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MODERN MANUFACTURING INDIA

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

IMTEX 2025
International Machine Tool & Manufacturing Technology Exhibition

Tooltech 2025
International Exhibition of Cutting Tools, Tooling Systems, Machine Tool Accessories, Metrology & CAD / CAM

23 - 29 January 2025 · BIEC, Bengaluru

A Spotlight On INDIA'S MANUFACTURING MARVELS

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INDIAN MANUFACTURING SECTOR POISED FOR GROWTH

RAJENDRA S RAJAMANE
PRESIDENT
IMTMA

I wish all the readers of Modern Manufacturing India (MMI) magazine a very happy and prosperous New Year 2025.

The Indian Machine Tool industry has been maintaining its growth momentum and Q3 and Q4 of the financial year 2024-25 are expected to be positive. Some of the core sectors such as Electronics Manufacturing including Cell Phone Manufacturing, Aerospace, Defence, Railways, etc., are making rapid strides. Recent growth in Defence exports, a surge in automobile manufacturing, and the production of new train coaches are poised to drive significant demand in the Machine Tool industry in the upcoming quarters. Additionally, the upcoming Union Budget and new Capital Goods policy are expected to provide a boost to manufacturing.

Industrial exhibitions always have had a favorable impact on the economy by being multipliers of business and employment, both direct and indirect. This edition of MMI covers various aspects of IMTEX 2025 - the largest Machine Tool and Manufacturing Technology Show.

The 21st edition of IMTEX along with concurrent shows, Tooltech and Digital Manufacturing, organized by Indian Machine Tool Manufacturers' Association (IMTMA), will be underway from January 23 – 29, 2025, at Bangalore International Exhibition Centre (BIEC) in Bengaluru.

IMTEX, as readers must be aware, was initiated in 1969 as a courageous attempt to showcase 'live' demonstration / display of machinery in working condition. Over several years, IMTEX has grown in size and stature to include various facets of manufacturing. Technologies and trends displayed at IMTEX enable manufacturers to stay updated and adopt best practices. Strategic alliances forged during the exhibition benefit industries and help optimize supply chain. IMTEX 2025 will host exhibitors from 23 countries, with Germany, Italy, Japan, Korea, Spain, Taiwan, and the USA having country-group pavilions. Over 2,000 trade delegations representing various industry sectors are expected to attend. I urge the manufacturing fraternity to block their calendar and visit the show.

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JIBAK DASGUPTA
DIRECTOR GENERAL & CEO
INDIAN MACHINE TOOL MANUFACTURERS' ASSOCIATION
BANGALORE INTERNATIONAL EXHIBITION CENTRE

Dear Readers,

As 2025 begins, we, at the Indian Machine Tool Manufacturers' Association (IMTMA), wish all readers of Modern Manufacturing India (MMI) magazine a very happy and prosperous New Year. This is a time for fresh beginnings, renewed energy, and hope to achieve some of our ambitious goals.

India's journey of economic growth has been remarkable, and we have established ourselves as a key player in the global manufacturing landscape. Manufacturing has been a cornerstone of this progress, with the Indian machine tool industry evolving to cater to the ever-changing needs of its customers.

Trade fairs play a crucial role in building this ecosystem, serving as platforms for stakeholders to converge, exchange knowledge, and showcase cutting-edge technologies. IMTEX, Tooltech & Digital Manufacturing 2025, scheduled at the Bangalore International Exhibition Centre (BIEC), Bengaluru, from January 23 to 29, 2025, will provide valuable insights into the future of manufacturing.

IMTMA strives to offer new experiences for national and international exhibitors, machine tool user industries, students, and all stakeholders, contributing to holistic industry growth. This edition of IMTEX stands as a testimony to the advancement in the machine tool domain, featuring a diverse mix of domestic and international players showcasing their enhanced capabilities.

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We encourage the Indian machine tool fraternity to design and develop machines with innovative features that align with international standards. Through the Design Award for the best-designed machine tool showcased during the exhibition, we aim to inspire our industry players to continue building superior products for existing and emerging sectors.

MMI serves as a comprehensive resource for readers, keeping them informed about the latest developments in manufacturing through success stories and insights. IMTMA, through this magazine, aims to bridge the gap between knowledge and action, enabling readers to make informed decisions that drive growth and excellence.

We urge our readers to provide feedback that will help us delve deeper and unlock possibilities for future excellence. I thank all our readers for being part of this journey and wish everyone a joyous reading experience and insightful discoveries in this New Year edition of MMI.

EDITORIAL

INDIA'S MANUFACTURING RENAISSANCE

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As connoisseurs of cutting-edge technologies, we can't help but marvel at the engineering miracles that are happening in such quick succession in our own premises. We are elated to witness our manufacturing sector surge and assert its significance on the global stage.

In a recent display of technological prowess, engineering capabilities and transformative innovations, the Indian Army showcased robotic MULE (Multi-Utility Legged Equipment) dogs, at the 77th Army Day parade in Pune. Armed with thermal cameras and 360-degree sensors, these AI-powered robotic mules can carry payloads of up to 12–15 kg and operate in extreme temperatures ranging from -40 (degree sign) to +55 (degree sign) C.

Engineered for critical tasks, these four-legged robotic systems are adaptable to steep and uneven terrain and can function with an operational range of 10 km via Wi-Fi and LTE, which makes these highly versatile for military applications.

This transformative innovation marks a significant advancement in the integration of Artificial Intelligence and robotics, setting a new standard for defence technology in India.

> *The only way to discover the limits of the possible is to go beyond them into the impossible.*
>
> **– Arthur C Clarke**

That it is now imperative that Indian players embrace disruptive technologies for boosting innovation and optimizing performance and efficiency will be one of the highlights at Indian Machine Tool Manufacturers' Association's (IMTMA) flagship machine tool and manufacturing technology show—IMTEX 2025 & Tooltech 2025. The event aims to converge global players and deliberate on building a roadmap for the holistic adoption of advanced technologies, helping manufacturing companies usher in progress and profitability.

The MMI team is supremely excited to be closely engaged with the trade fair of immense global significance.

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Indian Machine Tool Manufacturers' Association

NAVIGATING SHIFTS

Here's delving into key economic indicators and getting a comprehensive overview of the Indian machine tool sector's performance during the first half of FY25.

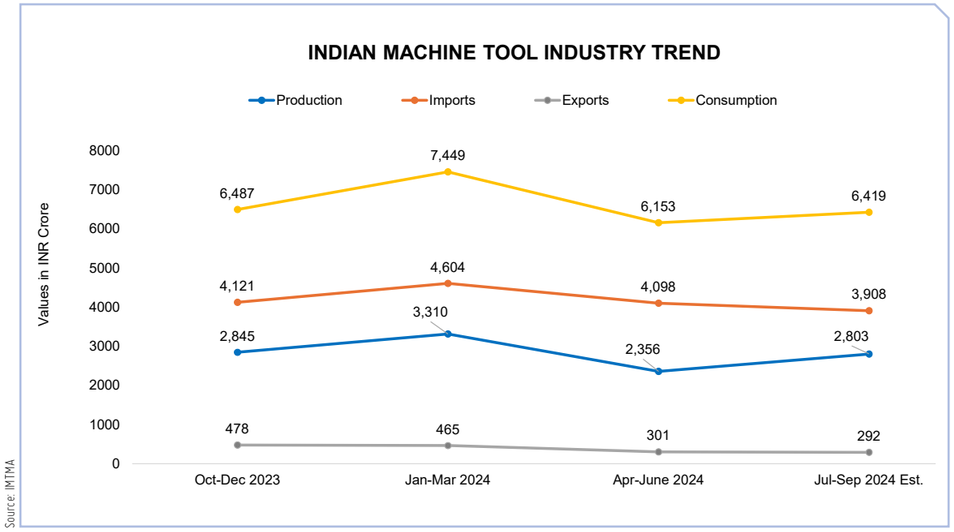


Table 1. Indian Machine Tool Industry Trend

In December 2024, Real GDP (Gross Domestic Product) and GVA (Gross Value Added) growth eased to a seven-quarter low of 5.4 percent and 5.6 percent, respectively, in Q2 FY25. The Manufacturing PMI (Purchasing Managers' Index) expanded at a slower pace of 56.5 while that the services PMI remained nearly stable at 58.4 in November 2024 as compared to their levels of 57.5 and 58.5, respectively, in October 2024. IIP (Index of Industrial Production) growth increased to 3.5 percent in October 2024, up from 3.1 percent in September 2024, driven by improved growth in manufacturing and electricity output.

Growth and Inflation Trends

On the inflation front, CPI (Consumer Price Index) inflation eased to 5.5 percent in November 2024 from 6.2 percent in October 2024 as vegetable prices eased, whereas core CPI inflation remained steady at 3.7 percent for the second successive month. WPI (Wholesale Price Index) inflation moderated to 1.9 percent in November 2024 from 2.4 percent in October 2024, primarily due to a sharp fall in vegetable inflation. The Monetary Policy Committee (MPC) chose to retain the repo rate at 6.5 percent in its December 2024 review.

Revenue and Expenditure Insights

During April-October FY2024, Government Tax Revenue (GTR) showed a growth of 10.8 percent with growth in direct taxes at 11.1 percent and that in indirect taxes at 9.0 percent. Total expenditure during the same period showed a low growth of 3.3 percent, with revenue expenditure growing by 8.7 percent and capital expenditure contracting by (-)14.7 percent. However, fiscal and revenue deficits stood at low levels of 46.5 percent and 52.2 percent as proportions of their annual Budget Estimates.

Trade Dynamics

In the external sector, merchandise exports turned negative at (-)4.8 percent in November 2024 from 17.2 percent in October 2024 partly attributable to easing global economic activity. While merchandise

Article source: Data & Policy Team, IMTMA

The Manufacturing PMI expanded at a slower pace of 56.5 while that the services PMI remained nearly stable at 58.4 in November 2024 as compared to their levels of 57.5 and 58.5, respectively, in October 2024.

imports surged to a 27-month high of 27.0 percent in December 2024 primarily due to a sharp increase in gold imports. The merchandise trade deficit surged to a historic high of US$ 37.8 billion in December 2024, and the average global crude price fell to US$ 72.3/bbl. in November 2024. The OECD (Organization for Economic Co-operation and Development) has projected global growth at 3.2 percent in 2024, with India's FY25 growth forecasted at 6.8 percent. IMF (The International Monetary Fund) is forecasting global growth at 3.2 percent and India's growth at 7.0 percent in 2024.

Production, Imports, and Exports Trends

Production for the April to September quarter of 2024 (H1FY25) increased by 6 percent year-on-year, reaching INR 5,159 Cr (US$ 617 million). Orders booked during the same period were INR 6,025 Cr (US$ 721 million) a decline of -13 percent. The industry's imports in H1FY25 is INR 8,006 Cr (US$ 958 million), an increase of 21 percent year-on-year. Machine tool exports during H1FY25 is INR 593 Cr (US$71 million) a decline of -17 percent. Consumption is estimated to have increased by 17 percent to reach INR 12,572 Cr (US$ 1,504 million) in H1FY25.

Total machine tool imports reported from April to November 2024 reached INR 11,004 Cr (US$ 1.3 billion), with 27,001 units of machines imported. China (27%), Japan (16%), and Germany (13%) emerged as the top countries for imports, contributing to 44 percent of the total machine tool imports. Presses (17%), Lathes (11%), and Cylindrical Grinding Machines (10%) were the top machinery types imported, valued at INR 4,240 Cr (US$ 506 million), constituting approximately 39 percent of total machine tool imports during the period.

Total machine tool exports from April to November 2024 amounted to INR 835 Cr (US$ 100 million), with 4,087 units exported. Lathes (21%), VMCs (15%), and Presses (8%) were the top three machinery types exported, valued at INR 373 Cr (US$ 45 million), constituting approximately 45 percent of total machine tool exports during the same period.

POWERED BY

Indian Machine Tool Manufacturers' Association

IMTEX, TOOLTECH & DIGITAL MANUFACTURING: PIONEERING INDUSTRIAL TRANSFORMATION

Over the years, IMTEX has rightfully earned a reputation for being the confluence of innovation, precision, and live demonstrations that define modern manufacturing. Anyone passionate about machine tools and closely following India's premier biennial exhibition on metal-cutting machine tools and manufacturing technology has had unique and enriching experiences.

Source: Magic Wand Media

IMTEX is where technology enthusiasts get to witness machine tool companies in their best avatar with the humming of machines shipped a fortnight ago, vying to grab a piece of the pie to keep their businesses ticking. For those familiar with a factory floor, it is an intense, immersive experience—a rare intersection of technology and aesthetics.

Undoubtedly, IMTEX is one of the world's top manufacturing shows renowned for its dynamic business environment. The power and appeal of IMTEX is universal, transcending several shores, as seen in every edition. Excited yet deliberate buyers make decisive purchasing decisions after witnessing live demonstrations of machines. This blend of innovation, precision, and courage to invest in advanced technologies allows machine tool companies to consistently redefine what they offer to end users.

IMTEX 2025, organized by Indian Machine Tool Manufacturers' Association (IMTMA), will once again happen at Bangalore International Exhibition Centre (BIEC) in Bengaluru, from January 23 to 29, 2025. The event aims to create an atmosphere for some trans-

Source: IMTMA

formative thinking and strategic business opportunities.

Pioneering Technologies: Shaping the Future of Manufacturing

Combining innovative design and production elements, exhibitors will showcase multi-tasking machines for the Defence and Aerospace sectors; high-speed machines and drill tap centers for Electronics Manufacturing, and metal additive manufacturing for Auto, Defence, and Aerospace sectors, and many other new-age technologies.

Also featured will be smart, high-precision, high-performance, hybrid and special purpose machines. Robots, cobots, AGVs, 3D printing, Industry 4.0, digital twins, advancements in tooling and measurement, and solutions for new products are also to be showcased.

Concurrent show, Tooltech will feature the latest advancements in cutting tools, tooling systems, machine tool accessories, metrology, and CAD/CAM technologies. Digital Manufacturing, also to be held concurrently, will have dedicated arenas to feature advancements in Industry 4.0 and additive manufacturing.

Parallel Events

Many events on the sidelines will make the exhibition even more meaningful this time.

'International Seminar on Machining Technologies' on January 24 - 25, 2025 will throw light on emerging technologies in metal cutting with global experts deliberating on innovations and best practices.

'Academia Pavilion' will feature around 30 institutions presenting innovative projects by the student community. **'Manufacturing Technology Quiz Contest'**, to be held on January 26, will be the highlight of **'i2 Academia Square'** which is expected to bridge the gap between academic and industrial circles.

'Engagement with Overseas Buyers Meet' on January 25 – 26, 2025, is being held with the aim to facilitate export opportunities and foster global partnerships.

'Jagruti-IMTMA Youth Programme' will introduce students to advancements in manufacturing technologies.

Co-organized by IMTMA and ACMA (Automotive Component Manufacturers Association of India), **Auto Components Industry Transformation Summit (January 26, 2025)** will focus on synergies between the Machine Tool and Auto Component industries.

Celebrating Excellence

Awards will be conferred to companies and individuals who have contributed to advancing manufacturing growth in India during IMTEX 2025:

IMTMA - Premier Outstanding Entrepreneur Award in memory of Vinod Doshi will be presented to an exemplary personality with an outstanding record of first-generation entrepreneurship in building machine tool companies in India.

IMTMA - Cooper Award for Outstanding Supply Chain Unit in Memory of Sir D.B. Cooper will be awarded to recognize and reward Indian-owned supply chain companies that have done outstanding work catering to the manufacturing requirements of machine tool companies (OEMs).

IMTMA Best Design Award will recognize and reward companies for their exemplary indigenously designed, developed, and manufactured products in metal-cutting technology (exhibited at IMTEX 2025 & Tooltech 2025).

IMTMA Export Performance Award in memory of Shailesh R Sheth will be rewarded to companies that have made significant achievements in exports of machine tools and related products manufactured in India.

Key Highlights

IMTEX, Tooltech & Digital Manufacturing 2025 is larger than all previous editions with eight halls and around 90,000 sq mt of space.

The event will host 1,100 exhibitors with live machines from 23 countries. Germany, Italy, Japan, Korea, Spain, Taiwan, and the United States of America have special pavilions. Trade delegations from various industry sectors are expected to turn up for the event, and overall, a footfall of around 1,00,000 business visitors is expected.

Bigger, Better and Bolder

Representatives from the global Machine Tools and Manufacturing industry will converge to witness cutting-edge technologies and trends at IMTEX 2025. Strategic alliances forged during the exhibition will benefit industries and supply chains and perhaps help reduce costs as it would enable manufacturers to promote homegrown technologies and remain competitive in business.

IMTEX 2025 will enable Indi an enterprises to expand their footprint, penetrate global mar kets, and work closely with international firms to redefine manufacturing activities in the years to come.

The last edition of IMTEX held in January 2023 attracted 96,000 visitors, generating orders worth around US$ 270 - 350 million and enquiries worth around US$ 3.9 billion as per the exchange rate in 2023. The current edition of the exhibition is expected to surpass these figures in all aspects.

IMTEX 2025 will enable Indian enterprises to expand their footprint, penetrate global markets, and work closely with international firms to redefine manufacturing activities in the years to come.

ACCELERATING INNOVATION AND NAVIGATING GENERATIVE AI

KPMG 2024 Industrial Manufacturing and Automotive CEO Outlook, based on the views of 240 leaders in the sectors, finds that CEOs are generally optimistic, with their eyes turning toward a growth agenda. The report explores that new technologies, including traditional and generative AI, hold enormous potential that could be integrated into Industry 4.0 approaches. An extract...

Source: KPMG International

The economic picture may be shadowed by uncertainty, but industrial manufacturing and automotive CEOs are sure that embracing innovative technologies including AI, and embedding them deeper into manufacturing and assembly processes — which are already transforming as Industry 4.0 takes hold — is a path towards future growth and productivity. Indeed, we see an interesting shift when comparing 2024's survey results to 2023, with a higher proportion of CEOs saying they are placing more capital investment in technology and fewer prioritizing investment in workforce skills and capabilities. This is especially the case for industrial manufacturing, with the balance

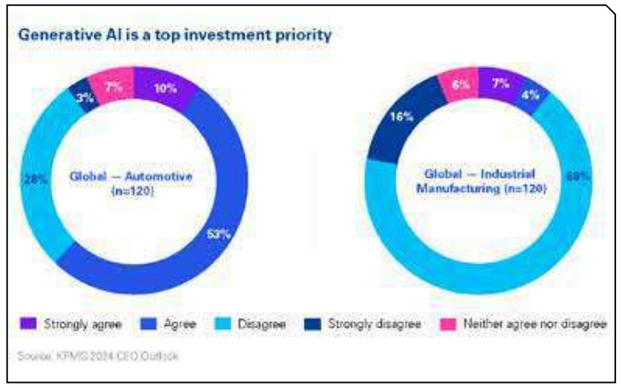
Source: KPMG International

Gen AI has certainly captured widespread boardroom attention across industries and sectors — and within Industrial Manufacturing and Automotive, it is a top investment priority for 37 percent of CEOs.

Source: KPMG International

"New technology including AI and Gen AI has huge and exciting potential for automotive — which is why it emerges as such a strategic priority. It is not only that it can be used for smarter production processes, better analytics, and predictive maintenance — the technologies emerging can revolutionize the relationship between the OEM and end customer. There is a huge opportunity to initiate greater dialogue with customers, creating new business models and income streams."

Dr Andreas Ries
Global Head of Automotive
KPMG International

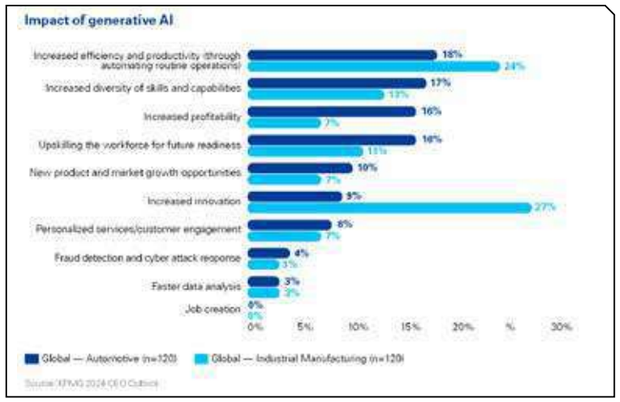


Source: KPMG International

more equal in automotive. Overall, the balance between the two sides of the technology/skills investment equation is 58-42 percent, compared to 55-45 percent in 2023. It will be interesting to see whether this is a trend that continues in future years.

Adopting Gen AI

Nevertheless, there is no doubt that CEOs realize AI can only have a full impact if staff are confident and enabled to use it. Investment in upskilling is therefore a key area as this is essential for unlocking the increased efficiency and productivity that CEOs anticipate being the biggest benefit of adopting new technologies like Gen AI.



Source: KPMG International

Gen AI has certainly captured widespread boardroom attention across industries and sectors — and within Industrial Manufacturing and Automotive, it is a top investment priority for 37 percent of CEOs. However, this is an area where we see some divergence between the two sectors, with Gen AI being a much bigger priority investment area for Automotive CEOs (63 percent) than in Industrial Manufacturing where the majority (68 percent) are neutral. In Automotive, implementing Gen AI also stands out as an operational priority to help achieve growth objectives over the next three years, much more so than in Industrial Manufacturing.

However, CEOs are entering into this with their eyes open and not expecting immediate returns. The great majority (65 percent) only expect to see ROI from Gen AI in a 3-5 year timeframe. They are also highly cognizant of the challenges and barriers involved with Gen AI such as ethics, regulation and costs, as referenced earlier. Two thirds of CEOs feel that regulation needs to move quickly to provide clarity, as a slow pace of regulatory progress will be a barrier to their organization's success. An even bigger proportion (73 percent)

On the positive side, 76 percent of CEOs agree that leadership has a clear view on how Gen AI will disrupt business models and create opportunities and 77 percent are clear on how it can help them create competitive advantage.

> "Industrial Manufacturing was early to the game with respect to AI. It has been in the DNA of manufacturers for some time. What's different now is the surge in advancements in the application of AI. And this is coming at a time when concurrently, manufacturers are grappling with economic uncertainty, talent shortages, cyber security threats, and supply chain pressure. Leaders must navigate all these complexities to help unlock the true value of their investments and drive transformative growth."
>
> **Claudia Saran**
> **Industrial Manufacturing Leader**
> **KPMG in the US**

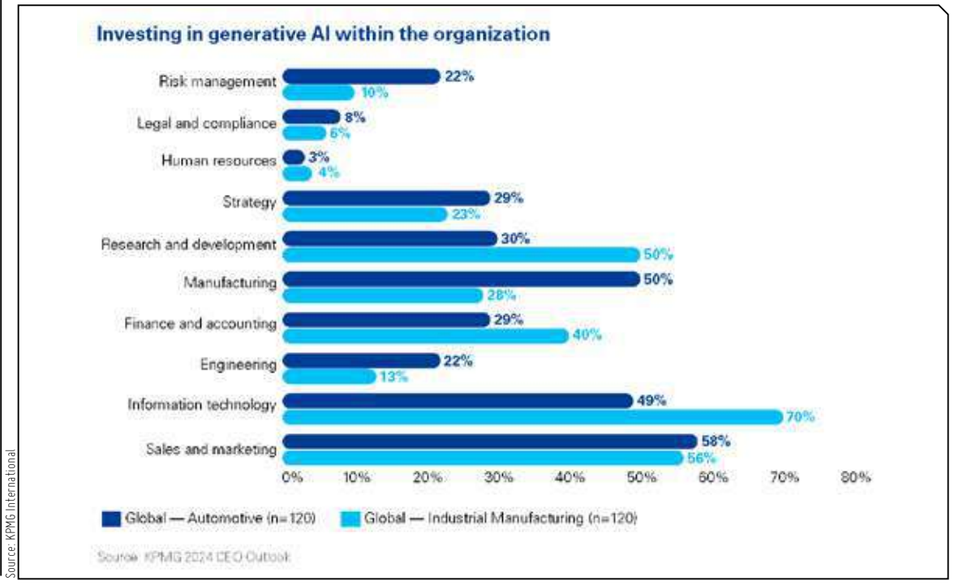
believe that the degree of AI regulation should be proportionate, mirroring that for climate commitments.

While in some respects CEOs feel that their organization is primed for AI adoption, in other ways there is much more to do. On the positive side, 76 percent of CEOs agree that leadership has a clear view on how Gen AI will disrupt business models and create opportunities and 77 percent are clear on how it can help them create competitive advantage. However, only 60 percent say they have robust governance frameworks in place, only 41 percent are confident that their staff have the right skills, and only four in ten say they have their data ready to integrate Gen AI safely and effectively.

Time to Appoint a Chief AI Officer?

The highest proportion of CEOs (60 percent) flag the IT function as the biggest area in their businesses for Gen AI adoption, but sales & marketing is not far behind (57 percent) while manufacturing is a key area for automotive specifically (50 percent), and research & development is seen as another domain ripe for its use (40 percent) — suggesting a wide range of potential use cases across the enterprise. Given all of these moving parts, a sound model for AI adoption based on trust, ethics, and governance is essential, as set out in KPMG's Trusted AI framework.

> "To really optimize the use of AI and new technology, industrial manufacturers need to combine what they do best (manufacture physical products) with what digital does best (collect real-time data and embed AI) to differentiate their products and gain a new competitive advantage. It will not be enough to add digital functionality to analog machines — a complete reimagination is needed."
>
> **Carmelo Mariano**
> **Industrial Manufacturing Leader**
> **KPMG in Italy**



Source: KPMG International

HOW CNC MACHINES ARE TRANSFORMING INDIAN MANUFACTURING

As industries strive for greater efficiency and quality, the adoption of Computer Numerical Control (CNC) technology is becoming essential. This transformation is not just about upgrading equipment; it's about redefining how products are made, and businesses operate.

Source: Magic Wand Media

CNC (Computer Numerical Control) machines are revolutionizing the manufacturing landscape in India. As industries seek to improve efficiency and product quality, the adoption of CNC technology is becoming essential for staying competitive.

The growing use of CNC machines across various industries, including Aerospace, Automotive, Electronics, and even smaller manufacturing units, highlights the shift towards advanced manufacturing processes. These machines allow for higher production efficiency, superior quality, and the ability to produce complex and precise parts, making them indispensable in today's fast-paced, globalized market.

Key Advantages of CNC Machines

Boosting Productivity

One of the most significant advantages of CNC machines is their ability to operate autonomously once programmed. Traditional manufacturing methods often require manual intervention at every step, which can slow down the production process. CNC machines, however, can run continuously without breaks, increasing output while maintaining consistent quality. This capability allows manufacturers to meet high demand without sacrificing precision or efficiency. In a country like India, where there is an ever-growing demand for goods, the speed and reliability of CNC machines are crucial in ensuring manufacturers stay competitive.

Ensuring Quality

The precision offered by CNC technology is another key benefit. Unlike manual methods, which are susceptible to human error, CNC machines are programmed to follow highly specific instructions, producing parts with exceptional accuracy. This is particularly crucial in industries like Aerospace and Automotive, where even minor deviations can lead to significant failures or safety issues. CNC machines deliver consistent results, ensuring that every product meets exact specifications. The result is improved product quality, fewer defects, and enhanced customer satisfaction, which is vital for gaining a competitive edge in the global market.

MASAYA TAKEDA
General Manager — CNC Systems
Mitsubishi Electric India

Cost Efficiency

While the initial investment in CNC technology can be substantial, the long-term benefits far outweigh the costs. By reducing the need for extensive manual labor, CNC machines lower operational costs and minimize human error. The efficiency gained from automation helps manufacturers achieve higher output without increasing labor costs. Also, the accuracy of CNC machines reduces the likelihood of defective parts, reducing waste and material costs. The cost savings gained through the use of CNC machines contribute to higher profitability, which is particularly important for businesses trying to navigate the competitive Indian market.

Improving Safety

Another significant benefit of CNC machines is their ability to improve workplace safety. Traditional manufacturing processes often require operators to work closely with heavy machinery, which can expose them to safety risks. CNC machines, however, can operate autonomously once set up, minimizing the need for human intervention on the shop floor. Fewer operators are required to oversee the machines, which reduces the potential for workplace accidents and injuries. This shift not only makes manufacturing safer but also improves worker morale and productivity, contributing to a more efficient work environment.

Flexibility in Production

CNC machines offer unmatched flexibility in production. One of the key features of CNC technology is the ability to reprogram the machines quickly to accommodate different tasks. This capability is essential for manufacturers who need to adapt to changing market demands or produce a variety of products without investing in multiple specialized machines. The flexibility of CNC machines enables businesses to pivot quickly, reducing downtime and improving overall production efficiency. For Indian manufacturers, this flexibility is especially important in an increasingly fast-changing market, where the ability to quickly scale production and customize products is a significant competitive advantage.

Manufacturers who adopt CNC technology will be better equipped to compete in an increasingly globalized market, driving India's manufacturing industry into the future.

The Role of Government Initiatives

The Indian Government's 'Make in India' initiative has been a catalyst in driving the adoption of CNC technology. Launched in 2014, the program aims to promote local manufacturing, reduce dependence on imports, and create jobs through the adoption of advanced technologies. By encouraging innovation and skill development, the initiative has helped create a favorable environment for businesses to leverage CNC technology. As manufacturers invest in CNC machines, they are not only improving efficiency but also contributing to the growth of India's Manufacturing sector, making it more self-reliant and globally competitive.

The 'Make in India' initiative also supports small and medium-sized enterprises (SMEs) by providing access to cutting-edge technologies, such as CNC machines, that were once only available to large corporations. This democratization of technology has enabled a wide range of businesses to improve their manufacturing capabilities, contributing to the overall growth of the sector.

Future of CNC Machining in India

Looking ahead, the future of CNC machining in India appears promising. With advancements in smart technologies such as the Internet of Things (IoT), artificial intelligence, and data analytics, the capabilities of CNC machines are set to expand even further. These technologies will allow for real-time monitoring and predictive maintenance, ensuring that machines run efficiently and are less prone to unexpected breakdowns. Manufacturers will be able to collect and analyze data on machine performance, allowing them to optimize production processes and reduce costs even further.

The demand for smaller, more intricate components continues to rise, especially in industries like Electronics and Aerospace. As products become more complex, the need for precision machining will only grow. CNC machines, with their unparalleled accuracy and versatility, are well-suited to meet this demand. Indian manufacturers are well-positioned to take advantage of these emerging trends and stay ahead of the competition by embracing the latest CNC technology.

CNC machines are not just tools for modernizing the manufacturing process—they are catalysts for change in India's Manufacturing sector. By enhancing productivity, ensuring high-quality standards, reducing operational costs, and improving workplace safety, CNC machines are reshaping how products are made and how businesses operate. With Government initiatives like 'Make in India' providing a favorable environment for innovation, the potential for growth and technological advancement in the Indian Manufacturing sector is vast. Manufacturers who adopt CNC technology will be better equipped to compete in an increasingly globalized market, driving India's Manufacturing industry into the future.

THE SENSAIBOX

SensAIbox is an innovative AI-driven solution that fills a gap in the market by combining hardware and software into a cohesive system. It not only reduces waste but also generates Environmental, Social, and Governance (ESG) reports and addresses the critical issue of sustainability and waste management across industries.

Source: Planet Computers Ltd

REJI VARGHESE
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Industries such as machine tool, precision engineering, smart building management, and agriculture face significant challenges in managing waste effectively, tracking resource utilization, and meeting sustainability goals. These sectors are often hindered by inefficiencies that lead to environmental and financial costs. SensAIbox, an innovative new product, integrates artificial intelligence (AI), advanced sensors, and machine learning (ML) to offer real-time insights and actionable recommendations for waste reduction.

Its features include monitoring tool conditions, tracking power consumption, and analyzing environmental data to improve operations.

By providing immediate feedback to operators, it empowers users to enhance productivity and minimize downtime. Additionally, its robust data security measures and wireless connectivity ensure seamless and secure deployment across various industries.

This innovative device fills a gap in the market by combining hardware and software into a cohesive system that not only reduces waste but also generates Environmental, Social, and Governance (ESG) reports. By targeting high-impact industries, SensAIbox contributes to sustainability while providing businesses with measurable improvements in operational efficiency and cost savings, positioning itself as a vital tool for the future of sustainable industry practices.

SensAIbox integrates physics and predictive AI to optimize CNC machining by combining the precision of physical modeling with the adaptability of artificial intelligence. Leveraging AI physics principles, it uses ML to simulate and predict machining dynamics, such as tool wear, vibration, and thermal effects, ensuring real-time process optimization.

Physics-inspired algorithms model interactions between materials and cutting tools, enabling SensAIbox to adaptively adjust machining parameters for enhanced precision, efficiency, and reduced waste. This fusion not only accelerates decision-making but also aligns CNC operations with physical laws, delivering innovations in manufacturing quality and productivity.

The Founders

SensAIbox was developed by Marcus Taylor and Brian Tan. Taylor specializes in scaling businesses, innovation, and disruptive technologies across industries like IoT, Agritech, AI and Big Data. He has previously launched successful ventures like Planet Computers Ltd and Silent Sensors Ltd, raised substantial grants, and transformed Erlang Solutions Ltd into a multi-million-pound enterprise through strategic leadership and key partnerships.

Tan is an IT executive with over 38 years of expertise in digital transformation across Asia Pacific. With leadership experience at KPMG and multinational startups, he excels in leveraging technology for growth. A Computer Science graduate, Tan is passionate about guiding digital transformations.

SensAIBox for CNC Machines

SensAIbox offers several key components that can be fitted to any CNC machine, enhancing its capabilities for waste reduction, efficiency, and sustainability.

AI-Driven Waste Reduction System

- Advanced AI algorithms analyze real-time production data to identify and minimize waste in metal removal machining processes.
- Provides actionable recommendations for reducing material consumption and optimizing production parameters.

Instrumented Fixture Monitoring

- Monitors tool conditions to maximize utilization and minimize downtime.
- Enables enhanced training for new operators and provides real-time feedback for experienced ones.

Marcus Taylor, Chief Executive Officer, SensAI, says, “SensAI represents a paradigm shift in how industries approach sustainability. We are not just offering a product, we’re providing a solution that transforms waste into opportunity, turning environmental challenges into competitive advantages.”

By providing immediate feedback to operators, SensAIbox empowers users to enhance productivity and minimize downtime. Additionally, its robust data security measures and wireless connectivity ensure seamless and secure deployment across various industries.

> "SensAI represents a paradigm shift in how industries approach sustainability. We are not just offering a product, we're providing a solution that transforms waste into opportunity, turning environmental challenges into competitive advantages."
>
> **Marcus Taylor**
> **Chief Executive Officer**
> **SensAI**

This innovative device fills a gap in the market by combining hardware and software into a cohesive system that not only reduces waste but also generates Environmental, Social, and Governance (ESG) reports.

Data Security
- Incorporates a robust crypto algorithm to ensure data integrity and privacy.
- Safeguards critical production and operational data.

Wireless Connectivity
- Supports Wi-Fi and 4G/5G/6G connectivity for seamless integration across various locations.
- Ensures uninterrupted monitoring and data collection.

Power Consumption and Carbon Monitoring
- Tracks power usage to facilitate carbon footprint monitoring.
- Addresses legal requirements and creates opportunities for sustainability metrics.

Machine Learning for Continuous Improvement
- Embedded machine learning algorithms adapt to the specific CNC machine's environment.
- Continuously refines algorithms to deliver increasingly effective waste reduction and sustainability strategies over time.

Operator Feedback System
- Provides instant feedback to operators through a display dashboard, an app, and a haptic feedback system on a wrist-worn device.
- Simulates fixture vibrations, enabling operators to react promptly to changing tool conditions and maintain optimal performance.

By integrating these components, SensAIbox transforms standard CNC machines into smart, efficient, and environmentally conscious production units, offering significant benefits in waste reduction, operational efficiency, and sustainability reporting.

SensAIbox is an innovative system designed to optimize CNC machining processes through real-time monitoring and AI-driven adjustments.

System Operation

The system operates in several key stages:

Calibration and Data Collection

The process begins with the user creating calibration sets for a specific material. These sets involve making square cuts at various depths and speeds, collecting data on cutting parameters and resulting surface finishes. During this calibration, acoustic and vibration signals are captured using microphone and vibration sensors placed inside the CNC cabin and on the spindle, respectively. This data forms the AI training set, establishing baseline signals for ideal cutting conditions.

Real-Time Monitoring and Analysis

Once calibrated, SensAIbox continuously monitors the machining process in real time. The system compares current acoustic and vibration signals to the baseline data, detecting any significant deviations that might indicate issues with the cutting process. This constant comparison allows for immediate identification of anomalies in tool performance or cutting parameters.

Intelligent Adjustments and Optimization

The heart of SensAIbox is its advanced AI algorithm, the Entropy-Controlled Adaptive Chaos Fusion Model (ECA-CFM). This model performs several crucial functions:

- It calculates real-time entropy deviations from baseline data to detect anomalies.
- It identifies chaotic patterns and adjusts milling parameters to restore stability.
- It employs predictive maintenance to anticipate tool and machine failures.
- It continuously learns and adapts through a dynamic feedback loop.

> "What sets SensAIbox apart is its ability to bridge the gap between sustainability goals and operational realities. We're empowering businesses to make data-driven decisions that not only reduce waste but also enhance productivity and profitability."
>
> **Bryan Tan**
> **Senior Vice President**
> **Business Development**
> **SensAI**

When deviations are detected, SensAIbox can trigger alerts for tool inspection or dynamically adjust the G-code to optimize cutting parameters. This real-time optimization helps extend tool life, reduce material waste, and improve overall machining efficiency

Differences Between the SensAIbox and Generative AI

The key difference between SensAIbox's approach and generative AI lies in their focus and application. SensAIbox uses physics-based predictive AI to model, simulate, and optimize real-world processes like CNC machining by adhering to physical laws and real-time system dynamics.

Generative AI, on the other hand, focuses on creating new data or content, such as images, text, or designs, by learning patterns in existing data without necessarily incorporating physical constraints or real-world process modeling.

While predictive AI in SensAIbox ensures precision and operational efficiency, generative AI excels in creative tasks and innovation without the strict requirements of physical accuracy.

SensAIbox's approach differs from traditional IoT and AI implementations by CNC machine manufacturers in its integration of physics-based modeling with predictive AI for real-time optimization. While CNC manufacturers often use IoT for monitoring machine performance and AI for analyzing collected data to predict maintenance needs or optimize workflows, these systems primarily rely on historical and sensor data.

In contrast, SensAIbox combines this data with physics-inspired algorithms to simulate and predict machining dynamics, such as forces, vibrations, and thermal behaviors, enabling more precise control and optimization of machining parameters during operation. This deeper fusion of AI with physical laws goes beyond diagnostics and monitoring, actively enhancing machining performance in real-time.

Unique Features Of SensAIbox

- *Physics-Driven Predictive AI:* Combines real-time physical modeling with AI to optimize CNC machining parameters dynamically.
- *Enhanced Precision and Efficiency:* Adapts machining processes using simulations of forces, vibrations, and thermal dynamics.
- *Real-Time Optimization:* Continuously adjusts operations for reduced waste, improved accuracy, and better productivity.
- *Beyond Monitoring:* Moves beyond IoT-based diagnostics by actively enhancing performance rather than just tracking machine health.
- *Interdisciplinary Innovation:* Leverages AI physics to align manufacturing processes with fundamental physical laws.
- *Versatility:* Can integrate with existing CNC setups, offering immediate operational improvements without extensive modifications.

Bryan Tan, Senior Vice President, Business Development, SensAI, says, "What sets SensAIbox apart is its ability to bridge the gap between sustainability goals and operational realities. We're empowering businesses to make data-driven decisions that not only reduce waste but also enhance productivity and profitability."

By targeting high-impact industries, SensAIbox contributes to sustainability while providing businesses with measurable improvements in operational efficiency and cost savings, positioning itself as a vital tool for the future of sustainable industry practices.

Tech Talks is a column by industry veteran and journalist Reji Varghese that talks about the latest advancements in Machine Tools, provides snippets from history, interesting facts, etc. about the Machine Tool industry.

A Spotlight On INDIA'S MANUFACTURING MARVELS

IMTEX 2025, Tooltech 2025 & Digital Manufacturing 2025, to be held at Bangalore International Exhibition Centre (BIEC) from January 23 - 29, 2025, will serve as a premier platform for industry leaders and technology enthusiasts from across the world to gather and experience the latest developments in the machine tool industry. The event will also highlight India's manufacturing ecosystem which is experiencing transformative growth and is at the forefront of manufacturing excellence.

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"The machine tool industry while continuing its significant work with the automobile sector is expanding its footprint to serve some of the other strategic and emerging sectors like defence & aerospace, renewable energy, railways, medical devices, EVs, electronics, construction equipment, agriculture machinery etc. Many of these industries will be visiting IMTEX 2025 which will open up new prospects for the machine tool industry."

Rajendra S Rajamane
President
Indian Machine Tool Manufacturers' Association

IMTEX 2025 is being hailed as largest edition in the history of the trade event. The exhibition, to be held in an exhibition space of 90,000 sq mt across 8 halls, will host 1,100 exhibitors from 23 countries and feature live demonstrations of machines, new product launches, and live technology displays related to machine tools and digital manufacturing. Countries such as Germany, Italy, Japan, Korea, Spain, Taiwan, and the USA are participating with dedicated pavilions showcasing their technological expertise. Trade delegations from various industry sectors are expected to turn up for the event, and overall, a footfall of around 1,00,000 business visitors is expected.

Commenting on the opportunities to be explored at IMTEX 2025, Rajendra S Rajamane, President, IMTMA said, "The machine tool industry while continuing its significant work with the automobile sector is expanding its footprint to serve some of the other strategic and emerging sectors like defence & aerospace, renewable energy, railways, medical devices, EVs, electronics, construction equipment, agriculture machinery etc. Many of these industries will be visiting IMTEX 2025 which will open up new prospects for the machine tool industry."

Speaking about the enthusiasm and anticipation surrounding IMTEX 2025, Jibak Dasgupta, Director General & CEO, IMTMA said, "Exhibitors and visitors are excited to explore new opportunities, foster global collaborations, and propel manufacturing to new heights."

Key Features of IMTEX 2025

- **Tooltech:** Serving as a dedicated space for exploring innovation in tool technology, the concurrent event will have its focus on tools, dies, and accessories.
- **Digital Manufacturing:** The event will be highlighting

IMTEX 2025, to be held in an exhibition space of 90,000 sq mt across 8 halls, will host 1,100 exhibitors from 23 countries and feature live demonstrations of machines, new product launches, and live technology displays related to machine tools and digital man ufacturing.

"IMTMA strives to offer new experiences for national and international exhibitors, machine tool user industries, students, and all stakeholders, contributing to holistic industry growth. This edition of IMTEX stands as a testimony to the advancement in the machine tool domain, featuring a diverse mix of domestic and international players showcasing their enhanced capabilities."

Jibak Dasgupta
Director General & CEO
Indian Machine Tool Manufacturers' Association and
Bangalore International Exhibition Centre

> "India is on its way to becoming a manufacturing powerhouse for the world. At IMTEX 2025, a diverse range of high-precision and high-productivity tools is being displayed, which will contribute significantly to the sector's development."
>
> **Kazuo Yuhara**
> **President**
> **Japan Machine Tool Builders' Association (JMTBA)**

Industry 4.0 solutions, from smart factories to additive manufacturing, and providing an insight into the future of automation, robotics, etc.

- **i2 Academia Square:** Serving as a platform for students from leading institutions to present their research projects, the initiative aims to bridge the gap between the academia and industry.
- **Manufacturing Technology Quiz Contest (January 26):** The quiz contest will test student's knowledge of manufacturing processes and concepts.
- **IMTMA Lakshya Exports and Engagement with Overseas Buyers (January 25-26):** IMTMA is organizing this event for the first time alongside IMTEX 2025 at Hall 3C in BIEC. The two-day meet will comprise one-to-one 'B-2-B' engagements between IMTMA members and esteemed invitees, interactive sessions with IMTMA office bearers and guided visits to exhibition stands at IMTEX 2025. Overseas buyers from Egypt, Indonesia, Russia, South Korea, UAE, and Vietnam, amongst others are expended to attend this programme.
- **Jagruti-IMTMA Youth Programme:** Hosted by IMTMA with the aim to inspire the next generation of engineers and manufacturing professionals, the initiative will offer students a chance to explore the latest advancements in the industry and keep them abreast of emerging technologies and trends.

Countries such as Germany, Italy, Japan, Korea, Spain, Taiwan, and the USA are participating with dedicated pavilions showcasing their technological expertise.

Added Attractions

- **International Seminar on Machining Technologies (January 24-25):** The seminar will feature global experts deliberating on the latest trends in metal cutting and machining innovations.
- **Auto Components Industry Transformation Summit (26 January):** As global automo-

> "IMTEX 2025 & Tooltech 2025 is an excellent platform for intensifying collaboration with the Indian industry and our Indian customers. This includes selling machines as well as entering into cooperations."
>
> **Klaus-Peter Kuhnmünch**
> **Manager General Affairs**
> **German Machine Tool Builders' Association (VDW)**

"We hope that the exhibition will be a great success, attracting many high-quality Indian buyers to visit the Korean Pavilion for discussions and paving the way for tangible business opportunities."

Jai Hun Park
President
Korea Machine Tool Manufacturers' Association (KOMMA)

From traditional machines to cutting-edge CNC and digital solutions, the exhibition will showcase the full spectrum of technologies, driving quality, precision, and efficiency across sectors such as automotive, aerospace, electronics, defence, and many more.

tive trends shift towards electrification and smart manufacturing, 'Auto Components Industry Transformation Summit', jointly organized by ACMA Mobility Foundation and Indian Machine Tool Manufacturers' Association (IMTMA), provides a timely platform for the Auto industry players to align their strategies with future demands.

As the manufacturing sector continues to evolve, IMTEX 2025 stands as a testament to India's growing capabilities in advanced manufacturing. From traditional machines to cutting-edge CNC and digital solutions, the exhibition will showcase the full spectrum of technologies driving quality, precision, and efficiency across sectors such as automotive, aerospace, electronics, defence, and many more.

International Associations Endorse IMTEX's Global Significance

IMTEX, one of the largest trade fairs in the world for metal cutting and forming technologies, has earned its position as a pivotal platform for the global manufacturing industry. It is no surprise, then, that key international associations have consistently taken part in IMTEX and acknowledge it as an unparalleled opportunity to strengthen their ties with the thriving Indian market. Their participation is not only a testament to India's growing influence in the manufacturing sector but also an acknowledgment of IMTEX as a cornerstone for driving collaborations, business growth, and innovation on a global scale.

Germany's Enduring Partnership with IMTEX

Klaus-Peter Kuhnmünch, Manager General Affairs, German Machine Tool Builders' Association (VDW), underscored the association's longstanding relationship with IMTEX, "VDW has been participating in IMTEX regularly since the late 1990s, initially in New Delhi and Bombay," he stated.
He praised IMTEX for fostering collaborations and professional dialogues, stating, "IMTEX 2025

"IMTEX is the most significant machine tool show in India. We expect a vibrant meeting point to share information, proposals, and opportunities."

José Pérez Berdud
President
AFM Cluster

"IMTEX plays a very important role for our enterprises, for which this exhibition is the first and primary marketing tool, especially in distant areas and countries."

Riccardo Rosa
President
UCIMU-SISTEMI PER PRODURRE and UCIMU Foundation

'IMTMA Lakshya Exports and Engagement with Overseas Buyers' on January 25-26 has been organized for the first time. Overseas buyers from Egypt, Indonesia, Russia, South Korea, UAE, and Vietnam, among others, are expended to attend this program.

& Tooltech 2025 is an excellent platform for intensifying collaboration with the Indian industry and our Indian customers. This includes selling machines as well as entering into cooperations."

India has long been an important and large market for the German machine tool industry. "We are convinced that the Indian market will become even more important for our sector. The Indian economy is currently growing much stronger than most other countries," he noted.

Japan's Strong Ties with Indian Manufacturing

Kazuo Yuhara, President, Japan Machine Tool Builders' Association (JMTBA), is highly optimistic about the Indian Manufacturing industry's potential to become a global hub, driven by the Indian government's 'Make in India' initiative. According to him, IMTEX 2025 & Tooltech 2025 is a pivotal platform to showcase advanced machinery and equipment, fostering growth and unveiling latent demand in the Indian market.

"India is on its way to becoming a manufacturing powerhouse for the world. At IMTEX 2025, a diverse range of high-precision and high-productivity tools is being displayed, which will contribute significantly to the sector's development," said Yuhara.

The event is an ideal showcase for cutting-edge technologies and facilitates connections with professional buyers in the Indian market. "Through their expertise and networks, we aim to gain momentum in establishing a stronger presence in India," he added, reflecting Japan's commitment to deepening its engagement with Indian manufacturing.

IMTEX Aligns with Korea's Market Entry Strategies

Jai Hun Park, President of the Korea Machine Tool Manufacturers' Association (KOMMA), sees IMTEX as an important bridge between the manufacturing industries of Korea and India. "We hope that the exhibition will be a great success, attracting

"Tradefairs such as IMTEX have highlighted a strong interest in exploring the latest advancements in manufacturing solutions, while also providing a platform for networking with industry leaders and peers."

Doug Woods
President
AMT – The Association for Manufacturing Technology

Source: Magic Wand Media

With a population of nearly 1.4 billion, the Indian market presents vast potential, attracting investors eager to expand their presence in India and collaborate with innovative Indian manufacturing technology companies to drive business growth on a global scale.

many high-quality Indian buyers to visit the Korean Pavilion for discussions and paving the way for tangible business opportunities," he remarked.

Park highlighted that IMTEX aligns with Korea's market entry strategies and India's manufacturing development policies, offering a unique opportunity for collaboration and growth.

Acknowledging India's Industrial Strength

José Pérez Berdud, President, AFM Cluster and CEO of a leading manufacturing entity, echoed similar sentiments, describing IMTEX as the most significant machine tool show in India. "We expect a vibrant meeting point to share information, proposals, and opportunities," he said.

Pérez Berdud acknowledged India's industrial strength, citing its numerous production hubs and key sectoral projects. "AFM Cluster companies have long experience in the country, understanding customers' culture and adapting our solutions to their concrete needs," he added, emphasizing the importance of the trade fair in deepening partnerships with Indian companies.

IMTEX Important for Italian Enterprises

For Italy, IMTEX serves as a vital export platform for its machine tool manufacturing industry, represented by UCIMU-SISTEMI PER PRODURRE. "IMTEX plays a very important role for our enterprises, for which this exhibition is the first and primary marketing tool, especially in distant areas and countries," stated Riccardo Rosa, President, UCIMU-SISTEMI PER PRODURRE and UCIMU Foundation.

He highlighted the Italian Exhibitors' Collective organized by the ICE-Italian Trade Agency, comprising 12 companies participating under the delegation from Italy. Rosa noted, "At a trade show as lively and vibrant as IMTEX, companies have a chance to meet customers and potential partners for collaborations and activities of common interest."

Indian Market Presents Vast Potential

Doug Woods, President, AMT – The Association for Manufacturing Technology, reflected on IMTEX's transformative role in advancing manufacturing technologies. "These events have highlighted a strong interest in exploring the latest advancements in manufacturing solutions, while also providing a platform for networking with industry leaders and peers," he stated.

Woods highlighted India's immense market potential, noting, "With a population of nearly 1.4 billion, the Indian market presents vast potential, attracting investors eager to expand their presence in India and collaborate with innovative Indian manufacturing technology companies to drive business growth on a global scale."

He also shared that more than 40 AMT member companies are participating in IMTEX 2025, with about a dozen exhibiting in the AMT USA Pavilion located in Hall 1B.

IMTEX's Global Appeal

The voices of these leading international associations underscore IMTEX's pivotal role in the global manufacturing landscape, serving as a catalyst for collaboration, innovation, and growth within India's burgeoning industrial sector. The trade fair has solidified its position in the global manufacturing arena, providing a premier platform for showcasing cutting-edge machine tool and manufacturing technologies. The upcoming IMTEX 2025 is poised to continue this legacy. The expansive participation from 23 countries underscores IMTEX's significance as a hub for international industry leaders to converge, exchange ideas, and foster collaborations that drive innovation and growth in the manufacturing sector.

Ace Designers Ltd – Turning Centre Division

CNC PRECISION LINEAR CHUCKER LATHE

ACE DESIGNERS JOINS THE GEAR MANUFACTURING

Source: Ace Designers Ltd

Ace Designers is the largest producer of CNC machines in India. It has an installed base of more than 80,000 machines globally. The company has a right range of high-volume products and complete basket of appropriate products for multiple segments. It has created a huge infrastructure to address needs of large volume products and low volume special requirements. Ace Designers' focus has always been to fill up the gaps felt by customer in different market segments and also on timely introduction of products to satisfy the perceived product configuration and technology needs.

For decades, Ace Designers has been synonymous with innovation in CNC Turning solutions, producing high-performance CNC lathes, Turn-Mills and Tooled up solutions. At IMTEX 25, the brand is taking a significant leap forward by unveiling two cutting-edge machines – APS 300 Power Skiving Machine and WM 40100 Worm Milling Machine – offering solutions for the gear manufacturing domain.

Leveraging Legacy for a New Era

This transition reflects Ace Designers' philosophy of continuous innovation and customer integration. Drawing from its vast experience in building large CNC machines, Ace Designers has extended its engineering excellence into the gear segment to meet growing customer productivity demands.

APS 300 Power Skiving Machine: Redefining Gear Manufacturing

Designed for internal gear manufacturing, this machine combines shaping and milling principles with high-speed machining advantages. It delivers precision, efficiency, and versatility, making it ideal for volume production.

- **Enhanced Capability:** Supports modules up to 3 mm with a swivelling cutter spindle angle of ±30° (manual setting), providing unparalleled flexibility for diverse applications.
- **Precision and Speed:** Combines shaping and milling principles with high-speed machining to deliver exceptional accuracy and reduced cycle times.

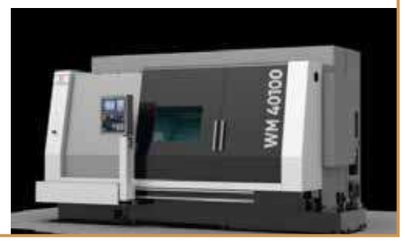
WM 40100 Worm Milling Machine: Precision for High-Module Worms

Tailored for worm shaft production, this machine offers advanced capabilities for high-module threads. It ensures synchronous operation between the cutter and workpiece, enabling the efficient production of complex profiles with exceptional accuracy.

- **Wide Machining Range:** Capable of performing worm milling on shafts up to 400 mm in diameter. It can also be used for form milling Spur and helical gears of large modules.
- **High Module Capability:** Supports modules up to 6mm in a single pass, ensuring efficiency for larger thread profiles. Higher modules (up to 25) can also be cut with multiple passes.
- **Flexible Cutter Orientation:** Offers a cutter orientation angle of -30° to +210° (horizontal), enabling versatility across applications.
- **Robust Design:** Built to handle demanding operations with stability, ensuring precision and reliability for heavy-duty applications.

Driving Value with Customer-Centric Solutions

By leveraging its proven expertise and robust technology base, Ace Designers not only delivers innovative products but also reinforces its commitment to empowering customers with reliable, high-quality, and cost-effective solutions, along with a comprehensive range of turning machines.



Ace Designers Ltd – Turning Centre Division
www.acemicromatic.net
Hall & Stall: 5/B–109

Addison & Co., Ltd

Source: Addison & Co., Ltd

Addison & Co., Ltd
www.addison.co.in
Hall & Stall: 4A / B-114

MACHINE TOOLS

TOOLS FOR A CHANGING WORLD

With over 150 years of legacy and more than 65 years of tooling expertise, Addison is a trusted name in delivering high-quality, precision-engineered tools to industries worldwide. The company's diverse product portfolio is designed to meet the demands of modern machining, offering superior performance, reliability, and longevity.

Product Range:

- **Cutting Tools:** HSS and carbide drills, end mills, reamers, and taps for efficient and precise machining.
- **Gear Cutting Tools:** High-performance hobs and broaches for accurate gear manufacturing and shaping.
- **Threading Solutions:** A comprehensive range of hand taps, machine taps, form taps, and specialized threading tools.
- **Specialized Tools:** Carbide-tipped tools, annular cutters, masonry drills, and SDS hammers for challenging applications.
- **Custom Tools:** Tailored solutions for unique machining needs, ensuring optimal performance in specialized tasks.

Addison tools are trusted across industries such as Automotive, Aerospace, Energy, Heavy Engineering, and Manufacturing. The company is renowned for combining innovation with sustainability to deliver tools that enhance productivity, reduce costs, and adhere to the highest quality standards.

Bharat Fritz Werner Ltd

Source: Bharat Fritz Werner Ltd

ADVANCED VERTICAL TURNING LATHES

BFW'S BVL 800ML: ADVANCED VERTICAL TURNING LATHE WITH MILLING CAPABILITY

The BVL 800ML from Bharat Fritz Werner (BFW) is the ideal solution for all one's milling and turning requirements. This cutting-edge machine integrates powerful milling and turning functions in one versatile package, designed to tackle even the most demanding heavy-duty tasks with ease.

- **Powerful Spindle Performance:** The BVL 800ML is equipped with a robust 30/37 kW spindle, capable of handling high-performance machining, ensuring precise results even in the most challenging conditions.
- **Integrated Milling Head & ATC:** The machine features a highly efficient Milling Head with a BT-50 taper and 11 kW continuous power, making it the perfect solution for heavy-duty live tool operations. The Automatic Tool Changer (ATC) streamlines the workflow, enhancing productivity with quick tool changes.
- **Hydraulic Chuck Compatibility:** With support for a hydraulic chuck, the BVL 800ML can handle workpieces with a diameter range of 630 mm to 800 mm, allowing for flexible turning applications that meet your specific needs.

Bharat Fritz Werner Ltd
Hall & Stall: 2/A-102
www.bfwindia.com

Lakshmi Machine Works Ltd

Source: Lakshmi Machine Works Ltd

Lakshmi Machine Works Ltd
www.lmwcnc.com
Hall & Stall: 5/A-108

VERTICAL MACHINING CENTERS

JV 150 HEAVY-DUTY VERTICAL MACHINING CENTER

The JV 150 from Lakshmi Machine Works Ltd (LMW) is a large and rigid vertical machining center that delivers accuracy and fine finish. It has stroke capabilities of 1,550 mm on the X-axis, 760 mm on the Y-axis and 760 mm on the Z-axis. The sturdy design provides a spacious 1,700 mm x 700 mm table, perfect for machining larger workpieces.

It boasts spindle power ranging from 11 to 18.5 kW, with spindle speed up to 10,000 rpm. The machine features a direct drive BT 40 spindle (BBT 40 spindle as optional).

In addition, the JV 150 is equipped with a 24-tool ARM type automatic tool changer (ATC) that facilitates rapid and efficient tool changes, taking 2 sec. The machines feature precision linear motion roller guideways on the X, Y and Z axes, ensuring accuracy and stability during operation.

The machine is highly versatile and caters to major industries like Foundry & Forging, Die & Mold, Pumps & Valves, Oil & Gas, Automobile, General Engineering, etc.

SPHOORTI Machine Tools Pvt Ltd

ANGULAR MILLING HEADS

ANGULAR MILLING HEAD FROM SPHOORTI

Source: SPHOORTI Machine Tools Pvt Ltd

SPHOORTI Machine Tools Pvt Ltd
www.sphoorti.com
Hall & Stall: 4/A-134

SPHOORTI Angular Milling Head is specially designed for CNC Machining Centers. It performs challenging operations on standard horizontal or vertical machines without any jigs and fixtures. It enhances machining capabilities by offering innovative solutions that boost productivity and minimize machine downtime. It can be integrated seamlessly with both manual and automatic tool changers.

Features of SPHOORTI Angular Milling Head

- **Exceptional Strength and Precision:** The mill heads feature high-quality precision bearings and superior bevel gears, ensuring excellent performance in cantilever machining tasks.
- **Advanced Bearing Support:** The spindle is supported by preloaded angular contact ball bearings for enhanced durability and reliability.
- **Superior Heat Dissipation:** Efficient heat management makes it ideal for prolonged high-speed operations.
- Available in standard and custom configurations, it is built for optimized milling tasks. It enhances the versatility of machining centers by enabling vertical, horizontal, and angular operations without any set-up change.

The Milling Head's key advantages include high power, accuracy, and rigidity. It is suitable for milling, drilling, and tapping applications. With a Torque rating of up to 25 Nm, Gear ratios available up to 1:2, and Spindle speeds up to 6,000 RPM, SPHOORTI Angular Milling Head is compatible with most automatic tool changers.

Jyoti CNC Automation Ltd

VERTICAL MACHINING CENTERS

THE ERGONOMICALLY DESIGNED VMC 1580

The VMC 1580 features a unique T-Base construction, which ensures optimal surface quality during demanding cutting conditions and prevents overhang issues for heavy workpieces on the table. Its triangular saddle and stepped bed, with widely spaced guideways, enhance structural stability for the entire Y-axis movement. The broad column construction—extending up to 50 percent of the column height—offers better stability during extreme Z-axis strokes. A one-sided slope allows for efficient and easy free fall of chips into the conveyor.

An optional BT-50 spindle with high torque capacity supports the heavy machining of injection molds, forging dies, and large plates. The VMC 1580's wide working area and ergonomic design are notable features, with a 90° tilting operating panel that enables operators to view the machine area easily while working.

In addition, TPM-friendly units that require regular checking like pneumatics, electrical panel, and lubrication are conveniently located for easy maintenance at the rear side of the machine well within the reach of the operator.

High-speed, high-torque motorized spindles with 12,000/15,000/18,000 rpm options are available. These spindles are manufactured in-house for high-speed machining. The peak speed for such spindles reaches in just 2.5 seconds, with a deceleration time of only 2 seconds.

For maximum flexibility, an optional 4th and 5th-axis table with a high-resolution feedback system can be used to avoid multiple set-ups and do multiple side machining in a single set-up to reduce the overall cycle time. Additionally, a wide selection of tool and surface-sensing probes as tool and job probes with infrared/radio/laser transmission technologies are available to increase productivity and reduce non-cutting time. The Gear Box option with auto shifting mechanism is also available for special applications requiring high cutting torque at lower rpm for harder materials.

Source: Jyoti CNC Automation Ltd

Jyoti CNC Automation Ltd
Hall & Stall: 5/A-122
www.jyoti.co.in

NN Combined Engineering Agencies Pvt Ltd

GROOVING TOOLS

NEW TOOLS FOR DEEP AXIAL GROOVING FROM HORN

The new Mini 114 system from Horn enables a face grooving depth of up to 10 mm. The Tübingen-based tool manufacturer is thus further expanding the already wide variety of this product family. The insert is suitable for turning and copy turning of axial grooves. The user does not need a special tool holder, as the insert is compatible with the existing axial holder system. As standard, Horn offers the EG55 carbide grade grooving tools in three different types from stock with cutting widths of 2 mm, 2.5 mm and 3 mm. The minimum diameter for grooving is 14 mm, while the maximum is 34 mm to 36 mm, depending on the type.

The face-screwed inserts of the Mini system are one of Horn's core products. The tool system is suitable for turning and milling applications. The precision tools have proven particularly effective for boring, internal grooving, and face grooving. Paired with the low-vibration carbide tool holders, the inserts produce a superior surface finish even with long overhangs and ensure excellent process reliability. The Mini system's broad portfolio offers inserts in various sizes for different internal diameters as well as different geometries and substrates and CBN or diamond tips.

Source: HORN/NNCEA

As standard, Horn offers axial grooving tools in three different types in carbide grade EG55.

NN Combined Engineering Agencies Pvt Ltd | www.nncea.com | Hall & Stall: 2B/A-114

CERATIZIT India Pvt Ltd

MILLING CUTTERS

NEW S-CUT MILLING CUTTERS FROM CERATIZIT

Source: CERATIZIT India Pvt Ltd

99 percent reprocessed raw material makes CT-GS20Y the most sustainable carbide grade currently available from CERATIZIT.

The S-Cut UNI and S-Cut UNImax from CERATIZIT is a tool series that easily meets every requirement. The latest geometry and coating technologies, combined with the company's carbide grade CT-GS20Y, offer unbeatable sustainability.
Machining a wide variety of materials means constantly adapting to new challenges. The solution takes the form of universal milling cutters that can cope with steels, stainless steels, and cast materials in equal measure. Alongside the targeted process efficiency, the aspect of sustainability is increasingly growing in importance. CERATIZIT shows how the two objectives can be reconciled with the new milling cutters from the universal solid carbide milling cutter series S-Cut. The milling cutters are manufactured from a particularly sustainable carbide, which CERATIZIT calls upGRADE.

Full Performance from 99% Reprocessed Raw Material

The upGRADE CT-GS20Y grade is the ideal choice for a wide range of applications. What's special about it is the significantly smaller carbon footprint generated during production, compared to carbides from conventional production achieved by using 99 percent reprocessed cutting tools as a raw material. Due to a specific product carbon footprint (PCF), customers can enjoy both economic and ecological advantages.
The test results of the new series underline its potential. The new S-Cut milling cutters deliver up to 30 percent higher performance compared to other universal tools. The newly developed coating, which brings with it additional performance and tool life reserves, further contributes to this.

New S-Cut UNI and S-Cut UNImax Power Milling Cutters

With the new S-Cut series, CERATIZIT has developed its most powerful tool for universal milling, packed with everything that modern milling cutters need – including CT-GS20Y, the company's most sustainable carbide grade to date. The variable helix pitch ensures extremely quiet running and optimum chip removal. The S-Cut UNI has an HB shank for perfect force transmission, while the reinforced tool core ensures even force distribution throughout the milling process.
To guarantee unbeatable cutting-edge stability, the milling cutter has been given a radial clearance face. The face finishing chamfer promises top surface quality with base machining, while cutting edges with an irregular pitch specifically suppress vibrations. Ramping milling and helical milling are possible up to an angle of 30°. Thanks to the impressive milling acoustics of the S-Cut UNI (even with high infeed values and full-face milling), the machine room is never too noisy.
The S-Cut UNI with a cutting-edge length of 3xDC is particularly suitable for series production and trochoidal machining. Innovative chip breakers in a radial design deliver the longest possible tool life and break the chips to a length of 1xD. These are then evenly and consistently removed due to the special shape of the chip space. Thanks to the minimal conical tool core, the 5-edge cutter runs very quietly even with a high lateral width of cut.
When it comes to maximum material removal rates, the S-Cut UNImax is the ideal solution. A special geometry design has been selected for this purpose – and is perfectly suited for depths of cut of up to 2xDC. The tool is available with HA and HB shanks for unbeatable force transmission and balance qualities. With the variable tool core, optimum force distribution is the key focus.

Data Matrix Code Has All the Details

All tools in the series bear a laser-applied Data Matrix Code (DMC), which can be used to call up the data of the 'digital twin'. This DMC contains all the information needed. Once scanned, the tool can be correctly identified and its relevant technical data displayed. The customer can also see whether the tool is new or reconditioned and how often it has already been sent to the company for regrinding. There is also a link to the online shop to make reordering quick and easy. CERATIZIT will be expanding the DMC functions in the future to deliver an even more comprehensive service.

CERATIZIT India Pvt Ltd | www.ceratizit.com | Hall & Stall: 3A/B-110

Eppinger Tooling Asia Pvt. Ltd.

Source: Eppinger Tooling Asia Pvt. Ltd.

Eppinger Tooling Asia Pvt. Ltd.
www.eppinger.de
Hall & Stall: 3A/B-111

CNC ROTARY TABLES

HIGH SPEED HIGH PRECISION CNC ROTARY TABLES

This new and innovative EPPINGER Rotary Tables with integrated angle sensor deliver exceptional indexing accuracy of ±5", ensuring precise and consistent positioning for complex machining operations.
Designed for high rigidity and performance, these Rotary Tables incorporate advanced multi disc clamping technology which provides very high clamping torque with which one can work giving higher cutting loads. The optimal gear ratio provides high speed rotation of the Rotary Table which enables quick indexing and reduces the cycle time. Its robust construction ensures exceptional stability and reliability during high-speed or high-torque operations, making it ideal for industries such as aerospace, automotive, medical, precision manufacturing etc.
Compatible with all CNC machines as a standard 4th Axis, it can be used for continuous interpolation jobs apart from any angle precision positioning. This Rotary Table supports universal mounting i.e. both horizontal and vertical mounting configurations for maximum versatility. The symmetricity in design and precision machining enables the same Rotary Table to be mounted as left motor mounting, right motor mounting, top motor mounting and even horizontal mounting.
With its cutting-edge performance and precision, the new CNC Rotary Table is a game-changer for manufacturers seeking superior machining accuracy and reliability.

Meiban Engineering Technologies Pvt Ltd

Source: Meiban Engineering Technologies Pvt Ltd

Meiban Engineering Technologies Pvt Ltd
http://www.meibanengg.com
Hall & Stall: 5/B-105

TWIN-SPINDLE TURNING MACHINES

TWIN SPINDLE TWIN GANTRY CNC CHUCKER MW80HGT

Murata Machinery, Ltd (Muratec)'s MW80HGT is a compact twin-spindle turning machine featuring a gang tooling (linear) concept. The machine offers high precision with a direct spindle drive construction and is ideal for hard part turning with short cycle times. This small yet powerful machine comes equipped with a 6" chuck and can accommodate up to four gang tools.
The MW80HGT has a spindle power of 7.5 kW and can achieve speeds of up to 6,000 RPM. It is capable of turning parts with diameters up to 80 mm and lengths of up to 50 mm.
Linear tooling eliminates turret indexing time, significantly reducing cycle times. Both swivel and horizontal-type loaders are available.
With a standard loading/unloading time as low as 2.9 seconds, the MW80HGT is an optimal solution for high-speed turning and simple parts such as small bearings, rings, gears, and hard part turning. Common applications include bearing outer and inner rings, differential pinion and side gears, compressor wheels, and more. The machine can be supplied with either single or twin gantry loaders.
Muratec is a global leader in providing fully integrated, built-in automation solutions for a wide range of applications.

EMAG India Pvt Ltd

GRINDING MACHINES

WPG 7 CNC FROM EMAG WEISS

Source: EMAG India Pvt Ltd

The small 'easy to set up machine' has a footprint of just 1.8 x 2.4 m.

In many areas of application, it is uneconomical to use oversized universal cylindrical grinding machines for the external machining of smaller components - a lot of floor space is lost and the functionality is not fully utilized. With the new WPG 7 CNC external grinding machine, EMAG Weiss demonstrates another way of grinding workpieces with a maximum length of 250 mm. The very small machine requires only a minimal footprint, but at the same time features a whole range of high-tech components for flexibility and productivity.

If one wants to finish small and medium-sized components, they may not need a large grinding machine, is the simple credo of EMAG Weiss with regard to the WPG 7 CNC. The purely external cylindrical grinding machine fits on two Euro pallets and can be easily transported to its location by crane as an easy to set up machine. The grinding process can then be started immediately - without compromising on quality or process reliability, as the WPG 7 CNC has negligible heat build-up thanks to its rigid design. In addition, high-precision in-process measurement with proven Marposs technology, which works independently of the cycle time during the machining process, is available as an option.

Dialog Interface Ensures Productivity

Straight or angled external grinding wheels are used, which have a maximum diameter of 500 mm, and can of course also be profiled depending on the task. Conversely, this means that it is not possible to integrate an internal grinding wheel and there is no B-axis for swiveling the headstock. Instead, the rest of the WPG 7 CNC is a state-of-the-art solution including highly dynamic axes, a powerful and controllable grinding wheel drive and a workhead with stationary or live center (MK4/MK5 or W20/W25). The graphical dialog interface of the control panel is also important for the productivity of the solution. It is based on a Fanuc control system and considerably simplifies the input of technology parameters for certain cycles. The basic version of the control already includes all common grinding cycles.

Last but not least, many users are interested in the fact that EMAG Weiss offers this solution with automatic or manual loading. Many individual linkages can also be implemented around the machine because the specialists have developed their own linear gantry for the WPG 7 CNC, which is virtually integrated into the housing. It first removes the raw parts from an approximately two-meter-long chain conveyor belt, and then feeds them into the work area from the side at high speed. Once the process is complete, the finished parts are returned to the conveyor belt via a gantry. The whole process is controlled simply by a machine panel.

Already Used Extensively

Under these overall conditions, the WPG 7 CNC is an ideal solution for purely external grinding processes on smaller components with a maximum length of 250 mm and a maximum weight of 30 kg. Thanks to the existing automation solution, medium quantities can also be completed at high speed. Dynamic axes and drives ensure fast grinding processes, and the intuitive dialog control ensures uncomplicated changeover processes. Current market successes show that this approach may interest many users since the machine is in frequent demand at EMAG Weiss and has a proven track record.

EMAG India Pvt Ltd | Hall & Stall: 4/B-119
https://www.emag.com/company/events-webinars/events/visit-emag-at-imtex/

HELPING UNLOCK TRADE OPPORTUNITIES

Shradha Suri Marwah, President, Auto Component Manufacturers Association, and CMD, Subros Ltd, in this insightful interview with MMI's Editor-in-Chief Soumi Mitra, highlights the holistic approach India must resort to for establishing itself a global manufacturing hub, the association's critical role in boosting our auto components export, and also the significance of holding the ACMA conference during IMTEX 2025.

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As India aims to become a US$ 1 trillion manufacturing market, what key factors will determine its competitiveness on the global stage?

India's aspiration to become a US$ 1 trillion manufacturing market hinges on key enablers that will shape its global competitiveness. Leveraging its inherent cost advantages—such as affordable labor and abundant raw materials, India must position itself as an attractive destination for foreign investment. Equally critical is a steadfast focus on quality, with manufacturers adopting advanced systems to meet stringent global standards and build customer confidence.

Government initiatives like 'Make in India' and the Production Linked Incentive (PLI) schemes continue to play a pivotal role in creating a robust ecosystem for local manufacturing. However, competitiveness on the global stage requires more than policy support. Indian manufacturers must prioritize technological advancements, and supply chain optimization to enhance productivity and resilience.

A holistic approach—combining cost efficiency, quality assurance, innovation, and policy support—will not only boost exports but also drive job creation and sustained economic growth. By capitalizing on these factors, India can firmly establish itself as a global manufacturing hub.

Source: ACMA

Shradha Suri Marwah, President, Auto Component Manufacturers Association (ACMA) and Chairperson & Managing Director, Subros Ltd

Could you please share how ACMA supports the growth of India's auto component exports and facilitates international trade opportunities for manufacturers? ACMA has partnerships with international organizations. How do these collaborations help Indian manufacturers compete globally?

ACMA is dedicated to boosting India's auto component exports and unlocking global trade opportunities for manufacturers. We actively support our members through initiatives like global trade shows, reverse buyer-seller meets, and market access programs, ensuring their strong presence in key international markets.

Our partnerships with renowned global organizations play a vital role in this effort. These collaborations help Indian manufacturers adopt best practices, embrace advanced technologies, and meet international quality benchmarks. By staying attuned to global market trends and compliance requirements, we empower our members to enhance their competitiveness and build lasting trust with global customers.

India's Auto Component industry stands out for its innovation, dependability, and sustainable practices. ACMA's efforts continue to position India as a preferred destination for high-quality automotive components, reinforcing our commitment to driving growth and excellence on the global stage.

> "India's Auto Component industry stands out for its innovation, dependability, and sustainable practices. ACMA's efforts continue to position India as a preferred destination for high-quality automotive components, reinforcing our commitment to driving growth and excellence on the global stage."
>
> **Shradha Suri Marwah**
> **President**
> **Auto Component Manufacturers Association**
> **CMD**
> **Subros Ltd**

How has the performance of India's auto component exports been in recent years? Which regions or markets are the primary destinations? What factors are driving the growth of India's exports in automotive components?

India's auto component exports have demonstrated remarkable growth, rising by 5.5 percent to US$ 21.2 billion in FY 2023-24. This progress reflects the sector's resilience and increasing global competitiveness. North America and Europe remain the primary export destinations, collectively accounting for over 65 percent of exports. Notably, exports to Europe grew by 12 percent, while North America recorded a 4.5 percent increase, underscoring the strong demand in these regions.

Several factors drive this growth. Indian manufacturers have prioritized localization, technological innovation, and the development of higher value-added components, enabling them to meet evolving global standards. These efforts, combined with a robust domestic manufacturing base and a thriving aftermarket, have strengthened India's position in the global supply chain.

Despite challenges such as rising logistics costs and geopolitical uncertainties, the sector's focus on quality and innovation con-

Competitiveness on the global stage requires more than policy support. Indian manufacturers must prioritize technological advancements, and supply chain optimization to enhance productivity and resilience.

> "Indian machine tool builders are rising to meet the dynamic needs of the Auto Component sector with remarkable agility. By adopting advanced technologies like automation, precision machining, and solutions tailored for EV components, they're providing innovative, high-performance machinery."

Shradha Suri Marwah
President
Auto Component Manufacturers Association
CMD
Subros Ltd

tinues to fuel its momentum. The commitment to excellence and adaptability ensures that Indian auto component manufacturers remain key players on the international stage.

How well are Indian machine tool builders equipped to cater to the evolving needs of the Auto Component sector?

Indian machine tool builders are rising to meet the dynamic needs of the Auto Component sector with remarkable agility. By adopting advanced technologies like automation, precision machining, and solutions tailored for EV components, they are providing innovative, high-performance machinery. This evolution positions them as not just domestic suppliers but also strong contenders on the global stage.

The emphasis on efficiency and quality has helped these manufacturers drive productivity gains while staying cost competitive. Government initiatives such as 'Make in India' have further catalyzed investment and innovation, enabling machine tool builders to keep pace with changing market requirements. Today, they are playing a pivotal role in strengthening India's automotive value chain, delivering solutions that align with the sector's rapid transformation.

With Bharat Mobility Global Expo establishing itself as a key platform for global automotive and mobility players, how does ACMA plan to leverage the 2025 edition of the event to strengthen its position in the mobility value chain?

ACMA views the Bharat Mobility Global Expo 2025 as a pivotal opportunity to strengthen its role in the evolving mobility value chain. The expo provides a platform to showcase India's prowess in automotive manufacturing and emerging technologies, with a focus on sustainable and electric mobility solutions. By bringing together leading OEMs, component manufacturers, and global stakeholders, ACMA aims to foster meaningful collaborations and partnerships that drive innovation and growth.

This event is not just about highlighting products; it's about positioning India as a global hub for cutting-edge automotive solutions. Through dialogues on green technologies and future-ready strategies, we will underscore our commitment to sustainability and innovation. For ACMA, the expo is a chance to cement its role as a key enabler for the industry, helping Indian manufacturers explore new markets, expand their global footprint, and build lasting synergies within the mobility ecosystem.

Kindly run through the significance of holding the ACMA conference during IMTEX 2025 at Bangalore International Exhibition Centre.

The ACMA conference at IMTEX 2025, to be hosted at the Bangalore International Exhibition Centre, is a pivotal forum for shaping the future of India's Automotive Component Manufacturing sector. Held alongside IMTEX, a premier exhibition of advanced machining technologies, the conference focuses on addressing industry challenges and fostering the adoption of innovative and sustainable machining practices.

The event features a keynote that explores India's growing influence in the global automotive component market, providing invaluable insights to industry stakeholders. A panel discussion with renowned leaders further delves into strategies for achieving global quality benchmarks, while contributions from OEMs, manufacturers, and academia enrich the discourse with diverse perspectives.

Equally significant are the networking opportunities, enabling meaningful engagement with policymakers, researchers, and industry experts. These interactions not only strengthen industry-academia ties but also pave the way for transformative collaborations. By leveraging the global platform of IMTEX, the ACMA conference reaffirms India's commitment to excellence and innovation, reinforcing its position as a key player in the international automotive components landscape.

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MEASURING UP TO SUCCESS

In the bustling corridors of Indian manufacturing where innovation meets tradition, Marposs India Pvt Ltd has been quietly revolutionizing the art of precision measurement since 2007. From a modest Delhi office to a network spanning six strategic locations, its journey mirrors India's manufacturing evolution. With IMTEX 2025 on the horizon, it is poised to shape the future of precision measurement in India.

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Italy-based Marposs S.p.A. is a worldwide leader in measurement, inspection, and testing, predominantly supplying automotive manufacturers, in addition to Aerospace, HVAC-R, Biomedical, Energy, Consumer Electronics, and Glass Containers sectors. Marposs, present with its own sales and service organization in over 24 countries and regions, has a strong increasing footprint in India. "Marposs began its journey in India with commercial partnerships before establishing its first office in Delhi in 2007," reflects Luca Matteucci, Managing Director, Marposs India.

In 2008, the company expanded its facilities in Gurgaon, India, setting up offices and service centers to better serve the local market, providing technical support, customer service, and sales functions. Today, it has six offices across major cities crucial for the Automotive and Manufacturing industries, including Pune and Chennai.

Growing with India

The company's growth story reads like a masterclass in market adaptation. Starting with

Source: Marposs

"This new year, 2025, Marposs will open a new technical center in Bengaluru with 20-25 researchers to test new applications, given the increase in the quality of requests from local and foreign clients investing in India."

Luca Matteucci
Managing Director
Marposs India Pvt Ltd

partnerships and distribution networks, Marposs India has transformed into a full-fledged technology powerhouse, delivering a comprehensive range of products and services tailored to the specific needs of Indian industries. Its product offerings include metrology equipment, gauging solutions, machine monitoring systems, and automation technology.

"These technologies help increase productivity, improve quality control, and optimize production processes in a variety of industries, including Machine Tools, Automotive, Electric Vehicles (EVs), Semiconductors, and Biomedical," explains Matteucci. "The market scenario in India across numerous sectors demonstrates substantial growth and transition, fueled by technology advancements, government initiatives, and rising domestic and international demand."

Overall, the company's strategic initiatives and adaptation to the Indian market have significantly contributed to its growth and strengthened its position as a key player in measurement and inspection technologies in the region. "Marposs' success in India illustrates a well-executed strategy of adapting to local market needs while leveraging its global expertise," he continues. Despite challenges, the company has created a lasting presence in India by investing in local capabilities, fostering customer relationships, and addressing the unique needs of the Indian market.

Electrifying the Future

In the EV arena, Marposs' expertise shines particularly bright as the industry represents a significant growth opportunity for the company. As the global Automotive industry transitions towards electric mobility, asserts Matteucci, the demand for high-precision measurement and inspection solutions in the production of EV components is increasing.

The company's solutions, ranging from battery cell inspection to motor testing systems, have become the industry's gold standard.

- **Battery Manufacturing (Battery Cells and Packs):** Marposs, through dimensional inspections, defect detection, and electrical property verification, ensures the precision and quality of battery cells—critical for the performance and safety of EVs. Its solutions also optimize the assembly of battery packs, ensuring proper alignment and connection of cells, modules, and battery management systems (BMS).
- **Electric Motors (Motor Components and Assembly):** The company's high-precision measurement tools extend to electric motors, especially rotor and stator inspections that meet the stringent design and performance cri-

Marposs India is showcasing 30 innovative products at IMTEX 2025, focusing on advanced in-process monitoring systems, smart sensors, and energy-efficient machining.

teria. In addition, Marposs provides end-of-line testing systems to assess the performance, efficiency, and durability of EV motors.

Being Smart and Green

"Over time, Marposs has seen Indian machine tool builders increasingly invest in metrology technologies to enhance precision, reduce errors, and improve overall productivity," shares Matteucci. This shift reflects a growing recognition of the importance of accurate measurement systems in meeting global quality standards, optimizing processes, and supporting advanced manufacturing practices. He adds, "The trend shows a clear move towards embracing digitalization and smart manufacturing in the Indian Machine Tool sector."

Marposs is seamlessly blending traditional precision with cutting-edge technology. It is adapting to Industry 4.0 by integrating Artificial Intelligence (AI), Internet of Things (IoT), and smart sensors into its precision measurement and monitoring systems. "These technologies enable real-time data collection, predictive maintenance, and process optimization, enhancing efficiency and accuracy," explains Matteucci. "By leveraging AI-driven insights, Marposs helps manufacturers automate decision-making, reduce downtime, and improve overall productivity, positioning itself as a key player in the smart manufacturing ecosystem."

Gesturing towards the company's energy-efficient systems, he notes, "Marposs is contributing to green manufacturing by offering precision tools that optimize resource use, reduce material waste, and improve energy efficiency." Its advanced measurement systems enable manufacturers to enhance machining accuracy, extend tool life, and minimize energy consumption, all of which support more sustainable production processes. By focusing on efficiency and waste reduction, Marposs plays a key role in driving sustainable industrial practices globally.

IMTEX and 2025 Leap

"In 2025, Marposs will open a new technical center in Bengaluru with 20-25 researchers to test new applications, given the increase in the quality of requests from local and foreign clients investing in India," reveals Matteucci, representing the company's biggest bet on Indian innovation. Marposs India, through its sales and service organization, has materialized into a robust enterprise eyeing an impressive INR 170-crore turnover for 2024-25. From January 23-29, 2025, at South Asia's largest machine tool exhibition, IMTEX 2025, organized by Indian Machine Tool Manufacturers' Association (IMTMA), Marposs plans to showcase its global expertise and local insights through thirty groundbreaking products. Set to mark its presence, it will highlight its latest machine models and technologies, focusing on advanced in-process monitoring systems, smart sensors for real-time data analysis, and automation solutions. "Key offerings include solutions for precision measurement, tool life optimization, and energy-efficient machining," Matteucci outlines. "These technologies aim to enhance manufacturing efficiency, reduce waste, and support sustainability in the metal-cutting industry."

Marposs India's journey is a testament to its commitment to driving precision, innovation, and sustainability across India's industrial sectors. As the company expands its presence with the new technical center and further investments, it is poised to help shape the future of Indian manufacturing and beyond. "The future of Marposs in India looks promising as the country continues to develop as a manufacturing powerhouse, and the company is well-positioned to support that growth with its cutting-edge solutions," concludes Marposs India MD.

Marposs India is investing in sustainable manufacturing by blending AI, IoT, and smart sensors to enhance precision, reduce errors, and support green practices.

IMTEX 2025 International Machine Tool & Manufacturing Technology Exhibition | Tooltech 2025

Marposs India Pvt Ltd
www.marposs.com
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Source: Horn/NNCEA

Maschinenfabrik Mönninghoff relies on DMG MORI turning/milling centers with exclusive technology cycles.

DRIVING INNOVATION

Maschinenfabrik Mönninghoff, a specialist in clutch and brake systems, relies on Paul Horn GmbH's high-precision skiving tools to manufacture critical components for applications such as ski lift systems. The collaboration enables Mönninghoff to achieve exceptional precision, time efficiency, and quality in gear cutting while using DMG MORI machines.

NIKHIL NAYAK
Managing Director
NN Combined Engineering Agencies Pvt Ltd

Transmitting torque, separating and reconnecting power trains: These would be inconceivable without clutches and brakes. Inconspicuous but indispensable, they ensure the mechanical movement of everyday life. This is made possible by Maschinenfabrik Mönninghoff GmbH. The company specializes in the development and manufacture of clutch and brake systems for numerous industries. The team, led by Production Manager Timon Lubek, relies on precision tools from Paul Horn GmbH to manufacture the individual components. In addition to turning tools, HORN skiving tools show their mettle in daily use and ensure high-precision gear cutting.

Understanding Clutches

There are countless types of clutches. The selection depends on the application and the conditions. Basically, clutches can be divided into two categories: engageable and non-engageable. The primary function of a clutch is to transmit torque between two shafts. Other functions include compensation for misalignments, damping of torque at irregular speeds, and predetermined breaking points for overload protection. Furthermore, clutches can be differentiated according to the type of torque transmission. They may be friction connections, which are used for slipping clutches in cars, for example, whereby two or more discs are pressed together with spring force or hydraulically. Alternatively, interlocking clutches transmit force via gears, fingers or other means.

Clutch and Brake Combinations for Ski Lifts

Maschinenfabrik Mönninghoff offers a wide range of products, including electromagnetic tooth clutches for precise torque control and disc clutches for demanding applications. The company also develops electromagnetic holding brakes for safe and fast stopping, as well as overload clutches that trigger when a defined torque is exceeded to protect machine components from damage. Maschinenfabrik Mönninghoff manufactures clutch/brake combinations that are used, for example, in ski lift and gondola systems from well-known manufacturers. The products ensure that gondolas are automatically engaged and disengaged in the upper and lower stations and travel through each station at the same distance from one another. This ensures that people are safe when getting on and off, despite high cable speeds. Some toothed components such as disc carriers are used in these products.

Source: Horn/NNCEA

The HORN gear skiving system includes tools for the highly productive manufacture of internal teeth, splines and other internal profiles, as well as external teeth without interference.

Source: Horn/NNCEA

The disc carrier is used in a clutch/brake combination.

Maschinenfabrik Mönninghoff relies on the gear skiving process for the production of disc carriers. Tool systems from HORN are used for this purpose. "In addition to the performance of the tools, we were impressed by HORN's technical support. A few years ago, HORN joined our ranks as our third supplier of skiving tools. At the time, we were surprised at the technical questions the HORN designers had for us regarding tool design. We hadn't been asked that by the other suppliers before," says Lubek. HORN's technical expertise convinced Lubek and his team. "We have created a separate area in our design depart-

In addition to the performance of the tools, Maschinenfabrik Mönninghoff team was impressed by HORN's technical support. A few years ago, they were surprised at the technical questions the HORN designers had for the company regarding tool design. They hadn't been asked that by the other suppliers before.

ment that only deals with the design of gear cutting tools," adds Michael Ehmann, Sales Representative, HORN.

Tools in Use

Today, over 20 different types of skiving tool are in use on the machines at Maschinenfabrik Mönninghoff. The modules to be produced range from 0.5 to 2.5. Gear skiving of the disc carrier for the ski lift clutch with a module of 2 is performed by a tool with an interchangeable head. The type WSR solid carbide cutter head is connected to the tool holder via a precision interface. During the cutting process, the tool produces the gear form in 7 individual strokes. These are divided into 6 roughing strokes and one for finishing. The individual infeed settings are not linear, but average around 0.45 mm (0.018"). "Thanks to the HORN skiving tools, we are at a high level when it comes to the quality of the gears we produce. Due to this and the technical support, HORN is our go-to supplier for gear skiving tools," says Lubek.

The HORN gear skiving system includes tools for the highly productive machining of internal gears, splines and other internal profiles as well as external teeth without interference. The most important advantages of gear skiving in these applications are the significantly shorter cycle times compared to gear broaching, the ability to use the tools on optimized turning/milling centers, turning and gear cutting in a single clamping, and the elimination of undercuts at the base of the gear teeth. In addition, the usually more productive and cost-effective production process compared to gear shaping and broaching and the four to five times shorter cycle time compared to slotting are compelling. This also applies to the possibility of hard machining gears into solid material. The skiving tools are designed for gear cutting medium to large batches. Each tool is individually adapted to the application and the material to be machined, with the different tool interfaces being based on the number of teeth and the module.

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Larger Modules

Especially for internal gears, HORN stresses the advantage of short cycle times for larger modules. The gear skiving of these bigger sizes requires large and rigid milling/turning centers that enable the appropriate synchronization between the workpiece and tool spindles. The larger the module, the more critical is machine rigidity. This issue can be mitigated in respect of the tool by dividing the inserts between the left and right hand flanks. After gaining experience with small solid carbide skiving tools, HORN used this expertise to cover larger modules as well. Its technicians check the feasibility of each application before implementation and discuss the tool design and recommendations for the process with the user.

The system includes cylindrical or tapered tools for modules from 0.5 to 2. The solid carbide monoblock type is available with a diameter of up to 20 mm (0.787") and in a slim design. It is used for small modules and small components, preferably when a slim shaft is required due to the risk of collision. The grades and coatings customized to the application produce high surface quality on the workpiece. Skiving tools with a replaceable head system are used for tool diameters over 20 mm (0.787"). The precise interfaces allow the cutting head to be easily changed inside the machine without removing the tool holder. The carbide tool holder ensures high rigidity, wear resistance, and precision. For the larger modules, HORN recommends using a tool with indexable inserts. For the WSR tool type in particular, HORN offers the option of placing the internal coolant supply in front of or behind the insert. This allows blind holes, through holes or stepped holes to be machined with appropriate coolant delivery, depending on the application.

Source: Horn/NNCEA

HORN technicians check every skiving application for feasibility and discuss the tool design and recommendations for the process with the user.

Source: Horn/NNCEA

A good collaboration: Timon Lubek in conversation with HORN technician Michael Ehmann and Mönninghoff employee Yavuz Kol.

Maschinenfabrik Mönninghoff uses a machine from DMG MORI for gear skiving ring gears. "With the CTX beta 1250 TC, we have a flexible machine with user-friendly technology cycles, such as gear SKIVING 2.0, on which the skiving processes run reliably," explains Lubek. Before the gear skiving process was introduced, Maschinenfabrik Mönninghoff relied on gear broaching and milling. The switch to gear skiving brought many advantages: Time savings and high precision as well as the quality classes of the gears and the ability to produce components completely on one machine. Complete machining increases accuracy, as tolerance is more difficult to achieve with each new clamping. This plays a particularly important role in the production of components for clutch/brake combinations.

Successful Collaboration

Maschinenfabrik Mönninghoff has been working with tool systems from HORN for over 25 years. "In the beginning, we only used the little horns, as we always call them, for turning," jokes Lubek when talking about the HORN Superminis. He continues: "We now rely on HORN's broad tool portfolio. Their expertise in tool technology and the prompt delivery have convinced us."

Mönninghoff Machine Factory

From aviation to marine, from delicate high-tech robotics and packaging machines to pumps and extruders: Reliable drive technology is required when forces need to be transmitted. The technical requirements that the products must fulfil are as varied as the areas of application and use cases. Maschinenfabrik Mönninghoff is a reliable and innovative clutch manufacturer and technology partner, able to fulfil customer-specific requirements precisely. The switchable couplings, shaft connections, overload systems, linear technology and integrated drive systems are used worldwide in a wide range of variants in machines and systems in all industries.

HORN in India

Precision Tooling Solutions for the Precision Component Manufacturing Industries from Paul Horn GmbH are available in India via NN Combined Engineering Agencies Pvt Ltd. (NNCEA) in cooperation with select OEM partners. NNCEA provides complete logistics and supply chain management solutions for all major manufacturers in the Indian market.

Especially for internal gears, HORN stresses the advantage of short cycle times for larger mod ules. The gear skiving of these bigger sizes requires large and rigid milling/ turning centers that enable the appropriate syn chronization between the work piece and tool spindles.

REDEFINING RELIABILITY

Totem, a Forbes-owned company based in Aurangabad, sets new industry benchmarks by leveraging ANCA CNC Machines' cutting-edge technology. Known for producing precise and reliable cutting tools, Totem's collaboration with ANCA has boosted its production capacity, redefined quality, and enhanced its competitiveness on a global scale.

Source: ANCA CNC Machines

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Based in Aurangabad, India, Forbes-owned company Totem has earned a reputation for producing reliable and precise cutting tools that enhance productivity and quality. The company's commitment to adopting cutting-edge technology has been key to this success. By leveraging advanced technology from ANCA CNC Machines, Totem has not only boosted its production capacity but also raised the bar for product quality, setting new benchmarks in the industry.

Ravi Prem, Executive Director, Forbes & Company Ltd, says, "We were the first customers to buy ANCA's TapX Linear machines in India. The good performance of our earlier ANCA machines made our team trust them to invest in the latest machine in the market. After witnessing the solid performance of TapX Linear machines by ANCA, all other cutting tool manufacturers in India followed suit."

Totem's Success Story

Established in 1968 by Forbes & Company, Totem has established itself as a market leader in India for high-speed steel taps. The company also produces solid carbide end mills and drills, high-speed steel drills, tungsten carbide rotary burrs, and high-speed steel rotary cutters that cater to diverse manufacturing applications in the Aerospace, Medical, and Automotive industries. Totem's products are exported to 22 countries worldwide, with its Aurangabad facility spanning 16 acre, employing 700 people and producing 20 million tools per month.

Totem took the brave step to upgrade its cutting tool technology, to achieve its goal of exporting and competing against multinational companies. Totem's success story is a case in point of how embracing new technology has taken company performance to new heights.

Forbes & Company was established in 1767 by John Forbes and became part of the Tata Group just before India's Independence. In

"We were the first customers to buy ANCA's TapX Linear machines in India. The good performance of our earlier ANCA machines made our team trust them to invest in the latest machine in the market. After witnessing the solid performance of TapX Linear machines by ANCA, all other cutting tool manufacturers in India followed suit."

Ravi Prem
Executive Director
Forbes & Company Ltd

Totem has been able to reach great heights by leveraging the technology and capabilities of ANCA's CNC machines. Investing in quality, reliability, and flexible technology has helped to enhance the company's production capabilities, aiding its pursuit of a broader customer base.

A Winning Approach

Challenge:

- Competing with multinational companies in the global market.
- High tolerance generation during multi-stage production setups.
- The need for quick service support for advanced machinery.
- Maintaining high Process Capability Index (PCI) for reliable manufacturing.

Solution:

- Totem partnered with ANCA in 1998 to adopt first-generation CNC machines.
- Implemented ANCA's TapX Linear machines for end-to-end tap production.
- Leveraged ANCA's flexible software and simulation capabilities for innovative solutions.
- Accessed rapid on-site and online support from ANCA's India-based service team.

1960, a mounting crisis among the steel mills in Sheffield, England saw British cutting tool manufacturer Warrior shift its production to India. Cutting tools manufactured under the Warrior brand, were then produced in India by Forbes. Since 1968, Totem, a Forbes brand, has been manufacturing a wide range of cutting tools.

In the 1990s, Totem focused predominantly on high-speed steel tools. To compete internationally, the company expanded its product portfolio and upgraded its technology and applications. In 1998, Totem partnered with ANCA CNC Machines, importing its first-generation machines from the USA. These initial machines were conventional setup ones, and after 26 years, two of these legacy machines continue to function and perform well.

Combining Strengths

ANCA's flexible software and simulation capabilities enable Totem to provide innovative solutions for customers. "Taps are produced in seven stages, and with more setups on a tool there is a high chance that it will generate some tolerance and compromise. With the TapX Linear, you just

Source: ANCA CNC Machines

Source: ANCA CNC Machines

Known for their ease of use, cost-effectiveness, and low maintenance, ANCA machines have become a preferred choice among cutting tool manufacturers worldwide.

have to insert a blank and you get a finished tap at the end. This is where we became impressed with ANCA and started ordering from its product lines."

Ravi Prem sees numerous advantages of working with ANCA CNC Machines. "Totem's customers see the life, accuracy, performance, and repeatability of products before they purchase from us. At Totem, we don't just sell products but reliability, which is our tagline. If we are not able to manufacture our products with machines that don't have a high Process Capability Index (PCI) it becomes a challenge for us. ANCA machines possess a very high PCI and serve the purpose for us."

"The setup times are quick. Having more external setups than internal saves time. Lastly, the service team based in India means that they can provide rapid support and response time to solve any issues on the machine," he shares. "ANCA's team supports us in servicing machines as well as supplying critical machine parts when required. They also provide online support for technical corrections. If an issue needs further attention, the team flies from Bangalore to resolve it on-site."

Results Achieved

- Production of 20 million cutting tools per month at Totem's 16-acre facility in Aurangabad.
- Exporting products to 22 countries across Aerospace, Medical, and Automotive industries.
- Enhanced product life, accuracy, and repeatability, ensuring customer satisfaction.
- Expanded machine inventory to 18 ANCA machines, with four more on order.

Collaborating for Growth

Ravi Prem adds that Totem has immense confidence in ANCA machines, confirmed by their 25-year-long relationship. He adds, "We have the entire range of ANCA CNC machines as well as the older to latest generation of TapX Linear machines. As of today, we have 18 machines and have ordered four more state-of-the-art ones that will be manufacturing carbide drills, carbide taps, and carbide threadmills."

Totem has been able to reach great heights by leveraging the technology and capabilities of ANCA's CNC machines. Investing in quality, reliability, and flexible technology has helped to enhance the company's production capabilities, aiding its pursuit of a broader customer base. Known for their ease of use, cost-effectiveness, and low maintenance, ANCA machines have become a preferred choice among cutting tool manufacturers worldwide. As the demand for high-quality products and efficient production continues to rise, ANCA is expected to play a crucial role in the growth of the Indian Cutting Tool industry in the coming years.

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REVOLUTIONIZING AUTOMATED MACHINING

Global technology and innovation leader in measuring and testing technology, Blum-Novotest GmbH, chose a GROB G150 universal machine with a GROB GRC-R60 robot cell and GROB control software for its significant automation and operational benefits.

Source: GROB-WERKE GmbH & Co. KG

The GROB robotic cell was adapted to the specific requirements of Blum-Novotest

Founded in 1968 and headquartered in Ravensburg, Germany, Blum-Novotest GmbH is one of the world's leading manufacturers of high-quality measuring and testing technology for the international Machine Tool, Automotive, and Aerospace industries as well as many other demanding industrial sectors all over the world.

Today, the family-owned company employs over 650 employees in 18 locations across Europe, America, and Asia.

Blum-Novotest GmbH is a global technology and innovation leader in measuring and testing technology which develops and manufactures solutions for its customers that meet the highest quality standards.

It quickly became clear to GROB that Blum-Novotest's commitment to quality was genuine. Thus, the first contact between the two companies was about acquiring a new machine for the production of system carriers for two different series (NT carriers for LaserControl Micro Compact NT and LC carriers for LC-DIGILOG). The criteria were that production should be highly efficient and cost-effective and have an autonomy of at least 24 hours.

"Our contacts at Blum were well prepared right from the start," recalls Joachim Stock, Area Sales Manager, GROB. "They gave us a clear task, a short, concise specification sheet, which we used not only to create a specification for the machine but also to develop a concept for further discussions."

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So it was not surprising that only three weeks passed from the first inquiry to the first offer.

Knowing GROB-WERKE

For over 95 years, GROB has been active as a globally operating family-owned company in the development and manufacture of equipment and machine tools. Customers include the most renowned automotive manufacturers, their suppliers, and companies from a wide range of industries.

With production plants in Mindelheim (Germany), Bluffton, Ohio (USA), São Paulo (Brazil), Dalian (China), Pianezza (Italy) and Bangalore (India), as well as worldwide service and sales subsidiaries, GROB is internationally positioned.

The portfolio ranges from universal machining centers and highly complex manufacturing systems with their own automation to manual assembly stations and fully automated assembly lines.

Furthermore, production systems for electric motors and assembly systems for battery and fuel cell technology are part of the product range. In-house solutions are implemented for the coating technology of engine components, the machining of turbine housings, and the processing of structural and chassis components. With the GROB-NET4Industry software developed for the digitization and networking of production processes, GROB is taking big steps into the digital future.

Source: GROB-WERKE GmbH & Co. KG

The square blanks are produced in the GROB plant. In the picture are seen Marcel Kühnle from Blum-Novotest, Ralph Birkle, Patrick Müller and Joachim Stock from GROB.

The GROB G150 with GRC-R60 automation reduced operational steps from four to two, achieving up to 50% time saving while enabling the production of 11 part types with a single clamping setup.

Challenge and Solution

The Challenge

Blum required a solution for producing system carriers for its LaserControl Micro Compact NT and LC-DIGILOG series with the following criteria:

- Highly efficient and cost-effective production.
- At least 24-hour autonomy for continuous operation.
- Ability to deep-hole drill with tools up to 385 mm in length, a capability not easily available in compact machine sizes.

The Solution

GROB responded to Blum's concise requirements and specifications and delivered a tailored solution after only three weeks of initial inquiry, focusing on meeting unique production challenges.

A GROB G150 machining center paired with a GRC-R60 robot cell was chosen.

The automation system met autonomy requirements and offered precision suitable for deep-hole drilling.

Deep Hole Drilling

The workpiece to be machined, a square blank, is then manufactured into two system carriers (LaserControl Micro Compact NT and LC-DIGILOG).

They have a length of 150 to 300 mm and have a cable duct hole almost throughout. "Since the part has to be drilled 270 mm deep on one side, a corresponding tool length is required, which relatively many competitors were unable to meet for this machine size," explains Marcel Kühnle, Deputy Production Manager, Blum-Novotest GmbH. "Larger machines with corresponding traverse paths do exist on the market, but they are insanely large and

thus are not really suitable for our components."

The original idea of purchasing a bar-loading turning-milling machine was also quickly rejected for cost reasons. GROB was included in the bidding process because its machine met the specifications, component requirements, and drawings, especially with its ability to handle tool lengths of up to 385 mm.

Turnkey Solution Brings Breakthrough

In further discussions, it quickly became clear that a machine with automation would offer the ideal technology for Blum's requirements. An idea that was then anchored in the specifications, combined with the requirement for autonomy of at least 24 hours. On the basis of these specifications, further information, and after exchanging various CAM data, a feasibility study was prepared at GROB, which included cycle times as well as initial proposals for special tools and clamping devices.

After two weeks, the first meeting took place in Mindelheim, where a G150 with a GRC-R60 robot cell was presented at the GROB Technology and Application Center (TAC) on the subject of 'Demonstration of an Aluminum Component'. The Blum technicians were surprised to see that the demo component matched their defined acceptance component. "After this visit, it was finally clear to us that a machine with the process was the best solution for our purposes," shares Kühnle. "The arguments of this turnkey solution with automation presented by GROB were too convincing for us."

Source: GROB-WERKE GmbH & Co. KG

LC50 Digilog — Laser Measurement System from Blum-Novotest

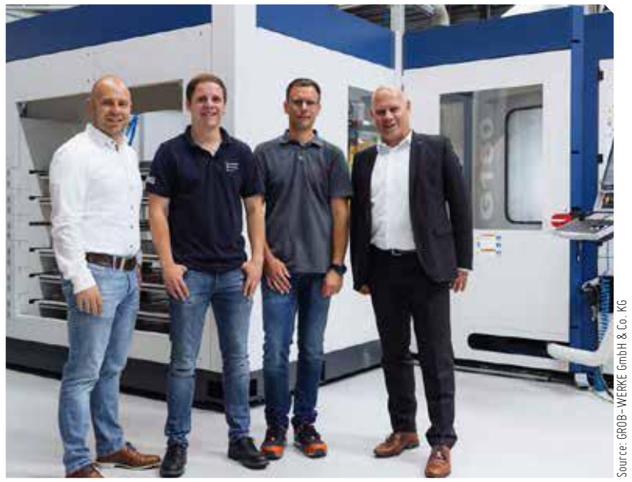
Blum-Novotest's collaboration with GROB integrated ultrasonic cleaning and flexible automation, allowing mixed-size production and delivering a state-of-the-art system tailored for 24-hour autonomous, cost-effective, and efficient machining.

Benefits of GROB's System

- Reduced operational steps: Previously, four operations were required per part; GROB reduced it to two with its intelligent GROB4Automation control software.
- Enabled machining of five sides of the part in one clamping (OP10) and the sixth side in another (OP20).
- Standardized blank cross-section for consistent clamping of 11 different part types.
- Automation software allowed mixed-size production and flexible job scheduling.
- Consolidated production of smaller and larger parts, previously requiring separate machines, into a single setup.
- Achieved up to 50%-time savings and minimized non-productive time.
- Integrated ultrasonic cleaning into the robotic cell to meet specific requirements.
- GROB's modular and flexible system design adapted to Blum's existing workflows.

Automation perfectly matched to its own needs, the possibility of deep hole drilling up to 280 mm, and an intelligent control system were the winning arguments for the measuring equipment manufacturer Blum-Novotest GmbH to choose a GROB G150 universal machine with a GROB GRC-R60 robot cell and GROB control software.

> "Thanks to an ingenious eye-to-eye cooperation with GROB, we managed to realize a GROB G150 with a GRC-R60 robotic cell in less than three months, from the initial quotation to the order. We are very satisfied both with the machine and especially with the cooperation with GROB."
>
> **Marcel Kühnle**
> **Deputy Production Manager**
> **Blum-Novotest GmbH**



Source: GROB-WERKE GmbH & Co. KG

(L-R): Ralph Birkle, Technical Proposal, Machining, GROB; Patrick Müller, Application Engineer, GROB; Marcel Kühnle, Deputy Production Manager, Blum-Novotest; and Joachim Stock, Area Sales Manager, GROB.

Cost Savings through Reduction of Work Steps

One of the most important arguments for Blum-Novotest GmbH was the intelligent GROB4Automation control software, with which the individual operation steps could be significantly reduced. Where previously four operations per part were necessary, GROB managed it for all eleven different types with two operations and one clamping. Thus, in OP10, five sides of the blank were to be machined and deephole drilled, and in OP20, the sixth side was to be machined. This was achieved by standardizing the blank cross-section, resulting in a jaw design in the fixture that allowed all eleven types to be clamped in the same way. A procedure that achieved a potential time saving of up to 50 percent compared to the original method, and also significantly reduced non-productive time. GROB automation also made it possible to map the variance of both the smaller and larger part spectrum on one machine. In the past, the smaller and the larger parts spectrum had to be produced on two different machines.

Source: GROB-WERKE GmbH & Co. KG

Blum-Novotest manufactures different probes

Another advantage of GROB's GROB4Automation control software in this application is its enormous flexibility, as it does not have to be run by type, but can be loaded mixed with other sizes of a component and individual parts can also be produced without any problems. When an order is created, among other things the blank size is defined and specified.

Ultimately, GROB's own control software is at the heart of the automation cell to ensure the required flexibility. However, the key to the successful implementation of this customized application was not only GROB's intelligent control software, but also the exemplary cooperation between Sales, Application Engineering, and Project Planning at GROB, as well as the close and intensive exchange with Blum-Novotest GmbH.

Special Equipment Ultrasonic Cleaning

Thanks to the flexibility of the GROB GRC-R60 robotic cell, the layout of the plant could be adapted to the conditions and ultrasonic cleaning could be integrated at the customer's request. This adaptability enabled Blum-Novotest to receive a state-of-the-art system tailored perfectly to its needs.

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DELIVERING PRECISION SOLUTIONS

India-based calibration service provider, Micro-check Calibration Pvt Ltd, has partnered with Renishaw to offer cutting-edge calibration services for small and medium-sized businesses. Recently, the company incorporated Renishaw's XK10 alignment laser system, expanding its capabilities to industries like aerospace, robotics, and electroplating.

Ensuring the precision and accuracy of specialized equipment is critical for businesses. Calibrating and optimizing these precision machines requires a deep understanding of geometry, mechanics, and the latest calibration technologies. Laser calibration systems have become the preferred choice for maintaining precision instrument performance, but using these advanced calibration tools demands a high level of technical expertise and practical experience.

While large companies often maintain dedicated inspection teams to perform these calibration duties, the associated costs can be prohibitive for small- and medium-sized businesses. However, as the number of calibration service providers grows, more accessible and cost-effective solutions for ensuring the optimal performance of precision equipment are becoming available.

Micro-check Calibration Pvt Ltd (Micro-check) is an India-based calibration service provider using Renishaw's cutting-edge calibration systems to support its small- and medium-sized customers. It offers a range of calibration services to Indian machine manufacturers, imported machine tool installations, and other large machine tool end users.

Micro-check has worked with Renishaw since 2016, using calibration products such as the XL-80 laser interferometer, QC20 ballbar, and XR20 rotary axis calibrator, to provide services to machine manufacturers. The company recently expanded its offering by adding the Renishaw XK10 alignment laser system to its suite of tools. This strategic investment has further enhanced Micro-check's ability to provide comprehensive testing and optimization solutions for its customers.

Source: Renishaw Metrology Systems Ltd

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> "We used the XK10 system to measure the horizontal and vertical straightness of a set of 25 metre machine tool castings and the parallelism between these two castings. Regardless of the measurement direction, the data results were highly consistent which demonstrates the system's remarkable accuracy and repeatability, which was very impressive."
>
> **Sunil Navale**
> **Managing Director**
> **Micro-check Calibration Pvt Ltd (India)**

Traditional measurement methods (like using granite squares, dial gauges, autocollimators, and metrology artefacts), require manual operation and are prone to errors, making them unreliable. In contrast, the XK10 system leverages laser technology, enabling it to measure over long distances with excellent inspection efficiency.

Using the XK10 Alignment Laser System

Micro-check added Renishaw's XK10 system to its collection this year, using its multi-functional capabilities to support its customers in the Machine Tool, Automation, Robotics, Electroplating, and Aerospace sectors, plus more specialized areas. For example, in the Electroplating industry, the XK10 system measures the coplanarity of holding fixtures which solves the problem of uneven material thickness on the hard chrome plating of piston rods. It can also be used to assess the rigidity of machine foundations by checking for vibration, and horizontal or vertical movements caused by other equipment like machinery, presses, or cranes. The XK10 system measures displacement and deflection within a machine's own structure, due to its axis movement.

The XK10 alignment laser system measures a range of parameters that Micro-check finds useful, including straightness, squareness, flatness and level, as well as spindle co-axiality and direction. The company has used the XK10 system extensively and has successfully completed calibration services for over 150 machines across a range of applications.

Advantages in Measuring Range

Traditional measurement methods (like using granite squares, dial gauges, autocollimators, and metrology artefacts), require manual operation and are prone to errors, making them unreliable. In contrast, the XK10 system leverages laser technology, enabling it to measure over

Source: Renishaw Metrology Systems Ltd

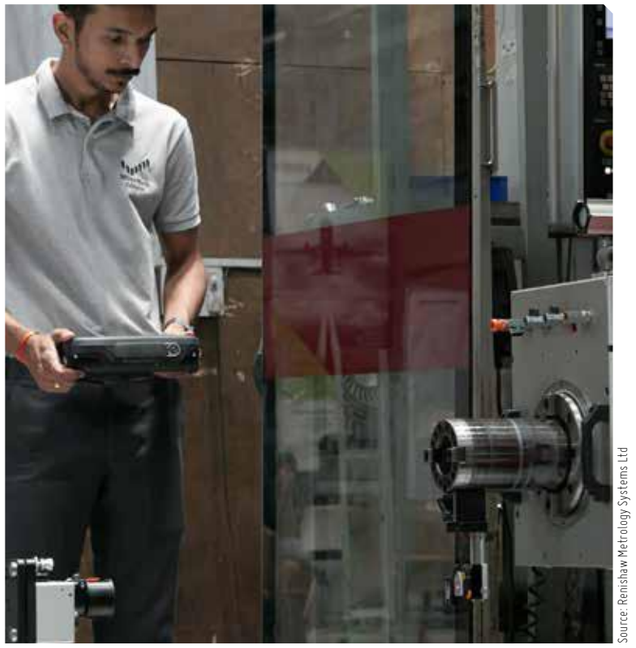
long distances with excellent inspection efficiency. For instance, Micro-check used the XK10 system to measure parallel and perpendicular straightness of a 25 metre casting in just 45 minutes. If it had used a granite square (typically around 2 metre long) for the same measurement, it would have required multiple test set-ups and would have been less efficient.

Data Stitch Function

Laser measurement has its advantages, but in real-world environments the presence of air turbulence can introduce noise into the laser measurements, which can significantly reduce the repeatability of the results. The degree of air turbulence can vary depending on the measurement environment. Implementing strict environmental controls can be costly and may not be accessible to all customers. The longer the distance between the XK10 launch unit and the M-unit, the more the air turbulence affects the measurement.

Laser measurement has its advantages, but in real-world environments the presence of air turbulence can introduce noise into the laser measurements, which can significantly reduce the repeatability of the results.

When developing the XK10 laser alignment system, Renishaw understood the practical application environments of its customers, so it developed a stitching feature to solve this challenge. The data stitch function in Renishaw's CARTO software allows you to measure long axes with high accuracy and repeatability by combining multiple shorter measurements. The idea is to limit the distance between the XK10 launch unit and the M-unit to a length where the air turbulence has minimal impact, and then move the units along the axis to measure the remaining segments. CARTO software easily stitches



Source: Renishaw Metrology Systems Ltd

Challenge

Small and medium-sized businesses often face challenges in ensuring the precision and reliability of their specialized equipment. Traditional calibration methods, such as using granite squares or dial gauges, are labor-intensive, prone to human error, and inefficient for large-scale applications. Additionally, advanced laser calibration tools require significant technical expertise, and environmental factors like air turbulence can impact measurement accuracy, further complicating the calibration process.

Solution

Micro-check Calibration Pvt Ltd has partnered with Renishaw to address these challenges by incorporating cutting-edge tools like the XK10 alignment laser system. This system offers precise, long-range measurements for parameters like straightness, squareness, and flatness while mitigating environmental challenges through its data stitching functionality in CARTO software. Its intuitive user interface, portability, and ability to generate detailed reports streamline the calibration process, making it more efficient and cost-effective for businesses. With over 150 successful machine calibrations, Micro-check delivers enhanced performance optimization services, reducing downtime and improving productivity for its clients across industries such as aerospace, robotics, and electroplating.

Source: Renishaw Metrology Systems Ltd

The XK10 system is the third Renishaw calibration system Micro-check has purchased to support its customers' machines to make corrective and preventive measures.

the shorter measurements into a single long measurement.

Simple and Intuitive User Interface

The XK10 system's user interface provides detailed step-by-step operation instructions for each measurement task, guiding the user through the measurement process. The instructions are user-friendly which helps operators to familiarize themselves with the system's capabilities. Throughout the testing process, the XK10's wireless display unit shows the measurement data and test diagrams in real time. After each completed measurement, the XK10 system software generates a detailed measurement report, which can be exported in both PDF and XML formats.

Sunil Navale, Managing Director, Micro-check, who has over 35 years of experience across design, assembly, testing and maintenance in the Machine Tool industry, highlighted the XK10 system's operational flexibility, saying: "You only need to switch to the required measurement task on the display unit to see the data. The user interface is very intuitive and easy to use. Most importantly, the XK10 system helps improve the overall productivity, especially in the machine assembly stage, as it identifies potential issues and resolves them quickly, reducing time and making the process more efficient."

Portability

The XK10 system is a portable tool that uses a wireless connection to communicate with the S-unit and M-unit, and is powered by a battery providing 30 hours of operation. This makes it well-suited for service providers like Micro-check, who have to regularly take the tool to a customer's workshop.

The XK10 system and fixturing kit are supplied in carry cases for easy transportation of the equipment.

Addressing the Problem

As well as providing machine calibration services and reports, Micro-check analyzes the overall performance of machines for its clients and suggests improvement plans. This includes identifying sources of accuracy errors, implementing preventive maintenance, and developing machine performance optimisation programs. To deliver these services, Micro-check relies on high-quality calibration equipment like the Renishaw XK10 alignment laser system.

The XK10 system is the third Renishaw calibration system Micro-check has purchased to support its customers' machines to make corrective and preventive measures. Micro-check uses the XR20 rotary axis calibrator and the QC20 ballbar to quickly diagnose machine performance, identify potential issues and machine errors. The XL-80 laser interferometer is primarily used for the calibration of finished machines, with the XK10 system being used for machine assembly and casting measurements.

Navale concluded: "We always go through the maintenance report in detail with our customers so they can better understand each machine's performance. For some manufacturing customers, they can clearly understand the performance of each machine and effectively allocate work to the appropriate machines for maximum efficiency."

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FACILITATING AEROSPACE MANUFACTURING PERFORMANCE

India's aerospace manufacturing sector is on the cusp of significant growth. Let's delve into how the strategic selection of process fluids, along with industry-leading technical expertise, can unlock numerous benefits for aerospace components manufacturing and machining processes.

Source: Magic Wand Media

JONATHAN DILLEY
Aerospace Director
Quaker Houghton

India's Aerospace industry has witnessed significant growth. Driven by a skilled workforce, cost competitiveness, and supportive policies, the country has emerged as a hub for aerospace innovation, attracting top global conglomerates to establish manufacturing operations.

The India aerospace parts manufacturing market size reached US$ 13.6 billion in 2023, driven primarily by increasing domestic and international air travel demand.

Airlines expanding and modernizing their fleets fuel the demand for aerospace components. Indian manufacturers held 3 percent of the global market share as of 2021. With an impressive 8 percent annual growth rate, they are poised to lead the sector and are expected to expand their global market share to 5 percent by 2025.

Meeting Stringent Quality Standards

The Aerospace industry is characterized by stringent quality control and manufacturing standards. It must consistently meet high-performance standards and ensure compliance with regulations and approvals across its day-to-day supply chains and workflow management.

To achieve success in component machining and grinding, only approved metalworking fluids can be used across the supply chain – and many aerospace manufacturers have specific standards for metalworking coolants.

Alongside this, the drive to adopt circular business practices to manage process fluids, sump maintenance, and utilize existing materials and products as long as possible is an increasing priority for Original Equipment Manufacturers (OEMs) and their supply chains.

Challenges on the Shop Floor

For heavy-duty machining applications that are common across the aerospace supply chain, selecting highly effective metalworking soluble fluids and supply partners is crucial. Making the right fluid selections can support manufacturers in keeping operations running smoothly, ensuring supply demands are met while elevating levels of quality. While OEMs are the specialists in their areas, pairing this knowledge with the expertise of supply partners is the key to success, particularly when it comes to elevating standards through industrial fluid solutions.

OEMs also face a significant challenge in finding a single adaptable solution for the diverse machining requirements and the specific materials used in the production process to fit their manufacturing supply chain. These requirements encompass milling, turning, drilling, and grinding, each presenting unique cooling and lubrication needs. Sticky residues, foaming issues during production, machine tool replacement costs, and high total cost of ownership are all issues that factory managers are dealing with on the shop floor.

To overcome these complex challenges, process fluid professionals work with OEMs to understand the intricacies of their processes, the materials machined and introduce solutions that uphold quality and performance across various applications. Specialized process fluids play a pivotal role in ensuring the high quality and reliability demanded by this industry. Essential for tool life, lubrication and preventing corrosion/staining, process fluids are vital in enhancing the efficiency and precision of the manufacturing process. They also play a role in extending the lifespan and maintaining the integrity of machinery and tooling.

Improving Workplace Safety and Performance

Process fluids are an excellent resource for elevating production standards. Improving reliability and quality is crucial for minimizing coolant usage, reducing drag-out, and prolonging sump life to meet the demanding tolerances and intricate machining processes required. The industry is actively pursuing operational efficiency to reduce waste generation and realize substantial cost savings.

Aerospace manufacturers are starting to adopt a holistic approach to their metalworking process fluids, ensuring consistent quality and cost savings while optimizing operations. By carefully selecting and managing these fluids, manufacturers can enhance performance, minimize waste, prolong equipment lifespan, and prioritize the health and safety of their workforce.

This shift towards proactive safety measures is a testament to how aerospace manufacturers are not just protecting their workers' wellbeing, but also how they're taking the lead in transforming the industry into a safer and more responsible one.

Opting for a single metalworking fluid over several specialized fluids is about more than maintaining standards. It's about simplifying processes and inventory management and improving efficiency and cost-effectiveness. This grants aerospace manufacturers greater operational control, empowering them to steer their operations in their desired direction. Ultimately, this comprehensive approach enables high-quality, sustainable production while minimizing environmental impact and safeguarding the workforce.

Specialized process fluids play a pivotal role in ensuring the high quality and reliability demanded by this industry. Essential for tool life, lubrication and preventing corrosion/staining, process fluids are vital in enhancing the efficiency and precision of the manufacturing process.

Source: Magic Wand Media

Considering Sustainability in Process Fluids

Adopting process fluids which can help contribute to corporate sustainability goals is crucial for enhancing environmental stewardship in the Aerospace industry. A key focus for manufacturers operating in this sector is the reduction of waste streams, product consumption, and increasing circularity within the manufacturing process.

Implementing process fluids, such as HOCUT® 4260, offers a compelling strategy for manufac-

turers to reduce their environmental impact by prioritizing the reduction of waste and product consumption. As an advanced metalworking fluid, HOCUT® 4260 is engineered to provide superior lubrication and corrosion protection while minimizing the use of hazardous substances. Its versatility also makes it suitable for multiple machining processes within the Aerospace industry, reducing the need for multiple specialized fluids.

Efficient Manufacturing

Part of the Quaker Houghton soluble metal removal offering, HOCUT® 4260 offers an efficient and safe solution that is tailored to the Aerospace industry's exacting standards. With a low-foaming design and cutting-edge formulation, the HOCUT® range minimizes risks by prioritizing health and safety compliance, allowing manufacturers to focus on their core activities. Its superior lubrication and cooling properties support precision machining and grinding and improve cost efficiency by streamlining coolant use.

Favored by operators, the solution is also cleaner, providing excellent visibility of the machining area due to additional dispersion. The product also remains extremely stable for extended periods of time – meaning systems are unlikely to become compromised or require downtime. To showcase this in application, an aerospace OEM using HOCUT® 4260 in their Canadian machined parts facility reduced consumption and handling costs by $200k in 18 months and reduced the volume of mixed fluids for disposal by around 250,000 litres annually. Production Engineers stated that they have now minimized rework, and rejects are lower by 25 percent. They also reported no complaints about permanent residue on the machines. Tailored to minimize environmental impact and improve circular economy practices, HOCUT® 4260's longevity and reusability underscore its role in promoting more sustainable manufacturing, including reducing consumption and waste generation. Supporting manufacturers in making valuable contributions towards sustainability efforts, HOCUT® 4260 supports the advancement of efficient and high-quality manufacturing.

Source: Quaker Houghton

Part of the Quaker Houghton soluble metal removal offering, HOCUT® 4260 offers an efficient and safe solution that is tailored to the Aerospace industry's exacting standards. With a low-foaming design and cutting-edge formulation, the HOCUT® range minimizes risks by prioritizing health and safety compliance.

Expertise at its Best

The Quaker Houghton metalworking fluid portfolio provides the latest technology to achieve the quality and process efficiency demanded by a wide range of machining operations. With expertise in the sector, Quaker Houghton continues to work closely with OEMs to understand current issues and create solutions that will ultimately maximize production on process lines.

To help manufacturers manage and optimize their industrial process fluids effectively, QH FLUID INTELLIGENCE™ provides a digitized solution for fluid management representing a complete ecosystem, encompassing process fluids, application expertise, hardware, and software. It enables aerospace manufacturers to measure, control, and optimize their production processes, fostering safe, sustainable, and cost-effective operations. This integrated approach delivers differentiated value, enabling manufacturers to enhance performance, streamline operations, and achieve production goals efficiently.

To conclude, aerospace manufacturers have defined standards for metalworking coolants in order to maintain high performance and regulatory compliance. Working with a market leader in process fluids, such as Quaker Houghton, manufacturers can be confident that this industry expert supplier will have deep knowledge on the intricacies of their processes and introduce solutions that can adapt to different machining requirements. Combining this expertise with the technical knowledge of OEMs is crucial for maintaining smooth operations, ensuring supply demands, elevating quality, and achieving sustainability goals.

IMTEX 2025 ToolTech 2025

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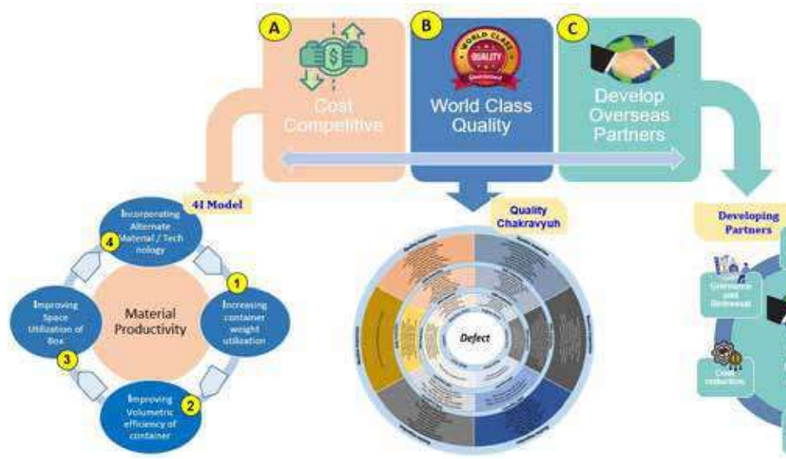
ENHANCING MATERIAL PRODUCTIVITY IN EXPORT OPERATIONS

Hero MotoCorp, a global leader in two-wheeler manufacturing, is constantly exploring avenues to strengthen its presence in the international market. With the growing demand for high-quality, cost-effective products, the company has adopted world-class manufacturing methodologies (WCM) to enhance material productivity, a cornerstone of its export operations. This article delves into the strategies and initiatives undertaken by Hero MotoCorp to achieve this goal, ensuring the seamless expansion of its global business.



Source: Hero MotoCorp Ltd

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The global market is dynamic and highly competitive. In the face of which, Hero MotoCorp faced challenges such as:

- **Rising Material Costs** significantly impacted profitability and pricing strategies.
- **Inefficient Logistics** led to high costs due to suboptimal container utilization.
- **Maintaining Quality Consistency** posed a challenge, as it involved meeting diverse international standards while minimizing defects.
- Additionally, **Limited Collaboration** with overseas partners resulted in delays and inefficiencies.

Solutions

These hurdles required innovative solutions to not only sustain but also expand Hero MotoCorp's global operations. To tackle these challenges, Hero MotoCorp implemented a three-pronged strategy:

Cost Competitiveness: Ensuring affordability through efficient resource management and advanced technology.

World-Class Quality: Adhering to international benchmarks for defect-free products.

Developing Overseas Partners: Building a robust global network for distribution and support.

For Cost-Competitiveness, Hero MotoCorp developed the 4i Model, a systematic approach aimed at optimizing resource utilization across its export operations. The 4i Model is a cyclic model which focuses on improvement in material productivity.

Increasing Container Weight Utilization:

Hero MotoCorp focused on maximizing load capacity to reduce transportation costs by adopting advanced logistics planning tools.

For cost-competitiveness, Hero MotoCorp developed the 4i Model, a systematic approach aimed at optimizing resource utilization across its export operations. It is a cyclic model which focuses on improvement in material productivity.

Improving Volumetric Efficiency of Containers:
The company redesigned packaging to minimize wasted space and customized containers to suit specific product dimensions.

Improving Space Utilization of Boxes:
Hero MotoCorp adopted strategies such as optimizing box size and dismantling vehicles for the best space utilization of boxes.

Incorporating Alternate Materials and Technology:
Hero MotoCorp introduced lightweight and durable materials and leveraged advanced manufacturing technologies to enhance precision and efficiency.
For delivering World-Class Quality, the team developed a second model called the Quality Chakravyuh. The term 'Chakravyuh' comes from the Mahabharata and describes a circular military formation that is highly strategic and difficult to penetrate or escape.
The Quality Chakravyuh is a comprehensive, multi-layered approach to achieving defect-free manufacturing. Inspired by the concept of a strategic, impenetrable defence mechanism, this framework integrates continuous monitoring, problem-solving, and process optimization to deliver world-class quality in export operations.
The Quality Chakravyuh focuses on multiple interconnected elements, each addressing critical aspects of quality. It is a structured framework designed to eliminate defects and ensure continuous improvement. The Chakravyuh begins with Quality Controls at the input level, involving 100 percent inspection of parts.
At the input stage, the company ensures the implementation of Poka-Yoke across all its suppliers, confirming that 100 percent of electrical parts pass end-of-line testing after thorough inspection. Truly embracing the concept of continuous improvement, enhancements are consistently made at supplier levels and input gates to ensure that 100 percent quality parts reach the process level.
Hero MotoCorp provided advanced Technical Support to ensure seamless operations and maintain high-quality standards. Through these initiatives, the company has successfully established a reliable global network, promoting mutual growth and success.

Results Achieved
Through these concerted efforts, Hero MotoCorp has achieved remarkable outcomes:

- **Cost Reduction:** The company has realized significant savings in material and logistics expenses.
- **Enhanced Quality:** Hero MotoCorp delivers products that consistently meet and exceed customer expectations.
- **Operational Efficiency:** Streamlined processes have led to faster delivery times.
- **Global Recognition:** The company has strengthened its reputation as a leader in two-wheeler manufacturing.

in TJR

Agent Wanted

OEM Customized **OEM**/**ODM** orders from the machine tool manufacturer are accepted.

Driven by
Roller Gear Cam

RC-255N

FHD-650-iD650
(Two D.D. Motor /
Hydraulic Brake)

FRC-210L-RC255

Swivel Spindle Head
HRC-400SP

Masano

OEM Customized **OEM**/**ODM** orders from the machine tool manufacturer are accepted.

Agent Wanted

CNC Angle Head

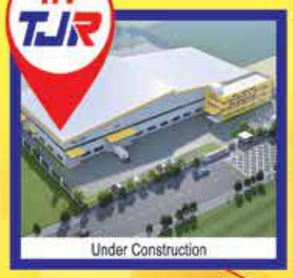
Masaki Japan Plant

TJR Taiwan Plant

LV TJR China Plant

th TJR Thailand Plant

Factory Exterior



5 factories

in Masano India Plant

Machine Frame

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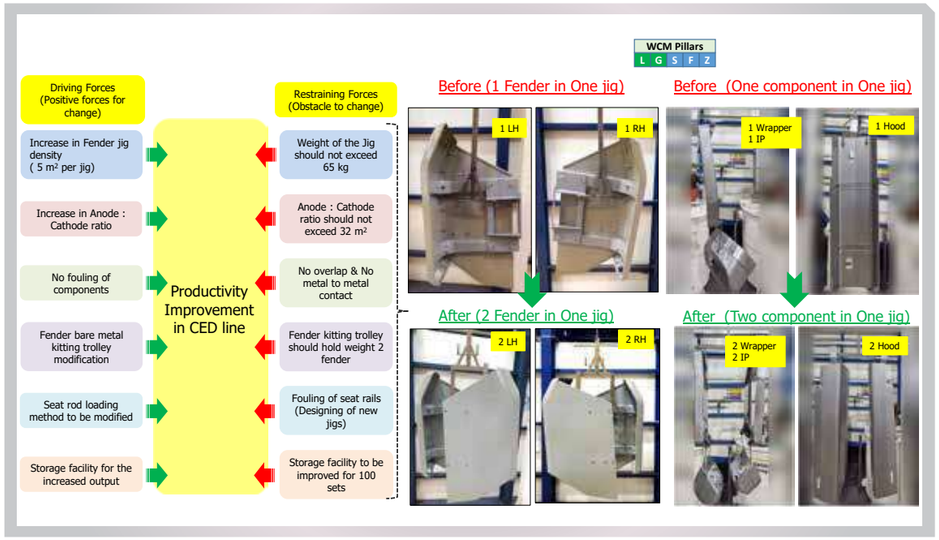
IMPROVING PAINT SHOP PRODUCTIVITY

The following account focuses on how Tractors and Farm Equipment's Paint Shop Productivity Project tackled various challenges to enhance efficiency, meet increasing production demands, and prepare for future growth.



Source: TAFE

Force Field Analysis andI mprovement Plan

MURUGADAS P
Project Leader
Divisional Manager — Paint Shop
Tractors and Farm Equipment Ltd

At Tractors and Farm Equipment Ltd (TAFE), Bengaluru, the paint shop team faced a challenge and opportunity to significantly reduce losses and improve plant efficiency by increasing productivity to meet growing delivery targets. With the increasing demand for new models of tractors (NPI tractors) in the market, we needed to streamline processes and ensure the right model of tractor reached the right dealer at the right time. The solution was clear—optimize the paint shop's capacity to support new product adoption without compromising regular production.

To maintain its customer-centric approach and market leadership, the team embarked on an ambitious productivity enhancement project aimed at improving the delivery process and plant performance. This initiative aimed not only to meet the immediate demand but also to position the company for future growth by improving efficiency, sustainability, and innovation.

Hence, this productivity enhancement project supported in focusing the bottleneck areas within the paint shop process and implemented targeted improvements to reinforce our dedication to exceed customer expectations to uphold organization core value and to play a market leader in the industry.

Meeting New Products Demand

TAFE's commitment to providing quality and timely tractor deliveries is rooted in its dedication to customer satisfaction. The need for new models of tractors required to thoroughly assess its manufacturing plant capacity. The key challenge was ensuring that production could accommodate these new models while maintaining regular operations at scale.

The primary objective of this productivity enhancement project was to increase the painting capacity in order to meet the increased demand from the tractor business. This ambitious goal required a detailed understanding of the paint shop's processes, identify the areas for improvement, and execute strategies to optimize the workflow.

After implementing these productivity improvements, the capacity for painting tractor sets per hour saw a significant increase across all painting lines. This success not only met the initial business requirements but also exceeded them.

Overcoming Key Challenges

While striving to achieve productivity improvement goals and objectives, we encountered several challenges:

- **Increase in Operating Costs:** Rising costs made it essential to optimize operations without compromising quality.
- **Capital Expenditure (CAPEX) Requirements:** Investment in new technologies and equipment was necessary to ensure long-term gains.
- **Environmental Effects:** The team had to address environmental concerns while improving productivity.
- **Traditional Training Facilities:** There was a need and drive to change from the existing training methodologies to accommodate new technologies and processes.
- **People Mindset on Training:** Shifting the mindset of employees to embrace new training programs was a significant hurdle.
- **Lack of Certified Trainers:** The need for specialized trainers to impart advanced skills and knowledge in emerging technologies was paramount.

The team recognized that the key to overcoming these challenges lay in adopting a holistic approach that balanced productivity enhancements with environmental responsibility.

Methodologies for Success

To achieve the desired productivity gains while ensuring sustainability, the team employed several advanced methodologies:

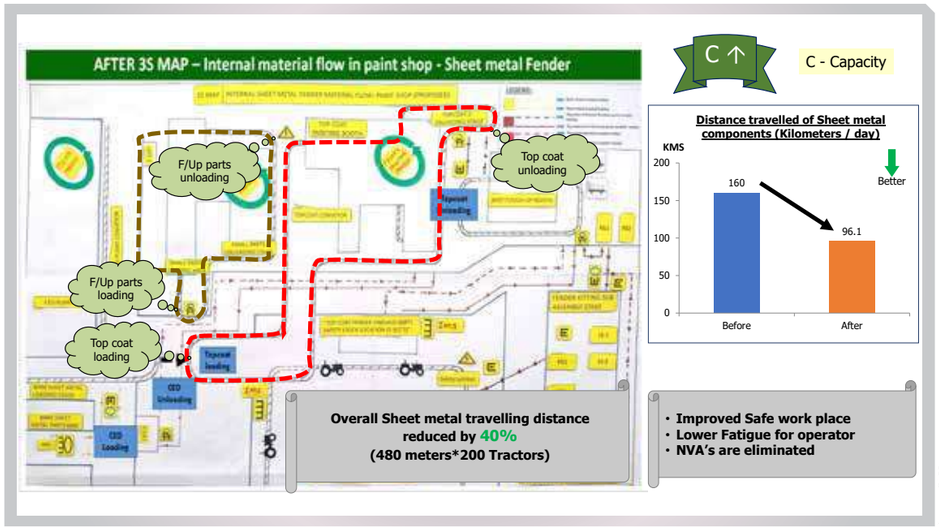
Process Re-Engineering:
A core aspect of the project was the redesigning of the existing processes. This involved:

- **New Loading Pattern:** Shifting from the old to a new loading pattern, which was more efficient and better aligned with paint shop productivity goals.
- **Gap Identification:** Identifying bottlenecks and areas that required immediate attention to prevent delays in production.
- **Modification of Secondary Hangers, Jigs, and Hooks:** Upgrading equipment to accommodate improved workflows.
- **Layout Optimization:** Modifying the line layout to improve space utilization and material flow.

Leveraging Digital Enablement:
In the era of Industry 4.0, digital solutions play a critical role in driving efficiency. Hence, the team incorporated several cutting-edge technologies, including:

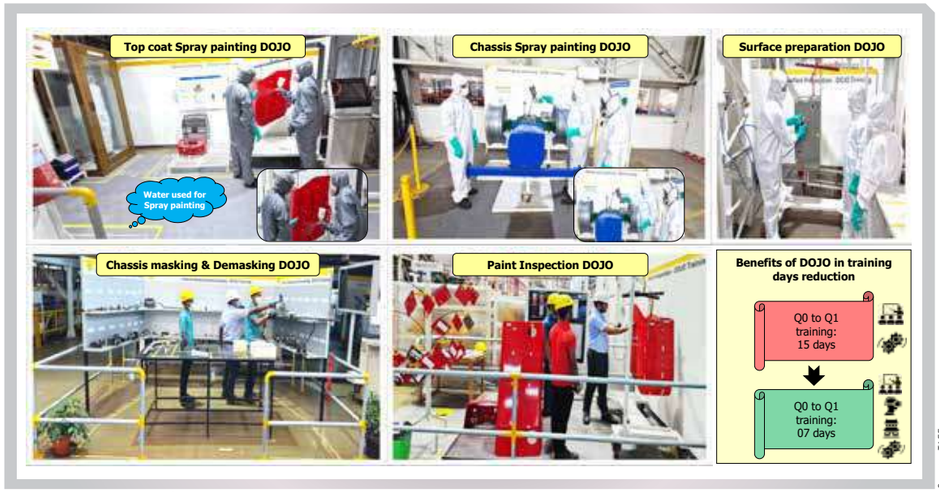
- **Digital Monitoring Systems:** Real-time monitoring systems such as Supervisory Control and Data Acquisition (SCADA) systems were introduced to track every stage of the painting process.
- **Virtual Reality (VR) Based Training:** This technology allowed for hands-on training experiences without the need for physical equipment, reducing training time and costs.
- **Simulation Modules:** Through real-time simulations, trainees could experience real scenarios and improve their decision-making skills without any production downtime.

Optimizing Flow Manufacturing:
To further improve efficiency, we optimized the manufacturing flow:



Source: TAFE

3S MAP Study : Overall Material Flow



Source: TAFE

Skill training through DOJO (Real time simulation)

By surpassing targets, TAFE demonstrated an unwavering commitment to innovation, operational excellence, and customer satisfaction. The enhanced processes have laid the foundation for future growth, positioning it as a market leader in the Tractor Manufacturing industry.

- **VMAP 1 and 3S MAP:** Streamlined value stream mapping processes helped identify waste and redundancies within the production line.
- **Heijunka:** Implemented to ensure balanced production and reduce fluctuations in paint shop workflow.
- **Space Utilization:** Optimized material storage areas to free up space for more efficient material handling.
- **Safety Considerations:** Minimized hazards and improved workplace safety by mapping potential safety risks.
- **RMS & IMS Mapping:** Ensured smoother communication and less downtime by systematic mapping of resource management and information systems.

Skill Development:

A well-trained workforce is key to maintaining productivity, and we took proactive steps in upskilling our employees:

- **Virtual Simulations and Real-Time Simulations:** Employees were trained using VR to practise their roles in a controlled, risk-free environment.
- **Role Effectiveness of Sprayers:** Special training was provided for sprayers, focusing on technique and efficiency.
- **Train-the-Trainers Program:** To ensure continuous skill enhancement, a master trainer program was launched to develop in-house certified trainers capable of passing on the knowledge to new recruits.

Results and Achievements

After implementing these productivity improvements, the capacity for painting tractor sets per hour saw a significant increase across all painting lines. This success not only met the initial business requirements but exceeded them, providing the company with the ability to accommodate the growing demand for tractors.

By surpassing targets, we demonstrated an unwavering commitment to innovation, operational excellence, and customer satisfaction. The enhanced processes have laid the foundation for future growth, positioning us as a market leader in the Tractor Manufacturing industry.

Painting capacity (average) increased from 13 to 25 per hour though jig density optimization at the success rate of 92.3 percent.

Environmental benefits were also achieved as 2,852 tonne of CO_2 emission was reduced and 400 litres per tractor of water saved.

Conclusion

The Paint Shop Productivity Project at TAFE has been pivotal in driving efficiency, sustainability, and excellence in every aspect of production. By addressing challenges and adopting transformative strategies, we have not only met our objectives but have also set a benchmark for future productivity initiatives. As the demand for new tractor models continues to grow, TAFE's dedication to continuous improvement and innovation ensures it will remain at the forefront of the industry, meeting customer expectations and achieving long-term success.

Source: Taurus Pvt Ltd

COMMITTED TO EXCELLENCE

Taurus Pvt Ltd has spent over four decades perfecting the art of building Special Purpose Machines (SPMs) for a multitude of industries, scripting a success story for micro, small, and medium enterprises (MSMEs). Building on the commitment to quality and technological advancement, the company steps into a new chapter with its modern facility, setting the stage for an inspiring journey ahead.

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Taurus was established in 1983 by two technocrats, starting its journey as a design office in Bengaluru. Within a short span of time, the company developed its manufacturing capabilities, entering into the new product line of machine tool accessories line conveyors in 1985 and opening its first plant near Electronic City—South Bengaluru's industrial technology hub—in 1987. Over the years, Taurus expanded its operations with a second facility in 2000 at Attibele, Hosur Road, Bengaluru, and eventually consolidated all activities at its Attibele plant in 2013.

A latest achievement in Taurus' growth story is its transition to a 100 percent subsidiary of Ace Designers Ltd, a flagship company of India's largest machine tool conglomerate AceMicromatic Group (AMG), after its acquisition. Following this, the company moved into a new state-of-the-art 35,000 sq ft facility at Peenya Industrial Area, Bengaluru, comprising 20,000 sq ft of shop floor space and 15,000 sq ft of office space.

Citing it as one of the important machine tool hubs in India, R Prabhakar, Director & Business Head, Taurus Pvt Ltd, elaborates, "Being situated in one of India's key machine tool hubs gives us proximity to a robust supplier ecosystem and enhances collaboration and output quality. Taurus now has at its disposal the infrastructure of AMG to enhance its capabilities and to offer better products that are always evolving with respect to technology and quality."

Tailor-Made Triumphs

Taurus' forte lies in designing and delivering bespoke machinery that meets the specific needs of customers, which is even bolstered by the move to the new Peenya facility. As Prabhakar explains, "This is helping the Taurus team to closely interact with senior designers at its parent company (Ace Designers Ltd) and also to interact and adopt best practices of the parent company. Also, the company has a blend of new and senior machine tool designers. All this has facilitated Taurus to bring out new and innovative custom-made products that are better technologically and also help its customers to achieve better quality and productivity."

> "Being situated in one of India's key machine tool hubs gives us proximity to a robust supplier ecosystem and enhances collaboration and output quality. Taurus now has at its disposal the infrastructure of the AceMicromatic Group to enhance its capabilities and to offer better products that are always evolving with respect to technology and quality."
>
> **R Prabhakar**
> **Director & Business Head**
> **Taurus Pvt Ltd**

Taking this further is innovation, which at Taurus often takes the form of import-substitution machines that are tailored to Indian manufacturing practices. "Many products have been 'Import Substitute' machines that are 'Indianized' to suit our manufacturing practices in the country," he explains. "During this process of re-engineering, certain innovative solutions have been provided to customers." The strategic approach behind Taurus' R&D lies in its focus on staying ahead of the curve. With the integration of the customers' feedback into the development process, the company ensures that its machines remain relevant in an increasingly competitive and evolving industrial market.

Quality Overcomes Constraints

As a medium-sized enterprise, Taurus operates within the dynamic yet challenging MSME sector. This segment, as per Prabhakar, is a significant contributor to India's GDP and employment and faces hurdles such as limited access to funds, be it

At the highly anticipated IMTEX 2025 event, Taurus will be displaying two very new SPMs that are designed and manufactured for the first time in India –FUSION-60 and TRCM-22.

Source: Taurus Pvt Ltd

Source: Taurus Pvt Ltd

As it continues the redefinition of excellence in machine building, Taurus' story presents inspiration and stands as a testament for transformative innovation and commitment within the MSME segment.

from banks, financial institutions, or advances from the bigger customers, and operational pressures. "While the sector has made remarkable progress, financial constraints often pose a challenge," he says.

Despite these obstacles, Taurus has managed to thrive by prioritizing quality, reliability, and customer satisfaction. The company's machines, designed with standard quality modules and tested with customer support, are a testament to its unwavering focus on excellence.

Domestic Strength, Global Ambition

Although Taurus' primary focus remains on the domestic market, its machines have found a foothold in international territories through indirect exports. "Our products, successfully deployed by Indian customers, have garnered interest from their overseas operations," Prabhakar shares. "This has led to exports reaching overseas markets like China, the Middle East, and more." The company aims to continue strengthening its operations across the world while at the same time maintaining its strong foothold in the Indian market.

Leading up to the anticipation of the 22nd edition of IMTEX, the largest machine tool and manufacturing technology show in South and Southeast Asia, from January 23-29, 2025, at BIEC Bengaluru, the company is set to unveil two groundbreaking machines. "Taurus will be displaying two very new products (SPMs) that are designed and manufactured for the first time in the country; one is FUSION-60 and the other TRCM-22," reveals Prabhakar.

Taurus, with a turnover of INR 12 crore for FY 2023-24, has a legacy rooted in customer trust and cutting-edge technology. Poised for sustained growth, the journey of the company from being a modest design office to a leader in SPM manufacturing reflects its adaptability and foresight. As it continues the redefinition of excellence in machine building, Taurus' story presents inspiration and stands as a testament for transformative innovation and commitment within the MSME segment.

Source: Taurus Pvt Ltd

JIMTOF 2024: A CUTTING-EDGE SPECTACLE

Japan International Machine Tool Fair (JIMTOF) 2024, held from November 5-10 at Tokyo Big Sight, broke records with unprecedented scale and global participation, making it the largest in its history. With an astounding number of exhibitors and visitors, the event further secured its status as a leading global platform for the machine tool industry, serving once again as the global hub of innovation, technology, and collaboration in the allied and respective sector.

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Unleashing the new generation of advancements in machinery, automation, robotics, and additive manufacturing, JIMTOF 2024 was attended by participants across the globe, highlighting Japan's central role in the Manufacturing sector.

"Marking its 32nd edition, JIMTOF 2024 is the largest in history, surpassing records set in 2022 in both exhibitor and visitor numbers," stressed Dr Yoshiharu Inaba, Chairman, Japan Machine Tool Builders' Association (JMTBA). This year's theme, 'Technologies Passed Down to the Future Offer Unlimited Possibilities', reflects the event's focus on state-of-the-art machine tool technologies and their role in unlocking unlimited possibilities in manufacturing.

Adding clarity, Kazuharu Iwase, Executive Vice President & CEO, Tokyo Big Sight Inc, revealed, "The first two days saw a combined turnout of 41,088 visitors, including 5,724 international attendees representing over 116

Source: JMTBA

Source: JMTBA

percent increase compared to 2022." Which is in resonance with the report of recent economy and machine tools trend in Japan by Kazuo Yuhara, President, JMTBA: "Japan's GDP grew by 0.7 percent in the second quarter (July-September, 2024), recovering from a 0.6 percent decline in the first quarter. Corporate earnings remain high, with robust investments addressing labor shortages—highlighting increased domestic demand and wage growth."

Hosting 1,262 exhibitors from 19 countries and 162,670 visitors, of which 18,515 were from overseas, JIMTOF 2024 presented innovations across 5,743 booths spanning 118,540 sq mt. This marks an increase of 175 exhibitors and 125 booths from 2022.

Shaping Tomorrow, Today

Among advanced machine tools, robotics, IoT, and AI solutions, the event's focus was also on the Automotive industry innovations, including EV battery production and aluminum giga-casting. Another key emphasis of the event was on automation, labor-saving technologies, and digital transformation (DX), as Dr Inaba puts it: "The use of robotics for automation and labor-saving is critical to addressing population decline in the Manufacturing industry. Collaborative robots are key highlights, and this trend continues at JIMTOF."

In terms of exhibits, the exhibition was divided into several areas, with the East Hall featuring cutting-edge tools for machining and forming, while the West Hall was dedicated to grinding technologies. On the other hand, the South Hall became a hub for advanced measuring instruments and precision technologies, underlining the growing importance of accuracy in production.

The Additive Manufacturing (AM) Zone was one of the most engaging sections of the event. As 3D printing continues to revolutionize production, exhibitors showcased these technologies not just for prototypes, but integral to end-product manufacturing. Stressing additive manufacturing, a key component in sustainable production, Dr Inaba said, "It is evolving from prototypes to full-scale production, especially in die and medical components, offering enhanced functionality and weight reduction."

Advanced Tools & Tech Unveiled

One of the largest among the exhibitors at JIMTOF, Yamazaki Mazak Corporation showcased a total of 19 machine tools and laser processing machines including VCN-460 HDCC vertical machining center, as well as demonstrated cutting-edge machining using the exhibited machines.

DMG MORI Company Ltd introduced its 'Machining Transformation (MX)' concept, which emphasized automation and green

JIMTOF 2024 set new records, attracting around 1,300 exhibitors and 162,670 visitors, with a significant international turnout, confirming its position as the leading global platform for the machine tool industry.

Source: JMTBA

Source: JMTBA

JIMTOF 2024 featured engaging seminars, workshops, and the 20th International Machine Tool Engineers' Conference (IMEC), facilitating knowledge exchange between industry giants, academia, and global manufacturers.

transformation, with the INH63 5-axis horizontal machining center as a key highlight.

Okuma Corporation showcased 14 machines which included five 5-axis machining centers/multi-tasking machines, six machining centers, two turning centers and a CNC cylindrical grinder.

NSK Ltd introduced ROBUSTRIDE™, a high-precision single row cylindrical roller bearing for machine tool spindles, while NTN Corporation exhibited innovative bearings and technologies including high-speed grease-lubricated bearings, advanced condition monitoring systems, and automation solutions like the 'i-WRIST' robot module.

For the Automotive industry, Komatsu NTC Ltd. showcased the KV420L, a large VMC and a revolutionary solution for giga-casting in EV manufacturing and Shibaura Machine Co., Ltd highlighted its UVM-450D, a precision tool designed for creating molds for automotive lighting.

Global manufacturers added an international dimension to the event. Taiwan's HIWIN Technologies Crop. impressed attendees with its robotic solutions for automated workpiece handling including Torque Motor Rotary Table - RAB Series. Germany's Beckhoff Automation K.K. showcased PC-based NC control systems equipped with advanced sensors and introduced machine performance evaluation demo by TwinCAT.

Source: JMTBA

Source: JMTBA

Forging Insights and Ideas

JIMTOF 2024 was not only a visual feast but also a platform for sharing knowledge and ideas. The conference tower hosted a range of thought-provoking seminars and discussions led by industry giants.

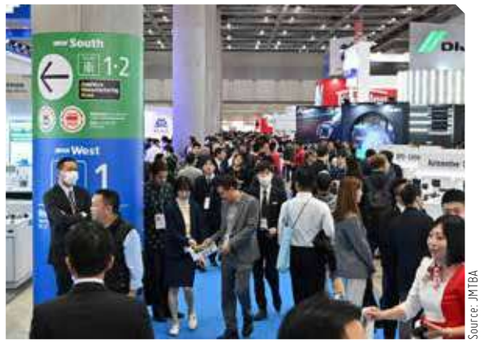
Notably, Akihiro Teramachi, Chairman/CEO, THK CO., LTD, and Shiro Nakamura, President, SN Design Platform, presented the LSR-05 electric vehicle prototype, emphasizing the critical role of precision engineering in shaping the future of transportation.

While Mitsuru Kawai, Executive Fellow, Toyota Motor Corporation, captivated the audience with a talk on the human-centric philosophy of Monozukuri—Japan's unique approach to craftsmanship. Akiko Otsuka, Senior Manager, JAXA, Human Spaceflight Technology Center, on the other hand, highlighted how space exploration is driving innovation in robotics and engineering.

Special Exhibit: Machine Tool Infinity, an exhibit showcasing advanced technologies shaping the future of manufacturing, was in South Hall 4, South Ex-

JIMTOF 2024 featured exhibitors from 19 countries, showcasing a wide array of innovations, including advanced robotic solutions, 3D metal additive manufacturing, and precision engineering for industries like automotive and aerospace.

Source: JMTBA



Source: JMTBA

hibition Hall. A Special Display in Additive Manufacturing (AM) area was in South Hall 1, South Exhibition Hall highlighting Japan's cutting-edge advancements in 3D printing technology. It was developed under key national projects: 'Technology Development of Next Generation Type 3D Printer for Industry' Project (METI/NEDO) and 'Basic Technology Development Project for Metal Additive Manufacturing Parts' (NEDO).

Bridging Academia and Industry

JIMTOF 2024 also served as a vital space for the academia and industry to intersect. The 20th International Machine Tool Engineers' Conference (IMEC) served as an intellectual crucible, gathering experts to discuss the latest trends in manufacturing. Themes such as digital transformation, automation, and sustainable practices underscored the event's commitment to advancing industrial frontiers.

The IMEC poster sessions further enriched the experience, with university researchers showcasing innovations poised to redefine manufacturing paradigms. The Academic Area in South Hall 4, South Exhibition Hall, aimed at students and young professionals, offered a vibrant platform for career development. Industry seminars and networking events bridged the gap between education and employment, igniting passion for careers in manufacturing and engineering.

Forging Ties, Shaping Futures

Beyond the exhibits, JIMTOF 2024 was a hub for networking and partnership-building. Participants had the opportunity to forge new relationships and explore joint ventures, especially in the context of sustainable manufacturing. One such integral part of the event was the participation of the Indian Machine Tool Manufacturers' Association (IMTMA) in the 'CEOs Technology & Export Mission to Japan'. This initiative brought together Indian industry leaders to explore cutting-edge technologies and forge export partnerships.

The 20th International Machine Tool Engineers' Conference (IMEC) served as an intellectual crucible, gathering experts to discuss the latest trends in manufacturing.

Source: JMTBA

Tokyo Triumphs

Underscoring that the event had lived up to its reputation as a beacon of innovation, Iwase revealed, "Exhibitors report that business talks have been more fruitful than expected, with strong enthusiasm from both domestic and international visitors." It is evident that as JIMTOF 2024 successfully concluded, the event had marked the pathway for the next wave of manufacturing innovation. The upcoming edition of JIMTOF is planned for October 26-31, 2026, at Tokyo Big Sight.

IMTMA 'CEOS TECHNOLOGY AND EXPORT MISSION TO JAPAN'

In a remarkable confluence of technological ambition and international collaboration, Indian Machine Tool Manufacturers' Association (IMTMA) orchestrated its 'CEOs Technology and Export Mission to Japan' from November 9-13, 2024. Aligning with the prestigious 32nd Japan International Machine Tool Fair (JIMTOF 2024), this mission was a testament to India's emerging stature in the global machine tool industry.

Source: IMTMA

The delegation, comprising 15 distinguished leaders and some of India's brightest industrial minds, embarked on a journey that transcended borders, bringing together innovation, knowledge sharing, and an aspiration to bridge the Indo-Japanese industrial ecosystem. It included Vikram Salunke, Managing Director, Accurate Gauging & Instruments Pvt Ltd; Prakash Gadhar and Sumit Y Waghmare, Joint Director and Chief Technology Officer, Ace Designers Ltd; Preethi Laxmikant and Muralidhara Rao, Head-Business Strategy and Joint Director, Ace Designers Machining Center Division; Rajkumar Sharma, Director, Bestek Engineering Pvt Ltd; Nagesh Velaga, Bina Khambhaita, and Aayush Velaga, Directors, Cosmos Impex India Pvt Ltd; Mohini Kelkar, Director-Business Development, Grind Master Machines Pvt Ltd and Vice President, IMTMA; Kumar Rashmi Rathi, CEO, Micromatic Grinding Technologies Pvt Ltd; Agnay Chuttani, Director Marketing, Shobha Industries Pvt Ltd; Varun Dev, Deputy CEO, UCAM Pvt Ltd and Prasad Pendse and Srinjoy Das, Regional Directors, IMTMA.

Exploring JIMTOF 2024

The mission kicked off on November 9 with an immersive visit to JIMTOF 2024 at Tokyo Big Sight. Representing cutting-edge advancements in the global Machine Tool sector, the fair set the stage for exploration and inspiration. Delegates marveled at the synergy between Japanese precision and global demand. From exchanging insights on manufacturing trends to discussing mutual growth opportunities, the visit underscored the value of collaboration.

Insight into Japanese Precision

The delegation traversed Japan's industrial heartland, visiting the facilities of Mitsui Seiki Kogyo Company Ltd and FANUC Corporation in Oshino-mura, Yamanashi Prefecture. It offered the delegation an unparalleled glimpse into its state-of-the-art facilities. Guided tours emphasized their dedication to precision and innovation, inspiring delegates to adopt similar excellence in India. NSK Ltd's Global Training Center and Fujisawa Plant, renowned for its precision bearing production, and Makino Milling Machine Company in Fuji-Katsuyama, Yamanashi, also opened its doors to the delegation.

At the National Institute of Advanced Industrial Science and Technology – Advanced Manufacturing Research Institute (AIST) in Tsukuba, the delegation explored groundbreaking research in advanced manufacturing. At the Embassy of India in Japan, an interactive session with the Hon'ble Ambassador of India celebrated the growing economic ties between the two nations. The delegation also had the opportunity of engaging discussions with corporate stalwarts such as Toyota Tsusho Corporation and Daiichi Jitsugyo Company Ltd.

Bridging Nations

Over five days, the delegation not only explored state-of-the-art technologies but also sowed the seeds of enduring partnerships. This Mission was not just a journey across borders; it was a bridge connecting two nations, fostering a shared vision for a sustainable and prosperous industrial future.

The participation of Indian Machine Tool Manufacturers' Association (IMTMA) in the 'CEOs Technology & Export Mission to Japan'. This initiative brought together Indian industry leaders to explore cutting-edge technologies and forge export partnerships.

POWERING PRODUCTIVITY TOGETHER

With an accentuated impact and a remarkable display of India's manufacturing prowess, the 18th edition of National Productivity Summit (NPS 2024) successfully unfolded in Pune, drawing together over 260 delegates from over 100 companies. Organized by Indian Machine Tool Manufacturers' Association (IMTMA), from December 3-4, 2024, in Pune, the summit served as a melting pot of innovative ideas and transformative discussions, driving a concerted push towards excellence.

Source: Magic Wand Media

Themed 'Showcasing Excellence in Manufacturing', the two-day summit kicked off with enlightening plant visits to industrial giants including Bajaj Auto Ltd, Gabriel India Ltd, Forbes Marshall Pvt Ltd, Aakar Foundry Pvt Ltd, Tata AutoComp Systems Ltd, and Mahle Anand Thermal Systems Pvt Ltd. These visits set the tone for what would become a comprehensive exploration of manufacturing excellence.

The event was inaugurated by Ashwin Shastri, Chief Transformation Officer, Tata AutoComp Systems and Avinash Chintawar, Managing Director, Bosch Chassis Systems India Pvt Ltd. Sharing the dais were key IMTMA names, including Rajendra S Rajamane, President, IMTMA; Mohini Kelkar, Vice President, IMTMA; and Guru Prasath KR, Executive Director, IMTMA. TK Ramesh, Managing Director, Ace Designers Ltd, delivered a special address.

Speaking on the occasion, the IMTMA President said that IMTMA instituted the AceMicromatic Productivity Championship Awards in 2006 to showcase the best Productivity Improvements in the Manufacturing sector. Over the years, NPS has played a key role in bringing forth some groundbreaking productivity improvements.

Kelkar highlighted that this Summit offers a great opportunity to the manufacturing community to come together and share Best Practices. It is a combination of keynote addresses, interesting case study presentations and factory visits.

In alignment TK Ramesh, stated that this summit acts as a knowledge sharing platform and helps in the process of learning through case studies. This summit has been made for everyone in the manufacturing industry and the fraternity to learn from each other and transform the industry.

Impactful Inaugural Insights

Shastri delivered a compelling inaugural address that resonated throughout the hall. "India can be predictable. India can be a very reliable partner," he declared, highlighting India's potential as a stable manufacturing hub. His vision for the future emphasized the critical need for "a fantastic handshake between institutes and IMTMA," recognizing the vital role of academia-industry collaboration in fostering innovation. Chintawar offered a fresh perspective to the sustainability dialogue. "No source is unlimited; it's where the word resource has come from," he remarked, emphasizing the importance of renewable, resourceable, and recyclable materials in manufacturing processes.

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Source: IMTMA

IMTMA-ACE MICROMATIC PRODUCTIVITY CHAMPIONSHIP AWARDS 2024

In addition to powerful keynote addresses and live case study presentations, the exclusive highlight of the summit was the Productivity Championship Awards 2024, which celebrated and recognized trailblazers in the Manufacturing sector.

Winners List

Automotive Category
- First Prize: Ashok Leyland Ltd, Pantnagar
- Second Prize: Hero MotoCorp Ltd, Haridwar
- Third Prize: Lucas TVS Ltd, Padi
- Jury Commendation Award: Ashok Leyland Ltd, Hosur
- Certificate of Merit: SEG Automotive India Pvt Ltd

Non-Automotive Category
- First Prize: Tata Electronics Pvt Ltd
- Second Prize: Tractors and Farm Equipment Ltd (TAFE)
- Certificate of Merit: Kirloskar Toyota Textile Machinery Pvt Ltd

SME Category

SME Productivity Championship Awards:
- Synergy Engineers and Powder Coaters, Satara
- INDER Enterprises, Ghaziabad

Voices of Industry Leaders

A key and seasoned presenter at the summit, MS Shankar, President-Future Mobility, ANAND Group India, delivered a passionate address focusing on youth empowerment, which plays a crucial role in redefining productivity. "Every part of a machine should speak to the other," he emphasized, advocating for connected systems and urging industry leaders to spotlight young plant-level innovators, empowering the next generation.

Jitendra Lakhotia, CEO, Aakar Foundry Pvt Ltd, turned the spotlight on the people behind the machines. "It's not just machines or materials; people are the driving force," he affirmed, advocating for continuous workforce development and the creation of a 'circle of safety' for employees. His heartfelt message resonated deeply with participants, reinforcing the importance of human capital in manufacturing success.

Dr N Ravichandran, Chief Mentor, UCAL Ltd and Chief Jury for the IMTMA Awards, highlighted the transformative power of collaboration. "Individual intelligence is inferior to collective wisdom," he noted, emphasizing the summit's role in fostering knowledge sharing and collective learning. His reflections on the rigorous evaluation of over 70 entries illustrated the high standards of innovation showcased at the event.

NPS continues the legacy of IMTMA championing productivity in the Indian manufacturing sector by bringing leaders, innovators, and professionals under one roof to shape the industry's future.

A PLATFORM FOR GLOBAL MANUFACTURING INNOVATION

Organized by Indian Machine Tool Manufacturers' Association (IMTMA), International Seminar on Manufacturing Technologies (ISMT) 2025, is set to take place from January 24 – 25, 2025, during the IMTEX 2025 exhibition, at Bangalore International Exhibition Centre (BIEC). The flagship event is dedicated to bringing the global manufacturing community together and highlighting evolving trends in manufacturing technologies.

Source: Magic Wand Media

A stellar lineup of industry experts, technology leaders, and research pioneers at the International Seminar on Manufacturing Technologies (ISMT) 2025 will be sharing insights on the latest innovations and technologies slated to transform the Manufacturing sector. The event has also been serving as an ideal place to network with industry peers and gain valuable perspectives on the challenges and opportunities in the ever-evolving manufacturing landscape.

Highlights of ISMT 25

A blend of keynotes, technical sessions, and panel discussions, has been scheduled promising insights into the latest trends and technologies from the manufacturing arena.

The event will feature two keynote addresses on the 'Trends Shaping the Automotive Industry and Their Impact on Manufacturing Technologies' and the 'Machine Tools in India's Expanding Aerospace Sector'.

Industry experts will be shedding light on critical topics, including 'Hybrid Manufacturing: Combining traditional machining with additive manufacturing'; 'Sustainability in Metal Cutting industry'; 'Collaborative Robots (Cobots) in Manufacturing'; 'Enhancing productivity and safety'; 'Latest Tool Holding Technologies & Influence of Tool Holding in Process Optimization'; 'Virtual and Augmented Reality in CAD/CAM'; 'Advanced Materials for Cutting Tools: Innovations in materials like ceramics and composite'; 'Dig-

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Whether one seeks to explore the latest technological advancements or gain actionable insights to stay ahead in their field, this seminar promises to be the gateway to the future of manufacturing.

Tentative Programme Schedule

Conference Centre - Gulmohar Hall	Conference Centre - Jacaranda Hall
Enabling Technologies	**Advanced Machining Technologies**
Hybrid Manufacturing: Combining traditional machining with additive manufacturing, ACE Micromatic	Sustainability in Metal cutting industry, Ceratizit
Collaborative Robots (Cobots) in Manufacturing: Enhancing productivity and safety, Fanuc India	Latest Tool Holding Technologies & Influence of Tool Holding in Process Optimisation, Rego-Fix
Virtual and Augmented Reality in CAD/CAM: Immersive technologies for design and manufacturing, LEANworx Technologies	Innovations in Materials, composites, changing Cutting Tool dynamics, Dormer Pramet
Digital Twin bringing Transformation in Manufacturing, Association for Manufacturing Technology(AMT)	Advanced Solutions in Forging and Casting for Overcoming Machining Complexities, Siemens
Inspection and Monitoring	**Emerging Technologies**
Multi-Sensor Systems in CMMs: Enhancing accuracy and efficiency in Manufacturing, Marposs	5-Axis Machining Techniques for Aerospace and Medical Applications, BFW
Tool Wear Monitoring and Compensation: Sensor-based monitoring, predictive maintenance, and tool life management, Katanamech Solutions	The Science of Surface Finishes: Enhancing Performance in Engineered Parts, Grindmaster
Smart vibration spectra-based condition monitoring of machine tool spindles, IIT-Kanpur	Next-Gen Machining Solutions for Optimal Productivity and Performance, Hermle WWE AG
Unlocking the Power of Data-Driven Manufacturing, Renishaw	Increased efficiency in milling of worms and hobbing of worm gears through optimized processes and process strategies, EMAG

ital Twin using Standards and Technologies'; 'Overcoming Machining Complexities in Forged and Cast Inputs with Advanced Solutions'.

ISMT 2025 will have a panel of eminent industry experts discussing ways for 'Advancing India's Manufacturing Ecosystem: The Role of Machine Tools in 'Make in India' and 'Atmanirbhar Bharat''.

To be held simultaneously in Gulmohar and Jacaranda Halls, additional sessions will deliberate on ' 'Multi-Sensor Systems in CMMs: Enhancing accuracy and efficiency in Manufacturing'; '5-Axis Machining Techniques for Aerospace and Medical Applications'; 'Tool Wear Monitoring and Compensation'; 'The Science of Surface Finishes: Enhancing Performance in Engineered Parts'; 'Unlocking the Power of Data-Driven Manufacturing, Renishaw';

'Next-Gen Machining Solutions for Optimal Productivity and Performance'; 'Smart vibration spectra-based condition monitoring of machine tool spindles'; and

'Increased efficiency in milling of worms and hobbing of worm gears through optimized processes and process strategies'.

Be Part of the Manufacturing Evolution

ISMT 2025 has proven itself to be a cornerstone event for driving innovation, fostering collaboration, and inspiring excellence. Whether one seeks to explore the latest technological advancements or gain actionable insights to stay ahead in their field, this seminar promises to be the gateway to the future of manufacturing.

CHARTING AUTO'S FUTURE PATH

Jointly organized by ACMA Mobility Foundation and Indian Machine Tool Manufacturers' Association (IMTMA), 'Auto Components Industry Transformation Summit' emerges as a beacon for industry leaders seeking to navigate the rapidly evolving landscape of auto components manufacturing. Scheduled for January 26 at Bangalore International Exhibition Centre (BIEC), during IMTEX 2025, the summit promises to reshape the sector's future.

The powerhouse gathering will bring together thought leaders from OEMs, Tier 1 companies, and cutting-tool innovators, fostering a dynamic exchange of ideas and solutions.

In this dynamic era, powered by technological upgrades, changing consumer preferences, and stringent regulatory standards, the Automotive industry is cruising at a breakneck speed. This shift has created significant pressure on the Auto Components Manufacturing sector to improve efficiency, precision, and quality in machining operations. The upcoming summit seeks to address the critical challenges hindering the industry's journey towards machining excellence while exploring potential solutions.

Source: ACMA

Innovation Meets Expertise

Under the skilled moderation of Rajesh Nath, Managing Director, German Engineering Federation (VDMA) India Office, the summit will feature a star-studded panel discussion on 'The Auto Components Industry Driving India's Growth'. Industry veteran Ganesh Mani, President & Chief Operating Officer, Ashok Leyland Ltd, will deliver the keynote address on 'Machining Excellence in the Automotive Industry: An Analysis of India's Position in the Global Automotive Manufacturing Landscape'.

Beyond Traditional Boundaries

What sets this summit apart is its comprehensive approach to industry transformation. In store is practical insights from manufacturing veterans, cutting-edge research from IIT and other engineering institute faculty, real-world solutions from machine tool experts, and strategic networking opportunities. As global automotive trends shift towards electrification and smart manufacturing, the event provides a timely platform for industry players to align their strategies with future demands. This resonates with one of the summit's objectives of promoting the adoption of advanced machining techniques and sustainable practices.

The Road Ahead

More than just a meeting of bright minds, the summit is a launchpad for India's Automotive sector to achieve machining excellence and global competitiveness. With focused discussions on achieving global quality standards and implementing innovative technologies, participants will engage and gain actionable insights to drive the country's economy and their organizations forward.

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GOING BEYOND TRADITIONAL MACHINE TOOLS

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TIMTOS, one of the world's leading smart manufacturing & machine tool expo, will take place from March 3 - 8, 2025, at Taipei Nangang Exhibition Center Halls 1 and 2, and Taipei World Trade Center Hall 1 in Taiwan. The 30th edition of the expo will feature nearly 1,000 exhibitors using over 6,000 booths and showcasing pioneering advancements in digital manufacturing, automation, and integrated AI & robotics solutions, driving innovation in multiple sectors.

ACCUTEX'S AZ SERIES FOR MEETING FUTURE MANUFACTURING NEEDS

AccuteX Technologies is based in Taichung, Taiwan. The company's core technical team consists of engineers with extensive expertise in CNC controllers, power discharge, and IC design. AccuteX offers a comprehensive range of products, from basic entry-level to high-precision wire cutting EDMs. Its largest models feature specifications of up to X-axis 1400mm, Y-axis 800mm, and Z-axis 800mm travel.

AccuteX has introduced the AZ Series wire EDM machines, which combine exceptional industrial design aesthetics with breakthrough functionality to meet the high-precision demands of industries such as aerospace, biomedical, and mold manufacturing. The AZ Series is equipped with an EtherCAT-grade controller and operates on a Windows IoT system, featuring a newly designed user interface.

The controller offers an intuitive interface and includes a custom machining parameter library, allowing users to search parameters based on thickness, material, or custom notes. This ensures efficient parameter creation and retrieval. Additionally, the controller is integrated with CAD/CAM functionality, enabling on-machine drawing or direct CAD file input to streamline machining program post-processing, enhancing setup flexibility and convenience.

Source: AccuteX Technologies Co., Ltd

AccuteX has also upgraded the automatic workpiece alignment capabilities. Operators can now complete various alignment modes—such as plate width, outer circle, inner square, and four-side centering—with a single click. The system supports NC program alignment for fully automated operations. Furthermore, the new edge-finding feature achieves repeatability accuracy within 3µm, offering enhanced speed and precision.

In addition, the AZ Series features a comprehensive machining history library that records the entire machining path, multiple cut speeds, discharge gap voltage, and other machining data. This capability monitors corner arcs and finishing processes, ensuring top-quality final machining results. With the integration of a next-generation controller and threading system, the AccuteX AZ Series wire EDM machines deliver a new level of performance, aligning with the future needs of Industry 4.0 and intelligent manufacturing.

AccuteX Technologies Co., Ltd
Hall & Booth: 1 (4F) / N1008

CAMPRO'S NTM-308S FOR COMPLEX MACHINING CAPABILITIES

Established in 2003, Campro Precision Machinery Co., Ltd is one of the fastest growing machine tool builders in the world, providing top-end CNC machine tools to high-precision application customers and developing at least 2 series of CNC machines every year to help customers get their factory to the next level.

In a recent development, Campro unveiled the NTM-308S, a Multitasking Machining Center. The company has introduced a host of advanced features by seamlessly integrating turning and milling operations into a single machine. This allows for parts to be fully machined and completed in just one operation.

Source: Campro Precision Machinery Co., Ltd

The machine is equipped with two turning spindles and a swiveling milling head. The swiveling range is 210° to -30°, and the C-axis turning spindle, featuring an 8" chuck, can rotate 360°. This configuration enables complex machining capabilities. Additionally, the optional sub-spindle functions as a second turning spindle, facilitating turning on both the front and back of the part. The machine automatically transfers the part to the second spindle when necessary. In addition, it features 36-piece tool storage for the tool magazine, and the chain-type ATC system with an HSK-63T tool shank is able to handle a wide variety of machining job requests.

Campro Precision Machinery Co., Ltd
Hall & Booth: 1 (1F) / K1107

CHEN YING'S KABP-07 PRESSURE-RELIEF ELECTRIC GREASE LUBRICATOR

The KABP-07 Pressure-Relief Electric Grease Lubricator is designed for high-pressure, high-temperature, and dusty working environments. It is a lubrication system which combines safety, stability and practicality. This lubrication system enhances the operating efficiency of various machine tools and effectively improves product quality.

Source: Chen Ying Oil Machine Co., Ltd

Key Features

Stability: The adoption of a planetary gear motor results in an enhanced stability system. It provides efficient energy conversion in a limited space, reduces energy consumption and ensures consistent output.

Safety: Innovative hidden magnetic level switch and pressure switch design prevent circuit exposure, enhancing overall system safety. The hidden design improves aesthetics and significantly enhances operational safety.

Accuracy: By utilizing a CFB Grease Volume Distributor, the system ensures precise and measured lubrication at each point. This enables accurate oil quantity management and tribution while also promoting optimal equipment performance and longevity.

KABP-07 Pressure-Relief Electric Grease Lubricator is a strong and dependable lubrication solution, perfect for challenging environments. Its emphasis on safety, stability, and precision makes it an essential tool for improving machinery performance and extending the lifespan of equipment.

Chen Ying Oil Machine Co., Ltd
Hall & Booth: 2 (4F) / R0017

E CHEE'S COMPETITIVE EDGE

Source: E CHEE Machine Tools Co., Ltd

E CHEE Machine Tools Co., Ltd
Hall & Booth: 2 (1F) / Q0804

Indian manufacturers in high-precision industries face escalating demands for quality, efficiency and complex machining capabilities. The strategic alliance of RBH boring tools and HEAKE machining centers offers a compelling solution, delivering a powerful combination of precision tooling and robust machine design.

RBH, a leading Taiwanese innovator, addresses critical machining challenges with its STABLELINE Series. These vibration-damped boring tools, compatible with all major spindle interfaces (BT/BBT, SK, HSK, CAT), are engineered for exceptional performance. They minimize chatter and improve surface finish which is especially crucial in deep-hole boring and long-reach applications (5D-12D). The reduction in vibration leads to increased efficiency by reducing cycle times and extending tool life, resulting in significant cost savings. Covering diameters from Ø3 to Ø2000 mm, RBH tools cater to diverse machining needs across various industries.

Complementing RBH's precision tooling is HEAKE Machinery, a high-end Taiwanese brand specializing in innovative and durable machining centers. Their product range includes high-speed bridge machining centers, T-base vertical machining centers, traveling column vertical machining centers, 5-axis vertical machining centers and horizontal machining centers, all of which are designed for maximized heavy-cutting capabilities and enhanced machining efficiency. The HEAKE LV Series stands out from the crowd with its enhanced stability. The robust T-base structure, featuring an extended base and wider column, enables the saddle to achieve full-stroke movement along the X-axis, while a large-spanned saddle carrying the Y-axis also provides full support for the worktable's movement. This eliminates overhang issues and offers exceptional stability during heavy cuts. The HEAKE LV Series' superior reversed X/Y-axis structure minimizes deflection compared to traditional vertical machining centers, ensuring consistent precision.

Looking ahead to 2025, the synergy of RBH's STABLELINE Series and HEAKE's LV Series represents the pinnacle of machining technology. This powerful combination is a game-changer for Indian manufacturers seeking to enhance productivity, improve quality and gain a competitive edge.

DI CHUN'S COMPACT HIGH-SPEED THROUGH-HOLE ROTARY HYDRAULIC CYLINDER

Di Chun's all-new compact, high-speed through-hole rotary hydraulic cylinder is lighter, thinner, and easier to install. Its lightweight, small size, and front and rear mounting installation design not only saves internal machine space, but also makes installation easier and more convenient. The length of the MB2091 is 30 percent shorter than previous M series products. In addition to more stable performance during high-speed rotation, the weight is reduced by more than 10 kg, which greatly reduces the loading for the spindle and reduces power consumption to achieve environmental protection and energy saving benefits.

Source: Di Chun Iron Work Co., Ltd

Di Chun Iron Work Co., Ltd
Hall & Booth: 2 (4F) / S1216

The MB2091 compact high-speed through-hole rotary hydraulic cylinder has a new safety structure patent. This includes a built-in patented safety check valve which ensures that pressure is maintained immediately when there is abnormal power failure which prevents scattering of workpieces.

It is also equipped with product global liability insurance to achieve the ultimate safety protection and realize the promise of Di Chun to its customers.

The auto-strong MB2091 compact high-speed through-hole rotary hydraulic cylinder was awarded with the 2024 TMBA machine tool industry energy efficiency 'Golden Label' honor. It has also won the 2025 Taiwan Excellence Award.

CHING HUNG'S UA432L – GREEN AND COMPACT LINEAR MOTOR DRIVE WIRE CUT EDM

Source: Ching Hung Machinery & Electric Industrial Co., Ltd

Ching Hung Machinery & Electric Industrial Co., Ltd
Hall & Booth: 1 (4F) / M0810

The UA432L Green and Compact Linear Motor Drive Wire Cut EDM seamlessly integrates modularity, high efficiency, and advanced energy-saving features. It has been recognized with the prestigious ISO 14955 EU certification and the Taiwan Excellence Gold Award for its outstanding performance.

Primarily developed for the European and American markets, the UA432L delivers exceptional energy-saving capabilities, meeting the industry's stringent demands for net-zero carbon emissions. The newly launched UA series represents a significant breakthrough in energy-efficient technology, designed specifically for precision molds and parts in the aerospace, automotive, energy, and green energy sectors. By combining precision with simplicity, this series reinforces CHMER's leadership in intelligent manufacturing. It exemplifies the company's commitment to advanced technology, and innovation, and providing transformative, efficient, and sustainable manufacturing solutions.

Product Features:

- **Compact Design:** A newly engineered wire cutting structure reduces the machine's footprint by 20 percent compared to traditional models.
- **High-Efficiency Energy Management System:** Integrated power-saving and water-saving systems reduce total processing energy consumption by 40 percent.
- **Next-Generation GenOS System:** Powered by a Linux-based operating system, the GenOS achieves 15 times faster computing performance. Utilizing EtherCAT technology ensures high-speed responsiveness and exceptional scalability, meeting the demands of simultaneous multi-axis motion control.
- **6th Generation AWT:** Reduces threading power consumption by 20 percent, enhancing operational efficiency.
- **ECO Cut Mode:** Optimizes wire usage, reducing consumption by 42 percent.
- **In-House UX1 Linear Motor:** Proprietary CHMER linear motor technology ensures frictionless operation, reduced maintenance costs, and higher accuracy than conventional ball-screw drives.

The UA432L is a testament to CHMER's dedication to innovation and sustainability, offering the industry an unmatched solution for achieving precision and eco-conscious manufacturing.

CHIN HUNG'S SOLUTION FOR HEAVY CUTTING

Chin Hung Machinery Co., Ltd was established in 1968, and is run on steady, practical, and rational concepts. The company has invested heavily in production equipment for producing high-precision and durable lathes. Chin Hung is one of the leading manufacturers and exporters of conventional lathes and CNC lathe machines in Taiwan. KINWA is the company's brand for the marketing and distribution of exports.

Source: Chin Hung Machinery Co., Ltd

Chin Hung Machinery Co., Ltd
Hall & Booth: 1 (4F) / N0725

The KINWA flatbed CNC models CL38/CL58/CL68/CL78 provide excellent value for money. With massive machine structures, they are built for heavy cutting and are most popular with oil producing countries. The flatbed machine structure offers perfect rigidity without structural deformation while the cross slide moves on the dovetailed slideways for top straightness accuracy. The saddle moves on double 'V' slideways to achieve perfect straightness and the tailstock supports sub-spindle function.

Source: DEES Hydraulic Industrial Co., Ltd

DEES' HYDRAULIC PRESSES

Certified by ISO 9001:2015 and CE, DEES offers safe and user-friendly interface for hydraulic presses in the working environment of metal forming. The capacity of hydraulic presses is from 10 to 6,000 tonne and over 4,500 machines have been delivered to 80 countries around the world. DEES supplies to customers such as Bombardier, Boeing, Honda, Toyota, Audi, Volkswagen, Mercedes-Benz, Volvo, Ford, Bosch Home Appliances, Electrolux, GE Appliances, Haier, and Foxconn.

DEES Hydraulic Industrial Co., Ltd
Hall & Booth: 2 (1F) / P0920

EVERISING'S EC-430 FOR MASS PRODUCTION IN MEDIUM-SIZED METAL CUTTING

EVERISING has been a leader in the industry for over 40 years, establishing a strong reputation for its metal band saws in more than eighty countries. Throughout this journey, the company has consistently prioritized customer needs, guided by the motto 'The customer should lead the way.' This commitment has been a key factor in its sustainable growth to this day.

In addition to circular and band sawing machines, EVERISING's product range includes state-of-the-art systems for profile steel processing and advanced sheet metal processing centers. The company's dedication to quality and innovation has been recognized with numerous international certifications and many awards, including the 'Taiwan Symbol of Excellence', the 'Certificate of Potential Taiwan Mittelstand Award', and the 'Taiwan Superior Brands' award. EVERISING serves the markets for steel, aluminum, stone, quartz and silicon saws.

The newly launched EC-430 model fully meets the requirements of speed, economy and accuracy, entering a new realm of cutting technology. This remarkable saw is designed for exceptional cutting performance and absolute reliability. With its highly-rigid double-column guide and multiple drive units, the EC-430 achieves higher cutting rates with reduced vibration, even when cutting hard materials, making it suitable for carbide tip saw blades. The guide arm and material feeding system operate on linear guides, ensuring great precision. The machine is equipped with an HMI for easy input of cutting data and a self-diagnosis system, facilitating quick and straightforward operation. Additionally, it features an automatic trim cut and back gauge function for remnant cutting.

Source: EVERISING MACHINE CO.

The new generation band saw machine, the EC-430, offers advantages such as fast cutting, easy and safe operation, low material waste, low power consumption, energy efficiency, long blade life, and low maintenance costs. It can be widely applied to various materials while maintaining stability, high productivity and exceptional cutting accuracy. In recent years, due to the continuous development of cutting blades, the EC-430 model has been able to meet the market demand for mass production in medium-sized metal cutting.

EVERISING remains committed to innovation, quality and providing customers with the best products and services while leading the industry into the future.

EVERISING MACHINE CO.
Hall & Booth: 1 (1F) / J0102

KAO FONG'S CV-400U/A ROTARY TABLE FOR VARIOUS INDUSTRIES

The CV-400U/A features an A/C axis rotary table. The 3+2 axis and 5 axis simultaneous control allows for a synchronously complete multiple angle machining process. With an automated arm, the workpiece can be machined at one time, maximizing the quality of machining accuracy. The customized design of the fixture shortens the preliminary time of machining and significantly enhances the manufacturing efficiency. It is especially suitable for industries including the Automotive Aerospace, Biomedical, and many more.

Source: Kao Fong Machinery Co., Ltd

Depending on different machining applications, the CV-400U/A provides options from 12,000 to 15,000 rpm direct drive spindle to 20,000 rpm built-in type spindle. This matches market demand and displays the product's competitiveness. The CV-400U/A adopts an SP level roller type linear guideway for each axis. This gives it the ability of rapid travel, rigidity, accuracy, low noise, and low wear.

The rotary table has trunnion mounting and high mounting rigidity. The deep tooth module dual-lead worm gear transmission and the air compressed brake mechanism, with a booster cylinder device, provide clamping stability like oil pressure clamping. However, in contrast to an oil pressure clamping system, it is space-efficient and environmentally-friendly. The 3-axis high-resolution closed loop linear scale has an A/C axial ring encoder, assuring excellent and repeatable positioning precision.

Kao Fong Machinery Co., Ltd
Hall & Booth: 1 (1F) / K0516

GSA'S CNCTT-120~800 FOR PRECISION, PERFORMANCE, AND VERSATILITY

Source: GSA Technology Co., Ltd

The CNCTT-120~800 features a robust combination of a Steel Worm Gear and Steel Worm Shaft, complemented by a precision Circled Sleeve Clamping System and YRT bearings. This design eliminates all sliding parts and incorporates a rigid housing, ensuring long-term, highly accurate machining performance.

The innovative Circled Sleeve Clamping System allows for heavy-torque machining without deflection, even under heavy loads. Additionally, the faceplate remains stable with no movement, whether the spindle is in a clamped or unclamped state.

GSA's Single Arm Tilting Rotary Table, CNCTT-120~800, can function as a true 5th-axis center or an M-code indexer integrated with a machining center. This versatility makes it ideal for a wide range of applications.

To address diverse machining needs, GSA products consistently deliver exceptional performance, combining high accuracy, reliability, and efficiency to meet the demands of clients in both domestic and international markets.

GSA Technology Co., Ltd
Hall & Booth: 2 (4F) / S0816

PALMARY'S NEW DUAL-DRIVE CNC CYLINDRICAL GRINDER

As a global leader in grinding machine manufacturing and development, Palmary Machinery is driven by the principles of Precision, Perfection and Excellence. Headquartered in Taichung, Palmary continually innovates and produces centerless grinders, internal grinders, cylindrical grinders and vertical grinders. With ISO9001:2015-certified production processes, the company has successfully expanded its reach to 45 countries worldwide.

In the era of Industry 4.0, automation in machining has become essential. To optimize workpiece clamping and drive efficiency, Palmary Machinery gathers client production line requirements and has redefines the drive design of the CNC cylindrical grinder's workhead spindle.

The newly launched Palmary dual-drive CNC cylindrical grinder features two main innovative characteristics:

Dual-Sided Power Drive - A synchronized counter-directional dual power drive between centers enhances driving capacity.

Flexible Workhead Design - The flexible design of the workhead spindle compensates for limited travel space in the tailstock's one-way motion.

The Palmary dual-drive CNC cylindrical grinder combines smart functionality with practicality. Using QR code scanning for workpiece identification, it integrates with a communication system for automatic program switching and process module adaptation. This enables real-time changeovers for varied parts, reduces line adjustments, shortens cycle time and boosts production efficiency.

Source: Palmary Machinery Co., Ltd

Palmary Machinery Co., Ltd
Hall & Booth: 1 (1F) / J1108

Palmary's dual-drive CNC cylindrical grinder allows full external diameter grinding in a single clamping, ensuring high precision and stable coaxiality. It supports integration with automated loading and unloading systems, and can be equipped with optional inline measurement and acoustic collision detection systems. These features provide real-time feedback and corrections, ensuring stable output and optimal machining quality.

This machine also features a symmetrical structure, balanced power distribution, extended workhead and tailstock travel, all protected by sheet metal. The design minimizes exposed wiring, enhances visual clarity and focuses operator attention. It combines aesthetics with safety, improving both the functionality and user experience.

PERFECT PFG-50100DT FOR VARIED MACHINING NEEDS

Source: PERFECT MACHINE Co., Ltd

PERFECT MACHINE Co., Ltd
Hall & Booth: 1 (1F) / I0802

PERFECT MACHINE was established in 1988 and is a manufacturer of top-quality Surface Grinders in Taiwan. The PERFECT PFG-50100DT series satisfies all machining needs. It's a traditional Surface Grinder with an HMI interface, LCD Touch panel, and Autodown feed. It facilitates easy operation and decreases operating costs. The optional enclosed splash shield keeps the environment cleaner and the optional NC dressing and compensation increase production efficiency.

PARKSON MULTI-STATION FLEXIBLE STORAGE SYSTEM

As manufacturing enters a new era of automation and intelligence, the launch of the PARKSON Multi-Station Flexible Storage System not only marks a technological breakthrough but also brings unprecedented efficiency and flexibility to the machining industry. The PARKSON Multi-Station Flexible Storage System integrates horizontal machine tools and advanced five-axis machining centers with advanced automatic pallet changing systems to create multi-station storage solutions. This aims to effectively reduce manual workload and achieve the ideal goal of lights-out manufacturing.

Source: PARKSON Wu Industrial Co., Ltd

PARKSON Wu Industrial Co., Ltd
Hall & Booth: 2 (4F) / R0629

PARKSON's Multi-Station Flexible Storage System is designed to meet the high standards required for parts processing by automotive manufacturers, particularly those focused on low-volume or diverse production. This system is expected to increase machine utilization by 40 percent to 60 percent. The introduction of this system enables companies to quickly adapt to changes in market demand and achieve a perfect balance between mass production and customized manufacturing.

With the continuous advancement of automation technology, PARKSON's Multi-Station Flexible Storage System will become a core tool for the Manufacturing industry in the future, helping companies achieve higher production efficiency and lower operating costs. In addition, the system reduces the need for human resources, minimizes errors and waste and further improves product quality. Looking ahead, PARKSON's Multi-Station Flexible Storage System is anticipated to change the traditional manufacturing model, drive industrial transformation and upgrading as well as providing new growth momentum for enterprises. As more and more companies adopt this technology, the smart manufacturing process will continue to accelerate, creating a more efficient and sustainable production environment.

SPINTRUE'S SPECIALIZED SPINDLES

SPINTRUE Tech Co., Ltd is a Taiwanese high-end precision spindle manufacturer renowned for its state-of-the-art technology. The operations team boasts decades of experience in spindle manufacturing and design, which has fueled the company's rapid growth.

In recent years, SPINTRUE has leveraged its robust technical expertise to deliver sustainable development, smart-machine integration, and innovative application solutions, particularly in semiconductor equipment and electric vehicle manufacturing. The company has also supported domestic and international machine tool manufacturers in meeting diverse application requirements across various industries.

Source: SPINTRUE Tech Co., Ltd

SPINTRUE Tech Co., Ltd
Hall & Booth: 2 (1F) / Q1224

SPINTRUE has developed numerous specialized spindles, with its most popular products including ultra-short turning and milling spindle heads, high-speed built-in spindles, direct-drive spindles, horizontal machining center gearboxes, and more. These products have successfully penetrated markets in the United States, Japan, and Europe, earning a place in the supply chains of globally recognized manufacturers.

Currently, 60 percent of SPINTRUE's products are exported, driven by the trust and satisfaction of its customers. The founder emphasizes, "What we sell is not only product quality and services but also our responsibility and mission to give back to society, care for the earth, and strive for sustainable growth of the land and company we deeply cherish."

Looking ahead, as the global Manufacturing industry transitions into an era of low-volume, diversified, and multi-axis manufacturing on single machines, SPINTRUE's high-end spindle products represent not only a technological leap but also enhanced efficiency and flexibility for the Machine Tools industry. The company remains dedicated to reducing labor demands and advancing automation, striving toward the ultimate goal of 'lights-off' factories worldwide.

MATECH'S LATHES FOR MEDIUM TO HEAVY CUTTING APPLICATIONS

The MT-52 and MT-65 CNC Lathe series from Matech Industrial Co., Ltd are designed for medium to heavy cutting applications, offering long-term high accuracy, superior surface finishing, and extended service life. These machines are engineered to minimize air-cutting time with their high turret indexing speed and rapid traverse of the slides. By combining classic manufacturing methods with ultra-rigid construction and advanced technological features, these lathes deliver exceptional value and performance.

The lathe series features a 45° torque-tube type design with a true slant bed machine base. The hardened and ground solid box way construction is crafted as a one-piece casting. A cartridge-type high-precision and high-speed spindle is paired with a powerful strong-torque main spindle drive.

Source: Matech Industrial Co., Ltd

Matech Industrial Co., Ltd
Hall & Booth: 1 (1F) / I1002

Additionally, the heavy-duty 10-station turret, which can be driven hydraulically or by a servo motor, provides an impressive 0.3-second indexing time. The machines also boast a rapid traverse rate of X=20/Z=24 m/min. (X787/Z945 IPM), along with a large maximum turning diameter of 320mm (12.60"), catering to diverse machining needs.

To optimize performance and reliability, the MT-52 and MT-65 lathes are equipped with a high-pressure coolant pump for efficient cooling, a metered piston distributor lubrication system for precise lubrication, and a way lube separation system to maintain cleanliness and operational efficiency. These features make the MT-52 and MT-65 CNC Lathe series a superior choice for precision machining and long-term productivity.

MASANO'S CNC MACHINE FRAMES

MASANO Corporation, a subsidiary of the BiT Seiki Corporation in Taiwan, specializes in manufacturing high-precision CNC machine frames, including drilling and tapping machines, vertical machining centers, horizontal machining centers, gantry machines, and lathes.

Source: MASANO Corporation

In addition, MASANO offers machine frame sales in India, enabling localized production and services while delivering exceptional quality and performance to customers.

TJR PRECISION TECHNOLOGY'S ROTARY TABLES

Based in Taiwan, TJR Precision Technology Co., Ltd specializes in manufacturing ultra-high-precision rotary tables (4th and 5th axes) for CNC machine tools.

As specialists in rotary table solutions, the company operates five manufacturing facilities located in Taiwan, Japan, China, Thailand, and India. The product lineup includes four types of transmission mechanisms: Roller Gear Cam, Worm & Worm Gear, Alloy Steel Worm Gear, and Direct Drive Motor.

Source: TJR Precision Technology Co., Ltd

TJR Precision Technology Co., Ltd
Hall & Booth: 2 (4F) / R0613

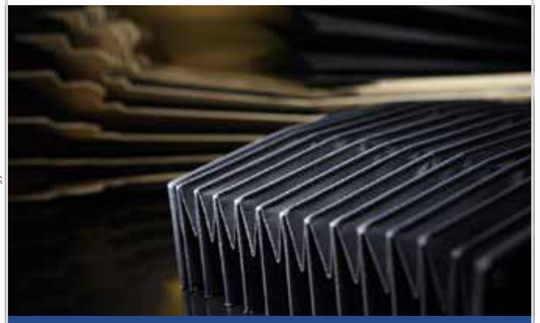
SUN YUAN: COMMITTED TO EXCELLENCE

SUN YUAN Technology Co., Ltd., established in 1989, has been dedicated to the development of bellows covers for machine slideways for over 35 years. The company's product range has evolved from simple bellows covers to the latest extra high-speed finned bellows covers. The design and production philosophy of SUN YUAN focuses on extending the service life of machines for its customers. Committed to excellence, SUN YUAN positions its products as the premier protectors for machine slideways.

The company operates under the brand name DEFENDER, which symbolizes protection and strength.

SUN YUAN is committed to maintaining rigorous quality control. In addition to the use of top-quality materials, SUN YUAN also employs the latest forming technology in combination with a complete quality control system. From material incoming inspection, in-process inspection to final product inspection, stringent quality standards are followed which ensure SUN YUAN products meet international quality levels. The company is proud to have earned the ISO 9001:2015 certification. SUN YUAN constantly develops new types of bellows covers for application in general industries and it also researches and designs bellows covers for application in the high-tech industry field. Thanks to constant breakthroughs and innovation of technology, the company's products have been awarded numerous patents in Taiwan, Europe, the United States, Japan and other regions.

With the slogan 'Always Moving', SUN YUAN demonstrates its commitment to customers, striving to remain their top choice for bellows covers.



Source: SUN YUAN Technology Co., Ltd

SUN YUAN Technology Co., Ltd
Hall & Booth: 2 (4F) / R0901

Royal Precision Tools Corporation
Hall & Booth: 2 (1F) / Q1024

Source: Royal Precision Tools Corporation

ROYAL'S RANGE OF SPINDLES

Since 2003, Royal Precision Tools Corporation has specialized in making high-precision machine tool spindles in Taichung, Taiwan. The company's comprehensive range of spindles is widely used in various types of machines, including milling, turning, mill-turn, multi-spindle, tapping and grinding. With professional expertise in R&D, design, manufacturing, assembly and repair, Royal has earned outstanding recognition in the Machine Tool industry.

State-of-the-Art Quality Assurance

High-precision parts, such as shafts and housings, are manufactured and processed in-house to ensure the highest quality products. Each spindle undergoes rigorous examination according to uncompromising standards, and every new spindle is designed to enhance performance and exceed expectations. The company has made significant efforts to ensure that its customers can rely on consistently high-quality spindles.

Customer-Oriented Added Value

Royal, a customer-oriented company, consistently offers the most suitable services and total solutions, including customized design spindles and top-tier expertise in the field. Every detail and segment is focused on maximizing customer benefits. The company is of the belief that by fulfilling the needs of its business partners, it can collaborate with them to create the highest added value in the Machine Tools industry.

Royal will be showcasing high-speed, high-precision, and high-performance spindles, which are essential for precision machinery. It offers a variety of spindles to meet the diverse needs of its customers, such as: Motorized spindles, Direct drive spindles, Belt drive spindles, and Turning spindles.

TIEN DING'S JOURNEY TO SUSTAINABLE PRODUCT DESIGN

In a world increasingly defined by technology and heightened environmental awareness, corporations globally are actively pursuing strategies to minimize carbon emissions and realize sustainable growth. Tien Ding, a renowned manufacturer from Taiwan specializing in telescopic covers, is no exception. Thanks to strong cooperation with leading machine tool brands, the company has reassessed its product design and manufacturing approaches to align with these growing trends.

Traditionally, the design and manufacturing process of these covers prioritized human trampling issues. Consequently, the industry endeavored to amplify the thickness and resilience of iron plates to ensure the covers' durability. This excessive emphasis on durability, however, resulted in escalating production costs.

Upon careful reflection and analysis, Tien Ding recognized that the primary function of these covers was to safeguard machinery and remove iron scraps and dirt. The undue increase in iron plate thickness and strength not only increased production costs but also led to higher carbon emissions during production. As a result, the company decided to revamp its product design, with the innovative principle of being lightweight at its core.

To synergize this inventive design ethos with its corporate objective of carbon neutrality, Tien Ding integrated it into its ESG (Environmental, Social, and Governance) management philosophy. It plans to participate in the upcoming TIMTOS 2025 show to illustrate how the company has melded lightweight and eco-friendly concepts into its cover design and production processes through value engineering and meticulous analysis.

Source: Tien Ding Industrial Co., Ltd.

Tien Ding's pioneering design and manufacturing methodologies promise to lower production costs and reduce carbon emissions significantly, thereby propelling sustainable advancement in the machinery industry at large. As it anticipates the forthcoming TIMTOS 2025 show, Tien Ding is eager to demonstrate its inventive prowess and unwavering commitment to achieving lightweight and environmental objectives.

Tien Ding Industrial Co., Ltd.
Hall & Booth: 2 (4F) / S1316

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