investing in AG5 once more.

AG5's SaaS solution offers the first interface organisations can use to map and track employees' skills that are directly linked to production lines. It delivers scalable capacity planning and insights for audits and training programs to industries that still rely on Excel, or pen and paper. AG5's plug-and-play software solution simplifies skills management with intuitive, appealing, and sharable skill matrices. AG5's clients report an 80 per cent reduction in audit preparation times and 15 per cent savings on employee training budgets.

With offices in Amsterdam and Berlin, and a workforce of 31 employees, AG5 addresses a global market potentially worth €28 billion. The

new investment will therefore be used to further internationalise the platform, starting in Europe's manufacturing powerhouse, Germany. Over the next two years, the company aspires to double the size of its team, triple its client base, and become the European market leader in skills management.

In manufacturing, skills are often associated with specific pieces of equipment. It is then determined whether employees know how and possess the right qualifications to operate them.

Odds are, however, that these skills and qualifications are still being tracked and managed using overly complex Excel spreadsheets. These are often not kept up to date, with multiple versions floating around an organisation and only a few individuals knowing how to fix formulas when they stop working.

Neglecting to map essential skills of front-line workers properly and in a timely manner will result in myriad problems on production floors. It can lead to reduced productivity, safety violations, and a lack of insight into valuable information that is necessary for audits.



# WE ARE PROUD TO ANNOUNCE



The 9<sup>th</sup> Edition of

**AceMicromatic**  
Group  
Presents

**THE**  
**MACHINIST**  
SUPER SHOPFLOOR AWARDS 2023

## CALLING SHOPFLOORS ACROSS INDIA TO NOMINATE FOR

- ENVIRONMENT, HEALTH AND SAFETY (EHS) ● MANUFACTURING EXCELLENCE ● DIGITAL MANUFACTURING
- INNOVATION (PRODUCT / PROCESS) ● QUALITY ● HUMAN RESOURCES (HR)
- CORPORATE SOCIAL RESPONSIBILITY (CSR) ● SUPPLY CHAIN

For more details:

**Rahul Kamat | +91 9892612075 | rahul.kamat@wmm.co.in**

**Shruti Nair | +91 9769621841 | shruti.nair@wmm.co.in**

For partnership opportunities:

(West & North)

**Ranjan Haldar**  
+91 9167267474  
ranjan.haldar@wmm.co.in

(South)

**Mahadev. B**  
+91 9448483475  
mahadev.b@wmm.co.in

**Vaishnavi B Ravindran**  
+91 9962741430  
vaishnavi.ravindran@wmm.co.in

By Siddhant Bery, Managing Partner, KSP INC

## WILL THE UPCOMING G20 SUMMIT COME BEARING GOOD NEWS FOR THE MSME SECTOR?

The article pans into the benefits that Indian MSMEs stand to derive from the ongoing G20 Presidency.

**T**he contribution of micro, small and medium enterprises (MSMEs) to India's economic growth is well-documented. A report by consultancy KPMG and industry body - the Confederation of Indian Industry said the entities account for nearly 30 per cent of India's gross domestic product and 45 per cent of its exports.

MSMEs also play a vital role in socio-economic development, such as job generation (at 110 million), reducing inequalities, rectifying regional imbalances, and providing low-cost raw materials to support large industries and allied sectors.

The progress of less-developed regions and bridging the rural-urban divide depends on the robust health of the micro, small and medium enterprises industries.

### WHAT IS THE G20?

The Group of Twenty (G20) is an inter-governmental forum comprising 19 countries, which includes Argentina, the Republic of Korea, Mexico, Russia, Saudi Arabia, South Africa, Australia, Brazil, Canada, China, France, Germany, India, Indonesia, Italy, Japan, Turkey, United Kingdom, United States, and the European Union.

The G20 members represent around 85 per cent of the global Gross domestic product (GDP), over 75 per cent of the global trade and about two-thirds of the world population. It was founded in 1999 after the Asian financial crisis as a forum for finance ministers and Central Bank Governors to discuss global economic and financial issues. G20 was upgraded to the level of Heads of State/Government in the wake of the global economic and financial crisis of 2007. Then in 2009, it was designated the "Premier Forum for International Economic Cooperation".



### WHAT CAN THE G20 OFFER?

The G20 is the main forum for economic cooperation between member countries and other countries. Additionally, the group structure is unique as it consists of various groups and channels

of engagement that can provide consolidated and comprehensive support to the industry.

The G20 has a lot to offer the MSME sector due to its broad structure and expertise in areas such as digitalisation, upskilling programs, and start-up ecosystems. Boosting digitalisation, helping the MSMEs sector to acquire new skills, revise their strategies from a global perspective, etc.

India and its large MSME sector comprising over 60 million registered businesses, has made significant progress during and after COVID. Government programmes like Udyami Bharat and the Prime Minister's Employment Generation Programme, among others, are outstanding examples of how India is managing its large MSME sector.

Overall, we need to educate the industry on and prepare for the current digital revolution. In line with India's commitment to the G20 inclusive growth goals, the sector needs to be funded and its expansion facilitated.

### INDIAN MSME SECTOR IN NUMBERS

India has over 63 million small, medium and micro enterprises, absorbing the vast majority of the country's workforce, and the room for growth economy is still enormous. With a Gross Value Added (GVA) share of 26.83 per cent in 2020-2021, India's MSME sector can employ 25 per cent of its total workforce, with many businesses headed and vanguard by women.

It plays a crucial role in the Indian economy as it accounts for about 45 per cent of national industrial output, about



Siddhant Bery



70 per cent of industrial employment and about 40 per cent of exports.

According to a 2021 article by McKinsey & Company, MSMEs account for around 99 per cent of businesses and 70 per cent of all jobs in OECD (Organization for Economic Cooperation and Development) countries, and they contribute more than 50 per cent of GDP in low-income countries raised all over the world.

### THE WAY FORWARD

Recognising the huge contribution and potential of MSMEs, the Ministry of Finance has allocated a record amount of Rs 22,138 crore to the MSME sector in the Union Budget for FY24. The budget announced several measures to boost the MSME sector, such as extending the emergency line of credit guarantee scheme until March 31st and the RAMP or Raising and accelerating the MSME performance programme with an outlay of Rs 6,000 crore.

Increasing the financial inclusion of MSMEs will not only increase the productivity of MSMEs but will also strengthen the economic growth of the country. To facilitate the Make in India initiative and support MSMEs, the government is implementing various measures to ensure that MSMEs have quick, sufficient, and low-cost credit.

The support measures for MSMEs, such as redefining MSME standards based on lower turnover thresholds in favour of local manufacturers, the introduction of ICT-based portals like CHAMPIONS (Creation and Harmonious Application of Modern Processes for Increasing the Output and National Strength), and the promotion of new schemes like Pradhan Mantri MUDRA Yojana, Udyog Aadhaar, MSME Samadhaan, ZED Scheme, Make in India, and Stand up India is helping these businesses to find financial footing.

Some time back, the Central government started its e-marketplace (GeM) to increase the share of MSMEs in government procurement. This will help reduce costs, increase efficiency, and increase sales.

However, MSMEs need to take full advantage of technology to facilitate and grow their businesses to remain competitive in the digital age. A development strategy to address these challenges must have an inclusive and responsive governance system – one that governs justly invests in people and fosters the growth of small and medium enterprises. Indian MSMEs stand to benefit from the G20 Presidency.

The G20 slogan "Recover together, recover stronger" applies not only to large companies but also to smaller ones such as SMEs. The presidency should and must enable India to benefit from the potential of a \$10 trillion economy by 2030.

While gender equality is at the centre of the B20

– the official G20 forum for dialogue with the global business community – the role of women in MSMEs is important. According to the Ministry of Small and Medium Enterprises, Government of India, Annual Report 2021-22, at least 20.37 per cent of MSMEs are headed by women.

In addition, the proportion of businesses owned by women in rural areas is 77.76 per cent, which is higher than that of urban areas, and overall, 51 per cent.

### INDIA'S G20 PRESIDENCY

India holds the G20 Presidency from 1 December 2022 to 30 November 2023. Forty-three heads of delegation – the largest ever to the G20 – will attend the final New Delhi summit in September of the 'next year.


The G20 logo is inspired by the bright colours of the Indian flag – saffron, white, green, and blue. It places the Earth next to the lotus, the national flower of India which represents growth in the face of challenges. The Earth reflects the Indian way of life that protects the planet, a way of life in perfect harmony with nature. Below the G20 logo is "Bharat" written in the Devanagari script.

The theme of India's G20 Presidency – "Vasudhaiva Kutumbakam" or "One Land One Family One Future" – is derived from the ancient Sanskrit Maha Upanishad. Essentially, the theme affirms the value of all life – humans, animals, plants, and microorganisms – and their interconnectedness on Earth and in the wider universe. The theme also focuses on LiFE (Environmental Lifestyle) and its associated environmentally sustainable and responsible choices, both at the level of individual lifestyles and national development, which will trigger global transformational action for a cleaner, greener, and more sustainable environmental future. More blue.

### CONCLUSION

It is also important to ensure that the policies and support for MSMEs are clear, effective, efficient, and not abused by large multinational companies through their subsidiaries.

With the support of G20 members, this will be one of the most significant legacies of India's G20 Presidency to the global economy and its sustainable development goals. India can leave a significant footprint by accelerating the development of MSMEs, building their resilience, and improving their ability to respond to global standards and market demands in GVCs.

MSMEs are the economic backbone of society, and the G20 must take them seriously to build sustainable economic development. A strong policy base to identify, validate, empower, and defend these segments is essential to regulate the participation of all stakeholders, which in turn will drive healthy and inclusive economic development. Let's do our part so that the rest of the world can achieve this goal and achieve an inclusive recovery for all. 

By Sonali Mulay, Director and Head of Tools Production, Sandvik Coromant Pune

## PAVING THE WAY FOR SHOP FLOOR DIVERSITY

The article explains the many initiatives the company is taking to ensure a more secure future for women in manufacturing.



**S**udha Murthy may be well-known as a writer and philanthropist, but one of her earlier steps on the career ladder was as engineering firm TATA's first female engineer. Working for the TATA Engineering and Locomotive Company (TELCO) in Pune, she famously landed the role after complaining to the company's chairman about its previously male-only policy. With an increasing number of manufacturing companies in India looking at inducting more women on the shop floor, we look at how Sandvik Coromant's Pune manufacturing site is inspiring a more diverse, inclusive shop floor environment.

Women make up only 12 per cent of India's manufacturing sector, which employs 27.3 million people, according to a 2021 estimate by GE. This lack of diversity was noticeable in Pune, and indeed across India, and historically there were hardly any women working on the shop floor.

This was largely due to certain government restrictions that made

working flexible shifts difficult for women. In 1948, India put the Factories Act into place, which meant women could only workday shifts between 6 am and 7 pm. However, the regulations have changed in recent years, and employers now can enable women to work more flexibly. And it seems that the tide is turning. With greater flexibility and measures to make women feel safer and better supported, Sandvik Coromant's Pune facility has seen its number of female workers increase from 4 per cent to 20 per cent since 2020.

### SHIFTING PERCEPTIONS

The manufacturing environment has long been considered unsafe and unsanitary; a shop floor full of dirty, heavy equipment that needed to be manually always operated. This was the mindset of many people working in Pune and, being an area rich in IT companies, local women in the workforce have typically favoured jobs in software over manufacturing.

While laws in India have changed,



Sonali Mulay





meaning women can work all shifts available to them, for quite some time their legacy continued and only men were recruited in workshops. To foster an environment with more females working in production, Sandvik Coromant Pune developed a prerequisite when recruiting new shop floor workers, so that at least ten women work on the shop floor at any given time. While progress is being made, it's important we paint an accurate picture of today's production facilities, which are a far cry from common connotations of shop floors many people still conjure up.

The Sandvik Coromant production site in Pune is a modern and highly automated production facility that looks more like those IT companies than those misconceptions of a machine shop floor. A virtually silent manufacturing process with automation at each step, there's a digital thread running through the plant, from inventory management, all the way through to machine performance and predictive maintenance. Smart automation with ultra-flexible robots, machines, tools and fixtures performs complex touchless tool changeovers without human workers needing to manually interfere. Increasingly, sensors are fitted to equipment in the plant, collecting data around parameters such as pressure, temperature, vibration, and acoustics. This data, combined with sophisticated analytics, can reveal patterns and problems before downtime occurs.

As well as changing how the shop floor works, the technologies of Industry 4.0 are changing the way our people work, too. Increased automation frees up time that would otherwise be spent on manual, repetitive tasks, so that team members can turn their attention to more diverse, engaging work. Technology also makes the workplace safer for employees, which is equally important to the worker experience. Sensors can alert people when they're entering a potentially dangerous area, the moment they get too close to a piece of equipment or could even be fitted onto a shop floor worker as a wearable to monitor their own health parameters.

There's also a greater opportunity to upskill the

workforce. A recent Gartner report found that 84 per cent of manufacturing professionals were upgrading their learning and development programs, as machine operatives get to grips with new CAD and CAM software, predictive analytics and 3D modelling of machine setups. Before you know it, responsibilities on the machine shop floor don't look all that different from the roles in those lust-after IT organizations.


### RECLAIMING THE NIGHT

The first call to action of many manufacturers wanting to diversify their workforce is changing those outdated perceptions. But, to attract and maintain talent, several other practical steps should be taken too. As well as taking steps to hire more women at Pune, Sandvik Coromant has developed several initiatives to create a safer and better-supported working environment.

As part of meeting the nightshift regulations, Sandvik Coromant has also organised transportation to and from work for its female employees. The specially hired bus is equipped with a GPS tracking system as well as a CCTV camera to enhance safety and is trailed by a security guard. Once female workers reach the facility, they are escorted to their door by the security guard and can register that they have reached home safely through a digital app.

Since 2010, the production unit has supported employees with children with an onsite day-care centre. Open to any employee with a child aged up to six years old, the centre acts as a vital support system for working parents. Children are cared for by a partnering children care organisation, have access to onsite catering and are just moments away should their parents wish to visit them while on a shift break.

As Oxfam India's India Discrimination Report 2022 reveals that gender-based discrimination is the reason for 98 per cent of the employment gap between salaried males and females in urban areas across the country. It's vital that employers offer support that reaches beyond the walls of the factory floor. Implementing safety measures and providing childcare should not be seen as workplace bonuses, but rather steps that are essential to take if we're to truly welcome a diverse workforce.

Murthy is a source of inspiration for many female engineers — who dared to challenge the status quo of the time. However, overcoming the nationwide challenge of gender diversity in the workplace also requires action from employers. India's workforce is starting to see change, and we're moving in a positive direction at Sandvik Coromant, but that good work needs to continue if we're to welcome more women into manufacturing in India. The shop floor isn't what it was even five years ago, and it's time our workforce reflected this progress. 

## FUELLING GROWTH & ENABLING BUSINESS CONTINUITY

**Sunil Kapoor**, CEO of Siemens Financial Services, talks about why manufacturers should opt for smart financing solutions and how their schemes are helping businesses to achieve their goals in an interview with **Nisha Shukla**

### How smart financing solutions accelerate growth in companies?

With manufacturing and construction sectors contributing significantly to global CO2 emissions, the need to adapt to changing market demands and CAPEX constraints while reducing environmental footprint is having a transformative effect on traditional manufacturing processes. With smart financing solutions by Siemens Financial Services, we understand technology, markets, applications, and operating pressures which enables our customers to achieve clearly identified and desired business outcomes. Our financing solutions help manufacturers upgrade, digitize, and stay competitive while streamlining operating costs in the 'new normal'.

Smart Financing solutions from Specialist financiers who understand the sector and its challenges, enable manufacturing companies to:

1. Acquire new generation technologies with quick turnarounds (with quick processing times and a digitalised documentation)
2. Improve working capital/cash flow management



Smart Financing solutions from Specialist financiers enable manufacturing companies to acquire new generation technologies with quick turnarounds. Improve working capital/cash flow management. Increase production capacity and/or flexibility and increase operational efficiency by making it possible to acquire technologies even without ownership.



3. Increase production capacity and/or flexibility and increase operational efficiency by making it possible to acquire technologies even without ownership (via Leasing solutions)

All of these (individually or together) make it possible for manufacturing companies to become more competitive in the market and provides them with an edge to accelerate their growth with the assistance of digitalisation.

### What are the key advantages of smart financing? How does it enable companies to garner ROI and maintain business continuity?

The key advantages of smart financing:

**Easy and flexible** – Allowing manufacturers to raise the finance they need, when they need it, on suitable terms as per their circumstances and supported by customer-focused processes.

**Expert, appropriate and transparent** – from financiers who understand the sector and its challenges, as well as the role equipment and technology play in addressing those challenges and can therefore offer customised finance solutions linked to desired outcomes that assist financial planning.

**Reliable and sustainable** – from financing partners that have a track record of association with the manufacturing sector and are looking to build long-term customer relationships.

Smart financing enables companies to maintain or improve their ROI since it is always a customised solution, provided based on a deeper understanding of the business, the sector, the technologies being acquired, business phase and overall business potential. Since it also considers factors such as current and potential cash flow, seasonality of business, and usage of technology, it ensures business continuity by providing the right type of financing solution, as per the specific





Finance is a key driver to ensure growth, profitability, and sustainability for any business. For manufacturing industries, it is even more crucial to use this driver efficiently since they need to make large investments in production assets and materials, along with managing all other resources.

requirement of the business, without adding undue financial pressure on it and taking away from other key financial commitments (e.g., Working capital commitments towards raw materials and salaries).

#### **Why should manufacturing industries opt for smart financing solutions for their business?**

Finance is a key driver to ensure growth, profitability, and sustainability for any business. For manufacturing industries, it is even more crucial to use this driver efficiently since they need to make large investments in production assets and materials, along with managing all other resources.

Smart financing solutions enable manufacturers to avail financing at a short notice, as per their specific business needs and on terms which are most favourable for their business. Thereby providing them with the most flexible, most customised solution they can avail in the shortest possible time (as early as 48 hours for loans up to Rs. 75 lakhs once the documentation is completed). Add to this all the time and hassle saved with digital documentation signing and quick disbursal times, it is a win-win solution for any manufacturing business.

#### **Tell us in detail about your Financing @ Zero% Interest scheme. How will it benefit manufacturers?**

We have close relations with majority of the leading manufacturers across industries. We tie – up with them to provide financing programs for their customers. We provide their customers with a range of customised financing solutions that meet their business needs, both short-term and long-term.

For the manufacturers, these schemes enable them to close the sale on the spot (even at an exhibition or machine showcase) since financing is readily available for customers to avail, based on easy documentation and quick processing times.

#### **How customised finance solutions can enable companies adapt to Industry 4.0?**

The Fourth Industrial Revolution or the Internet of Things, is the Digitalisation of processes, the installation

of widespread sensors in the physical environment, and the ability to rapidly enhance production economics through real-time performance data analysis.

#### ***Customized financing solutions enable companies to:***

- a. Acquire new technologies without making large upfront investments
- b. Efficiently use/restructure their current and potential cash flows
- c. Allow for business seasonality and/or uncertainties
- d. Use new technologies without taking on the burden of ownership – by considering leasing the equipment/technology


This allows companies to evaluate the best technologies for their business and make the most prudent financial investments for digitalization and upgrades to Industry 4.0.

#### **SFS provides a diverse set of financing solutions to businesses in the energy sector. Kindly shed some details on this. How has it impacted to their growth?**

Siemens Financial Services Private Limited (SFSPL) focuses on asset financing solutions while a separate business unit under the global Siemens Financial Services organization is also involved in equity investments and project financing solutions. Within the portfolio that SFSPL manages, we have witnessed a very high interest among customers who are seeking to modernize their power generation equipment such as gas and steam turbines, aiming for energy efficiency and sustainability. Over the past two years, many customers, including in the private captive power space across industries, have opted to move from a capex to an opex model. We see this trend continuing going forward.

#### **Your company has been financing greenfield renewable projects and significantly contributing to decarbonization? Which companies have opted for it and how significantly has it helped them to cut down on carbon emissions?**

We can provide equipment/asset financing for renewable projects and players in the renewable project space. Companies who have opted for equipment finance span across various industries such as power, infrastructure, manufacturing, pharmaceuticals.

A solution that is popular across industries is called 'Pay as you Save' where we structure the financial payments for the new technology being acquired based on the amount of savings it generates monthly. This allows customers to upgrade their technologies for more sustainability-oriented ones while allowing them to pay for it from the savings they may generate from electricity or other forms of savings. 

## WSP MEETS THE U.K.'S STRICT CARBON EMISSION REDUCTION GOAL WITH INNOVATIVE BUILDING DESIGN

Using PLAXIS and RAM concept helped WSP to determine the most effective structural design that reduces the amount of concrete and drastically cuts carbon emissions while saving significant construction costs.

The new United Kingdom headquarters for banking company Santander has combined four existing U.K. offices into one central hub in Milton Keynes, 50 miles north of London. Unity Place will be the workstation for approximately 5,000 Santander employees. The GBP 150 million project connects four new structures constructed on the site of a car park with three atria that maximises natural light in the combined building. The project also adds parking for cars and bicycles on the two basement levels and new landscaping with additional trees and a seating area. Santander chose WSP to help design the project.

Santander has a much broader vision for Unity Place than just as a headquarters for its banking operations. The building would also be one of the first structures that passengers would see as they exit the Milton Keynes rail station, so the organization wanted it to be a showcase and central hub for those who work in, visit, and live in the community. As such, the complex will also feature urban markets, retail outlets, consultation spaces, an auditorium, and health-focused facilities that include a gym and a yoga studio. The roof would be publicly accessible with terraces and a running track. WSP



Jana Miller



needed to find a way to design a stable structure for the facility without compromising Santander's vision.

### MEETING AESTHETIC AND ENVIRONMENTAL REQUIREMENTS

Santander has specific desires for the aesthetics of the building, resulting in an unusual design.

Though movement joints compensate for thermal movement in buildings caused by concrete shrinking and cracking with time, they were not used for this project. "We were challenged to design a building without any movement joints, as these generally cause double columns to be included, which would significantly affect the aesthetics of the internal layout," said Billy Kelham, structural engineer at WSP. To account for thermal movements during the construction process, WSP had to determine how to implement temporary movement joints to allow for concrete movement, then construct adjacent elements





and infill the temporary joints once the team had completed the concrete curing process.

Even with the complexity of the design, WSP had to meet strict environmental standards. To meet the U.K.'s goal that all new builds need to be carbon zero by 2050, the U.K. government established the London Energy Transformation Initiative, a collective of over 1,000 environmental professionals who have stipulated new guidelines and measures for all new buildings to adhere to make that target achievable. These measures include that the total embodied carbon for all non-domestic new builds constructed be less than 600 kilograms per meter squared by 2020 and 350 kilograms by 2030. This is for the building, and includes the structures, mechanical, electric, and plumbing equipment, façade, and architectural finishes. Unity Place had to meet these standards but realized that the traditional office construction of a steel frame supporting metal composite decks would generate far too many emissions due to the high energy involved in manufacturing steel elements. With these challenges, WSP needed advanced structural design capabilities to progress with a concrete frame solution.

#### **SOLVING ISSUES WITH STRUCTURAL ANALYSIS**

The organization realized they could meet all demands of the project by using structural engineering

#### **Project Summary**

Organization: **WSP**

Solution: **Structural Engineering**

Location: **Milton Keynes,  
Buckinghamshire, United Kingdom**

Products used: **PLAXIS, RAM**

applications from Bentley Systems. They first determined that a concrete superstructure would be preferable to a steel frame, as its construction would generate less carbon. Using RAM Concept, they optimized the post-tensioned concrete slab that were present in the eight-superstructure level

during the early stages of the design phase, detailing how to create a safe, and efficiently working slab.

Another example of how the team used Bentley software to improve the efficiency of the design and reduce the level of embodied carbon was visible in the design of the raft foundation. The slab varies in depth between 0.8 meters and 1 meter and bears onto a clay stratum at 10 meters below ground level because of the two-story basement. When clay is unloaded, which happens during the excavation process, it swells causing an upward force referred to as heave. Using geotechnical studies, the team calculated that the heave force was equivalent to 60 kilopascal force but would be fully dissipated after 12 millimeters.

The team used Bentley's RAM Concept to create a heave model of the raft that included the 60-kilopascal upward heave force, but allowed the slab to deflect upwards until it was 12 millimeters or greater. At this point it was known the heave would have fully dissipated. The team reduced the depth of the raft by creating a flexible slab that allowed the heave force to

dissipate instead of a rigid structure, which would need to resist the large heave force.

Carrying out geotechnical analysis with PLAXIS by Seequent, the Bentley Subsurface Company, enabled the team to assess the impact of ground movement on adjacent historic infrastructure and services.

Additionally, RAM Concept helped WSP determine how to eliminate the need for temporary eight-piled bases for each of the four tower cranes used during construction. Removing the temporary structures during final slab construction would add time, costs, and energy use. The design team iterated designs and determined how to safely size and place pad foundations to support the cranes until the soil settled under their weight and working loads. These pads were then connected to the rest of the raft and became part of the permanent raft foundation. It is estimated that this method eliminated a total of 32 piles – which would have a concrete tonnage of about 700 tonnes – as well as



**RAM and PLAXIS allow us to carry out efficient and detailed designs in a modest amount of time, hence reducing the overall design time required. This allows us to free resources across the project, allowing more time to be spent on enabling other innovations."**

**Billy Kelham, Structural Engineer, WSP**

a saved construction time. They then used RAM Concept to design the ground floor and substructure slabs. The application also established a seamless digital link between WSP's design team and a detailing team in India, shortening the process for marking up plans with design reinforcement requirements from one or two days to near-instantaneously.


#### **STRONG DESIGN WITH CARBON AND COST SAVINGS**

By using RAM Concept to create the best possible concrete structure design and compensate for the upward heave with the least amount of material, they compensated for the heave force on the raft by using the least amount of material possible. RAM Concept's post-tensioned design capabilities were used to analyse a typical floor plate, which helped to reduce the depth

#### **Fast Facts**

- The GBP 150 million Unity Place project will create a new headquarters for Santander UK and serve as a central hub for the community.
- To greatly reduce carbon emissions during construction, WSP opted to use a concrete superstructure rather than a steel frame. It used iterative design to lower the amount of concrete needed by 16,000 tons, save significant material costs, and greatly reduce carbon emissions.
- WSP used Bentley and Seequent applications to optimize the design while lowering the amount of concrete wherever possible.
- Incorporating the temporary crane supports into the permanent slab prevented the development of 32 pile foundations, which saved 700 tonnes of concrete.
- The careful design helped the building's development reach total carbon emissions of just 218 kilograms of carbon emitted per meter squared, well below the 2030 London Energy Transformation Initiative goal.

of the concrete slab by 25 millimeters. This reduction over the 53,000 square meters was responsible for saving 3,000 tonnes of concrete and 200 tonnes of carbon. Using post-tension design capabilities, they created a consistent flow rate, further reducing the slab depth to 275 millimeters. As a result, they lowered the amount of concrete needed by 16,000 tonnes, saved significant material costs, and greatly reduced carbon emissions from construction. WSP used the applications to design a raft that bore directly into the clay strata and only supported the two basement levels. Their design greatly lowered the weight of the building, eliminating the need for supporting piles, shortening design time by 50 per cent and saving an additional 2,000 tonnes of concrete. Incorporating the temporary crane supports into the permanent slab prevented the development of 32 temporary pallet foundations, further reducing costs.

By working to eliminate the amount of concrete wherever possible, WSP lowered carbon emissions during construction by 3,000 tonnes, and incorporating the crane foundations into the slab saved another 50 kilograms of emissions. The ability to focus carefully on designing key elements, such as the raft and superstructure slabs, as efficiently as possible helped the building's development reach total carbon emissions of just 219 kilograms of carbon emitted per meter squared for the structure, which is well below the 2030 goal of 228 kilograms of carbon emitted per meter squared, despite only needing to meet the more lenient 2020 goal. "This is a figure we're really proud of and is a joint effort from everyone that's been involved," said Kelham. 

## CUTTING TOOLS FOR ORTHOPAEDIC MEDICAL COMPONENTS

The proposed article illustrates Iscar's new solutions to contend with machining parts for the medical industry.

The medical industry specialises in producing a wide range of healthcare equipment. This equipment is intended for solving a broad spectrum of health protection problems and it contains numerous parts that vary in dimensions, accuracy, material, and shape complexity. To make these parts, the medical industry utilises diverse technological processes in which machining still plays an essential role. The general principles of machining healthcare equipment parts do not differ from similar parts of non-medical mechanisms. However, there are components that require intricate machining processes. These processes are challenging and require process planning, essential machinery, and selecting the right cutting tools. Cutting tool manufacturers contend with developing unique tools to assure effective productivity and profitability solutions for medical parts production.

Orthopaedic and dental surgery components are classic examples of complex parts with challenging machining processes. Typical implant materials such as titanium alloys, cobalt-chromium (CoCr) alloys, and stainless steel are difficult-to-cut. Many implants have a complex shape, which requires multi-axis machining. The implants and their respective parts are usually small in size and are characterised by stringent dimensional tolerances and excellent surface finish. Modern high-performance small to medium multitasking machines,

Swiss-type, and live-tooling lathes are the most efficient machining tools for cutting operations required for implant manufacturing. For maximising cutting output, machines require appropriate tools. When developing cutting tools for implant machining, tool manufacturers consider the mentioned features of the components to guarantee the right solution.

### Cutting tools are characterized by:

- Machining small-size and miniature parts in limited working spaces
- Main application groups ISO S and ISO M
- High accuracy and surface finish requirements.

Small tool diameters in rotating tools result in substantially increased rotary velocities. These tools must be balanced and possess a dynamic strength margin to perform effectively under high rotating speeds.

Cutting tool design engineers greatly impact new tool developments in the field. The latest products introduced by ISCAR contribute to learning the influence of the factors.

In cutting ISO S and ISO M materials, coolant supply is essential for achieving efficiency. The PICCOCUT line of miniature tools was developed specifically for machining small miniature parts. (Refer to figure 1)

This highly advanced product line was reinvented over time by a coolant-through-tool feature with pin-pointed emulsion directed at the cutting edge of the insert. PICCOCUT also features double-sided holders with internal coolant channels pinpointed to the cutting zone and holders with a user-friendly clamping mechanism, which ensures high stiffness clamping for improved cutting performance.

ISCAR also offers turning tools with ISO standard inserts intended for machining small-sized parts on Swiss-type and CNC lathes, and new square-shank holders for turning applications. (Refer to figure 2)

The holders have the SAFE-T-



Figure 1: Improved coolant supply raises the effectiveness of turning by miniature PICCOCUT tools



Figure 2: Robust design and high-pressure cooling option characterize SAFE-T-LOCK ISO-turning toolholders.





**Figure 3:** Assembled SUMOCHAM drills that mount carbide heads now have a 4.5 mm minimum diameter.



**Figure 4:** Applying small-in-diameter barrel-shaped endmills significantly reduces cycle time when machining the components of a knee prosthesis.



**Figure 5:** Compact MICRO 90 coolant-driven spindle is an effective tool to boost the rotational velocity of miniature cutting tools.

LOCK clamping mechanism which assures precise and extremely rigid insert mounting, and a high-pressure cooling option. This enables turning under high machining conditions while ensuring better productivity and prolonged tool life.

In parting, ISCAR realizes that narrow widths of cut contribute highly to cost savings. A new range of compact tools with SELF-GRIP inserts in widths of 0.6...1.2 mm enable slim cuts that save material waste when parting bars with diameters of up to 16 mm. The tools are suitable for machining narrow external grooves. These tools are intended for Swiss-type machines.

Small-sized solid carbide drills are common tools used for drilling orthopaedic components. Assembled drills with exchangeable carbide cutting heads provide cost benefits. However, the miniaturization of drill diameters makes the assembled concept difficult to implement and designing drills with heads in small-diameter ranges is not a simple task for design engineers. In recent years, the lower limit of the diameter range for ISCAR SUMOCHAM drills with interchangeable carbide heads was 6 mm. Lately, ISCAR's prolific design engineers have succeeded in reducing it to 4.5 mm. (Refer to figure 3)


This is a major step in the application field of cost-efficient assembled drills for the medical industry.

In theoretical terms, ball-nose milling cutters provide a point of contact with curve-based surfaces. These are the main tools for fine milling complex-shaped parts for high-surface finish. At the same time, generating high-quality surfaces by milling with ball-nose cutters requires diminishing the step size, which in turn increases cycle time. Applying barrel-shaped mills, also known as "segment mills", is an effective solution to overcome the mentioned obstacle, especially in five-axis profile machining of formed orthopaedic components. The latest evolution of multi-coordinate machine tools has expanded the boundaries of barrel-shaped milling. ISCAR added high precision "cutting

barrels" to the product range of solid carbide endmills (SCEM), indexable profile mills, and multi-master tools, the versatile family of assembled endmills that mount exchangeable carbide heads. These cutters are designed primarily for semi-finishing and finishing titanium, exotic superalloys, and austenitic stainless steel which are common materials in the medical industry. Barrel-shaped mills provide a much smoother surface and reduce the number of cuts while decreasing process time. ISCAR Miniature SCEM and Multi-Master endmills are highly effective for machining complicated orthopedic parts such as knee prosthesis components.

Milling, drilling, engraving, deburring, and other cutting operations performed by small-size rotary tools require considerable rotating velocity. This velocity grows substantially if high-speed machining (HSM) strategies are used. There are machine tools that do not enable boosting the rpm. ISCAR's new high-pressure coolant-driven MICRO 90 spindles

(Refer to figure 5) provide a winning solution. MICRO 90 spindles enable rotating velocities in the range of 35000-53000 rpm while the main machine spindle remains idle.

The medical industry is one of the rapidly growing branches of modern manufacturing which mainstreams new engineering materials such as composites and utilises new technologies such as 3D printing. Contemporary machining solutions relate not only to producing orthopaedic and dental components but also to medical instruments, parts of medical appliances, micromachined medical devices, and more. The emerging trends challenge the medical industry to seek solutions from other sources relevant to manufacturing medical products. Among the sources on which it relies are tool manufacturers, who remain focused on changing industry trends. As a result of realizing the ongoing changes, the tool manufacturer will be able to provide the ultimate solutions for machining complex medical components. 

## FRONTLINE AUTOMOBILE PLAYERS IN THE CAUSE FOR EFFICIENT URBAN LIFESTYLE

A look at how the frontline automobile brands are leading the path towards an efficient Urban Lifestyle and Urban Mobility

The adoption of electric vehicles (EV) and advancements in technology, artificial intelligence (AI), and the Internet of Things (IoT) has pushed car brands to develop 'Connected and Autonomous Vehicles' that MG Motor has pioneered in India. Since then, the journey of connected vehicles has picked up the pace and EVs are showing encouraging signs of adoption. Honourable Road Transport and Highways Minister Shri Nitin Gadkari outlined – more than 18 lakh electric vehicles have been registered in the country. This number is expected to grow almost three times to 50 lakh units by 2030. Electric Vehicles have been recognised as the preferred sustainable mobility platform to overcome metro cities' traffic woes and curb pollution to some extent. EVs will help India reach its 2070 zero carbon emission objective. To combat the climate crisis, accelerated EV adoption is crucial and will be a game changer in multiple ways and make the places we live in much healthier.

**The brands aiming to play their part in championing climate change action include:**

### MG MOTOR INDIA

MG has taken a long-term vision for future mobility, which they showcased at the just concluded Auto Expo 2023, themed on sustainable, conscious, and innovative technology as a part of its vision in India. The company displayed two technologically advanced, high-safety, and zero-emission electric vehicles (EVs) supporting its stance as an auto-tech brand through the show.

The two vehicles are the MG4, a pure-electric hatchback EV, and the MG EHS, a plug-in hybrid SUV. Both these vehicles underscore MG's commitment to strengthening EV adoption in the country. MG also showcased new energy vehicles (NEVs) with its third-generation hydrogen fuel cell technology - with EUNIQ 7, which not only has zero carbon emissions as it only emits water but also performs like an air purifier does, purifying air equivalent to 150 adults breathing





in just one hour of driving.

Earlier this year, the grand event of the G20 Summit in Indonesia witnessed Air EV, the first electric vehicle for the country, as an Official Car Partner. As many as 300 units of Air EVs were on the island of Bali, which welcomed the delegations of G20 members and international organisations.

### HOP ELECTRIC

HOP Electric, India's fast-growing electric two-wheeler company, showcased its high-speed electric motorcycle - HOP OXO, at the Hyderabad E-Motor Show organised by the State Government of Telangana at HITEX EXHIBITION CENTRE.

OXO is a game-changer in the motorcycle industry, combining sustainability, performance, and affordability in a sleek design. With its cutting-edge features, the e-bike will revolutionise the way people ride. The motorcycle has a top speed of 90 Kmph / 95 Kmph and a range of 135 km/150 Kms. It also has a voltage architecture of 72 V, a motor power (peak) of 5.2Kw / 6.2kw\*, and a max torque (at wheel) of 185 Nm / 200 Nm\*.

The motorcycle is equipped with a BLDC Hub motor, Sinusoidal FOC Vector Control, and riding modes including, Eco-Power-Sport and Reverse mode.

As part of the #OXOSNEAKPEEK program, HOP Electric completed 100,000 km of road testing across 14 Indian states. HOP OXO has been designed and developed indigenously in compliance with FAME II norms. The company gave pre-launch test rides of OXO at several dealership touchpoints in India.

Simultaneously, to address the charging infrastructure challenges and help overcome range anxiety, the company is strengthening the pilot HOP

Energy Network in Jaipur, which is being rolled out to other parts of the country.

### LOHUM CLEANTECH

Founded in 2018, Lohum Cleantech is India's biggest integrated lithium-ion battery manufacturer and recycler - a climate technology business working on strategies to hasten the world's switch to battery power. Lohum can recycle 100,000 battery packs and additionally accumulate 200,000 two-wheeler battery packs at the facility. By providing batteries with several lives and ensuring that essential raw materials for batteries survive forever, the brand intends to enable electricity in every corner of the globe. To reduce battery prices and enhance global energy security Lohum maximises circular sustainability across the supply chain with its battery reuse and


recycling capabilities. Lohum has been able to develop the technology and infrastructure necessary to produce, repurpose, and recycle Li-ion batteries with a 300 MWh annual capacity during the past three years.

### Revfin Services:

Revfin is an award-winning and innovative digital platform with a clear focus on financing commercial electric vehicles for individual drivers, helping in mass scale adoption of electric vehicles for passenger transportation, e-commerce, and cargo deliveries. The company provides loans to people at the bottom of the pyramid using revolutionary techniques like psychometrics, biometrics and gamification.

A typical Revfin customer lives in Tier 2 or 3 towns, has no credit history, a low level of education and no banking transactions. Revfin has recently raised its Series A round of funding worth \$10 million in a combination of equity and debt.

### ChargeEZ:

ChargeEZ is a firm with a sustainable vision that provides destination EV charging solutions. The brand's mission is to make EV charging easy and reliable to access for consumers and businesses. It envisions cities with efficient parking and charging solutions and vehicle users with no pain in finding the same. The brand has built an efficient platform that lets users navigate to the charging stations and utilise multiple offerings provided by them. With their partnership with the Lighthouse Mall Management, ChargeEZ has taken a step towards bringing the EV owners and their leisure closer and making the "charging" a bit "recharging." Through this, the brand aims to provide its users with an area to relax or be productive in the spaces they are offering. 



## STATEMENT OF OWNERSHIP

Statement about the ownership and other particulars about newspaper entitled THE MACHINIST as required to be published in the first issue of every year after the last day of February.

### FORM IV (See Rule 8)

1. Place of Publication: The Times of India Building  
Dr. D. N. Road, Fort, Mumbai 400 001
2. Periodicity: Monthly
3. Printer's name: Sunil Dad for the Proprietors, Worldwide Media Private Limited
- Nationality: Indian
- Address: The Times of India Building, Dr. D. N. Road, Fort, Mumbai 400 001
4. Publisher's name: Sunil Dad for the Proprietors, Worldwide Media Private Limited
- Nationality: Indian
- Address: The Times of India Building, Dr. D. N. Road, Fort, Mumbai 400 001
5. Editor's name: Rahul Kamat
- Nationality: Indian
- Address: The Times of India Building, Dr. D. N. Road, Fort, Mumbai 400 001
6. Names and addresses of individuals who own the newspaper and partners or shareholders holding more than one per cent of the total capital as on February 28, 2023 in the company-
- Worldwide Media Private Limited (Owner), The Times of India Building, Dr. D. N. Road, Mumbai 400 001
- Bennett, Coleman & Co. Limited (Shareholder holding more than 1% of total capital), The Times of India Building, Dr. D. N. Road, Mumbai 400 001

I, Sunil Dad, hereby declare that the particulars given above are true to the best of my knowledge and belief.

(Sunil Dad)

Date: March 1, 2023

Signature of the Publisher

## SEE HOW IGUS INCREASES THE SIMPLICITY OF LOW-COST AUTOMATION

igus is stepping up the pace of low-cost automation and making entry into automation easier and more affordable than ever before. The interaction of inexpensive hardware and digital innovation puts the future of automation within reach.

Here is some evidence for this: the ReBeLmini, a cobot for 3,999 euros and the RBTXperience software for easy commercial robot programming. The virtual iguversum offers the perfect playground to get robot applications and programming up and running with ease and then make them a reality.

The Hannover Messe is always an important meeting place for the latest developments in the industry. This year, too, igus presented digital products and solutions that help companies improve their products and cut costs. An example of low-cost automation: New cobots, software, and virtual parallel worlds ensure that even robotics novices can get started with inexpensive automation in a very short time. The hardware starting point is an igus plastic robot, such as the new ReBeLmini, a real plug-and-play cobot at a price of only 3,999 euros, including control software and power supply. This robot works with five axes, weighs 4kg, has a reach of 310mm, moves loads of up to 0.5kg, and achieves seven picks per minute with a repeatability of +/- 1mm. The ReBeLmini is particularly suitable for use in restricted space such as those in test automation or camera quality control, and can also be used overhead.

### Next-level engineering with digital tools

Newly developed igus digital tools help companies configure, integrate, and control their robotics hardware quickly and easily. According to the “Play before you pay” idea, the new RBTXperience software enables users to combine and test cameras, grippers, and robots, but also machine frames and conveyor belts, in with 3D model – as simply as in a computer game.

The components and superstructures can be dragged and dropped however the designer wishes, always with a compatibility guarantee and an instant price. CAD files can be downloaded to your planning software with a single click.

“At the start of the Hannover Messe, we will save to our database every automation solution configured in the online tool and make them available to other customers



as a design template. This gives us a huge design community,” says Alexander Mühlens, Head of Low-Cost Automation Business Unit at igus. More than 300 solutions are already available on the RBTX online marketplace as a source of inspiration for immediate imitation, 95 per cent of which have an investment cost of fewer than 12,000 euros.

But igus simplifies not only the configuration but also the control of Low-Cost Automation. igus offers intuitive software for defining ReBeL robot movement sequences within 30 to 60 minutes – even without programming knowledge. The new AnyApp software, presented at Hannover Messe 2023, allows this intuitive programming for other robots as well. AnyApp is particularly well-suited to companies that combine robots from different manufacturers into automation solutions but do not want to learn multiple control software packages.

### The iguversum

Another development step is the iguversum, which all experienced at the new “igus digital” stand in

Hall 17. Users from all over the world can interact and collaborate virtually on projects without being physically present. This not only saves time but is also more sustainable because there is no need to travel. The iguversum is a collaboration world and a digital tool that can support companies in all technical developments. Extended reality (XR) technologies such as virtual reality (VR) and augmented reality (AR) allow automation solutions to be planned, controlled and tested in virtual space. This enables employees to remotely access hazardous or awkward work environments without physically being on-site.

This allows companies the opportunity to make their working environment safer, generating greater employee satisfaction and motivation and making it easier to recruit new specialists.

“In the future, we will see how people work collaboratively in the metaverse and control robots remotely from virtual worlds. This will change the way we work together,” says Marco Thull, Senior Marketing Activist for igus GmbH.

## INVERTER TECHNOLOGY BY WERNER FINLEY

Werner Finley inverter technology is specifically developed to meet the requirements of today's industrial application; the inverter series offers lower-cost operation compared to traditional chillers by using only the necessary power. Our product design is based on customized units that have proven their performance in industrial applications all over the world. These machines can handle varying

cooling requirements thanks to the DC inverter technology. They are ideal for applications that witness large fluctuations in load throughout the day and/or different seasons and help save up to 30% energy consumption.

### Features

- Eco-friendly R410a refrigerant
- High-efficiency rotary/scroll compressors
- Condenser designed to operate up to 50°C ambient
- Insulated SS 304 reservoir

- All wetted parts are SS 304
  - Highly reliable global brand pumps
  - High-efficient SS 316 plate-type brazed heat exchanger
  - Packaged/ Bare with pump / Bare without pump configuration available
  - Intelligent controller with RS485
- At Werner Finley, the company firmly believe in securing the future with sustainable growth. We have proactively



phased out our CFC & HCFC-based refrigerants due to their hazardous impact on the environment. We understand our role in creating a safer, greener environment and strive to promote energy-effi-

cient solutions that benefit the industry and the world at large.

Established in 1986, Werner Finley is one of the few Indian companies to provide a wide range of ingenious, high-quality process cooling solutions for a wide range of applications and industries. Over three decades of service, experience, expertise and innovation later, Werner Finley, today is the leading manufacturer of process cooling systems in India with exports to the US, Europe, Asia and the Middle East with a large service network across the globe.

## THE NEW S100: THE PERFECT MACHINE FOR THE ENTRY-LEVEL SEGMENT

**H**igh-precision, flexible and reliable: With the new S100, STUDER presents the ideal universal internal cylindrical grinding machine for the entry-level segment. Its excellent price-performance ratio makes it the perfect machine for a wide range of internal grinding applications.

“The S100 internal grinding entry-level machine perfectly complements our comprehensive internal grinding portfolio”, explains CSO Sandro Bottazzo, when presenting the S100 at the BI-MU Exhibition for Machine Tools in Milan.

Like all STUDER cylindrical grinding machines, the S100 also has a machine bed made of Granitan®. Its outstanding dampening and thermal characteristics ensure consistently good grinding results and the renowned STUDER precision. During the development, special attention was given to a simple and efficient design of the components, making operation and maintenance easier for the operator. However, the equipment of the S100 also makes it suitable for grinding a universal spectrum of parts comprising geometrically defined basic forms and contours, which can be generated with interpolating axes.

### Flexible equipment

The machine can be equipped with up to two internal grinding spindles or one internal and one external spindle. In addition to a fixed wheel head, it can be equipped with a manual with a 2.5-degree Hirth and, in its optimum configuration, with an automatic wheel head with a 1-degree Hirth. A synchronous motor drives the grease-lubricated internal and external belt spindles. The machine is operated by the Fanuc Oi-TF PLUS controller, together with the proven STUDER operating system.

A further advantage of the S100 is the automation



collets for toolmaking, bearing rings, ball bearings and cylinders, as well as hydraulic control valves in small series. External and internal machining of flange parts or grinding of threads or non-circular forms is also possible.

The competent and reliable STUDER Customer Care is naturally also on hand to provide advice and technical support for the S100. A total of more than 200 specialists worldwide ensure

### Technical data of the S100 at a glance

- Max. workpiece length:** 550 mm (21.65 inches)
- Max. swing diameter:** 425 mm (16.73 inches)
- Max. internal grinding diameter:** 300 mm (11.8 inches)
- Max. diameter of internal grinding wheel:** 63 mm (2.48 inches)
- Internal grinding spindle speeds:** 20.000/40.000/60.000 rpm
- Max. diameter of external grinding wheel:** 400 x 40 x 127 mm (15.74 x 1.57 x 5.00 inches) F1N
- Work head:** Chuck work head ISO50/110 or chuck work head MT4/70
- Machine dimensions W x D x H:** approx. 3090 x 2090 x 1990 mm (121.65 x 82.28 x 78.34 inches)
- Machine weight:** approx. 4500 kg (9,920 lbs.)

option. On request, it can be equipped with a loading interface and an automatic sliding door, enabling automatic operation and the production of large series.

Typical workpieces for production on the S100 include

that the machine operates reliably and efficiently throughout its entire lifetime and fully satisfies all requirements. Customers can rely on the 110-year grinding tradition of the Swiss company, founded back in 1912.



# BESPOKE FIRE RESISTANT POLYMERS



As We get future ready for Electric Vehicles fire resistance for plastic components is gaining more attention.

We at APPL have just the right solution with Bespoke Fire-resistant Grades of Engineering Plastics and Thermoplastics Compounds.

Our High-performance FR Grades are made as per UL94 Flammability Ratings and Halogen free for certain applications.



# LMW's Repertoire of CNC Machines for Every Industry

**LR Series** **LTV Series**

**LL Series** **J Series**

**LX Series** **JV Series**

**Smart Series** **JH Series**

**VALVE** **PUMPS** **TEXTILE** **DIE MOLD / PATTERN**

**OIL & GAS** **GENERAL ENGINEERING** **AGRICULTURE**

**AUTOMOBILE**

**We offer Customised Turn key Solutions to meet your Requirements**

*and many more ...*

TURNING MILLING TURNMILL



FOLLOW US ON :

LMW CNC

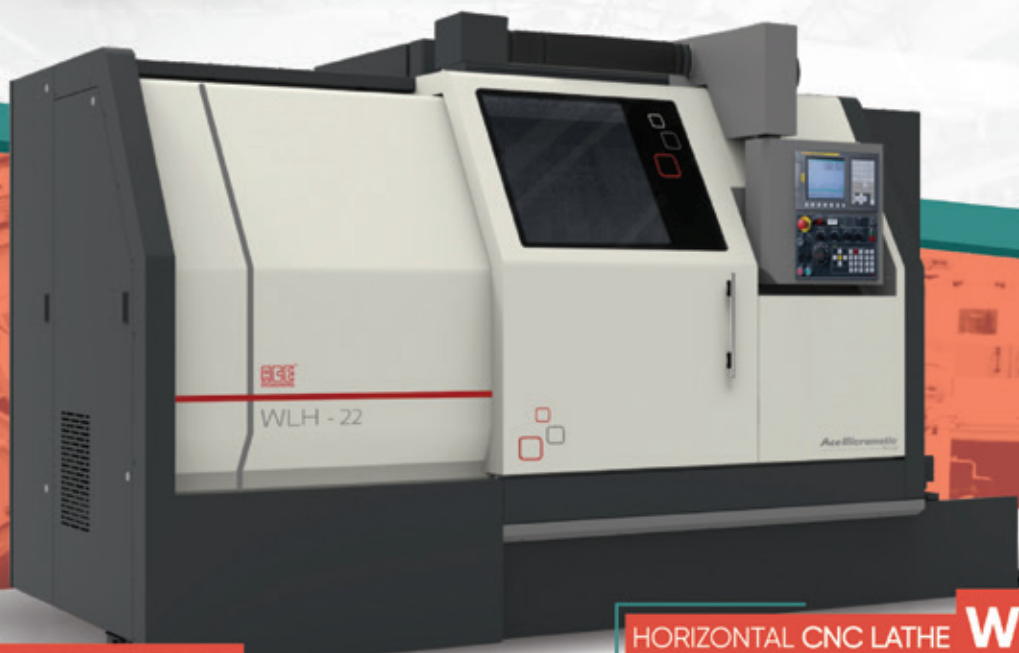
INTEGRATED SOLUTIONS

INDIA'S FINEST RANGE OF CNC MACHINES  
[www.lmwcnc.com](http://www.lmwcnc.com)





# ALLOY WHEEL TURNING



## FEATURES & SPECIFICATIONS

### CAPACITY

Swing over bed	Ø750 mm
Swing over carriage	Ø600 mm
Max. turning diameter *	Ø630 mm
Max. turning length #	350 mm

### HEADSTOCK



- Cartridge type spindle design for easy serviceability
- High power AC spindle motor

Spindle nose	A2-8
Max spindle speed	3000 rpm
Spindle motor power	30 kW (cont.) 37 kW (30mins.)

\* With appropriate workholding # Request machining range diagram

## HORIZONTAL CNC LATHE **WLH 22**

### AXES

- Hardened & ground box type guideways
  - High wear resistance
  - Easy maintenance
- Electro magnetic failsafe brake for X-axis

### TOOLING

- Servo turret delivers quick indexing
- Large size tool disc with large interference free zones

Max. no of tools	12
Max. boring bar diameter	Ø50 mm
OD turning tool size	25x25 mm

