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MSMES' FUNDING PUZZLE

Only 14 per cent of credit needs of Micro, Small and Medium Enterprises (MSMEs) – the backbone of India's economy – are met through formal channels. Will the new MSME classification change the equation?

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“Lending to MSMEs has tripled from ₹8.5 trillion in FY14 to ₹27.25 trillion in FY24, with projections reaching ₹30 trillion by FY25.”

Funding MSMEs During Economic Flux

Micro, Small, and Medium-sized Enterprises (MSMEs) are the backbone of India's economy, contributing 30 per cent to the nation's GDP and 45 per cent to its exports. Despite their economic importance, MSMEs struggle to access formal finance. The credit situation for MSMEs has seen some improvements because of the government's efforts. A recent report from the State Bank of India (SBI) shows that lending to MSMEs has tripled from ₹8.5 trillion in FY14 to ₹27.25 trillion in FY24, with projections reaching ₹30 trillion by FY25.

In recent years, SME platforms on stock exchanges have become crucial sources of funding for MSMEs. While a total of ₹165.87 billion has been raised by 605 SMEs listed on the NSE Emerge platform as of February 2025, 571 firms have raised ₹91.73 billion on the BSE SME platform. However, last year, the Securities and Exchange Board of India (SEBI) - the market regulator - tightened its scrutiny over SMEs due to instances of fund diversion, financial manipulation, and fictitious transactions.

In spite of the government's efforts, only 14 per cent of the credit needs of MSMEs are met through formal financial channels.

A significant shift in the financial landscape for MSMEs is the new classification rule of the Government of India (GoI), effective from April 1, 2025. By raising investment limits by 2.5 times and doubling turnover thresholds, the new rule aims to eliminate the ceilings that hinder the growth of MSMEs, especially for manufacturing units that previously risked losing policy-linked benefits as they scaled. The reclassification offers benefits, allowing more businesses to qualify for MSME schemes and improving their ability to access structured finance. However, it also raises concerns. Smaller businesses, particularly micro-enterprises, may get overshadowed and still struggle to gain access to finance.

Today, Indian MSME exporters are more engaged in global trade than ever before with their numbers surging from 52,849 in 2020-21 to over 173,000 in 2024-25. This was also evident at the recently held Hannover Messe 2025 trade fair in Germany, where more than 70 MSMEs showcased their innovative solutions to global buyers. However, less enthusiastic participation of government agencies and large firms was a real dampener, especially when GoI wants to make India a global manufacturing powerhouse.

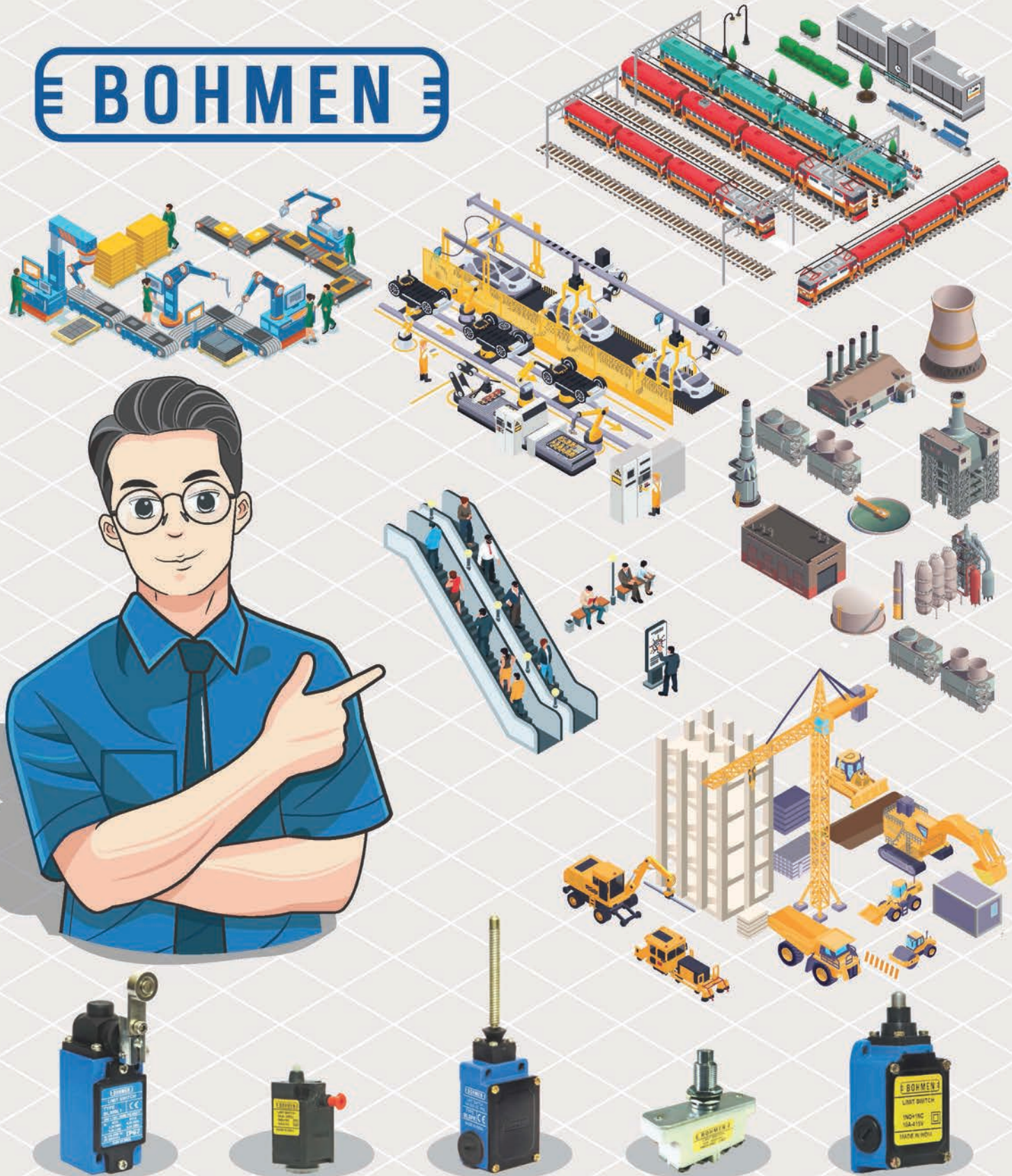
Meanwhile, the US President Donald Trump's announcement to impose a minimum 10 per cent tariff on all imports (including goods from India), effective April 5, 2025, has sent a shock wave across the globe. For Indian MSMEs, many of whom rely heavily on the US market (one of India's largest export destinations absorbing \$87 billion worth of goods annually), this tariff is a significant financial setback. These businesses now face challenges such as delayed shipments, extended payment terms, and inventory backlogs, all of which strain their cash flows and profitability.

In this period of economic flux, MSMEs need quick access to working capital, dynamic risk assessment models, and greater financial flexibility to navigate prolonged sales cycles, renegotiated contracts, and increased logistics costs. Simplified documentation processes, faster payment realisation, and more affordable and accessible schemes by the government and financial institutions will be crucial for their growth.



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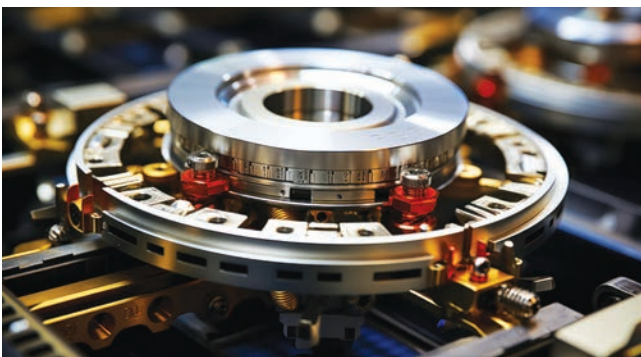


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Emily Newton

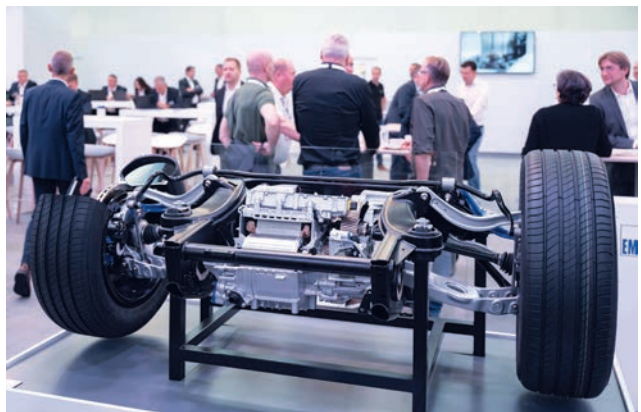


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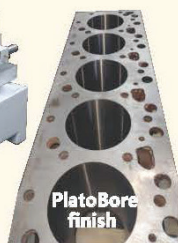
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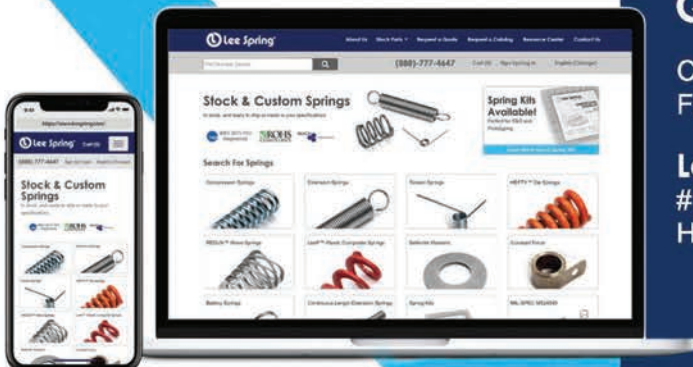
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Automation

ABB India launches AI-powered startup challenge in smart drives

ABB India, in partnership with Microsoft and SynerLeap, launched ABB Startup Challenge India 2025, inviting India's most promising deep tech startups to develop AI-powered solutions for advancing smart drive technology. The winner of the challenge will receive a \$30,000 project prize, mentorship from ABB experts, and gain global exposure through ABB's innovation platforms. The last date to submit applications is April 29, 2025.

Variable Speed Drivers (VSDs) are instrumental in improving energy efficiency, original equipment manufacturers (OEMs) and system users often face challenges understanding how their machines interact with these drives – leading to delays, manual inputs, and increased dependence on technical support. The initiative aims to simplify drive and motor selection, commissioning, and troubleshooting using artificial

intelligence.

Under the theme Advancing Smart Drive Technology with AI Innovation, the focus is on developing advanced technologies that can simulate real-world drive performance, self-commission without manual parameterisation or input, and autonomously troubleshoot issues. Through this initiative, ABB India seeks to create a smarter, self-learning ecosystem that improves reliability, reduces downtime, and enhances the customer experience.

The startup challenge reflects ABB's continued efforts to promote open innovation and create scalable, local solutions for global sustainability. As ABB India celebrates its 75th anniversary, highlighting a rich legacy of technology and innovation, it introduces this challenge to the country following its successful implementations in parts of Europe and United States.

Machine Tools

Grind Master and Ecosattva celebrate major milestones

Grind Master, the global leader in metal finishing technology celebrated 40 years of relentless innovation, excellence, and sustainability in manufacturing at an event held on March 29, 2025, jointly with Ecosattva. Grind Master has been more than just an innovator in engineering—it has also been an incubator for Ecosattva, providing support, resources, and infrastructure to help drive its mission. With both organisations working out of the same premises and supporting many pilot projects.

Grind Master recently launched an autobiography *Garage to Global*, written by Sameer Kelkar, CEO, Grind Master. The book delves deep into the remarkable history of Grind Master, founded in 1984 in a small garage by Milind and Mohini Kelkar. The book captures the vision, innovation, and relentless determination that propelled Grind Master.

Ecosattva began as a small civic transformation project focused on solid waste management, river



restoration, and afforestation efforts has now grown into an internationally recognised movement, winning prestigious global awards.

The Kham River project won the WRI ROSS Foundation Prize for Cities – in New York, September 2024 and the St. Andrews Prize for Nature – in Scotland, October 2024.

This incredible project thrives on collaboration—with contributions from the Municipal Corporation, Varroc, Cantonment Board, and Ecosattva.

The Open House at Grind Master showcased the latest developments in field of metal finishing. Satish Netalkar and Soniya Netalkar inaugurated the event that featured the IMTMA Design Award Winning Bearing Raceway Superfinishing Machine and R&D Facilities for Key Process Research in manufacturing. Grind Master partners with IIT Madras and is supported by MHI in some of its endeavours for MAKE IN INDIA – MAKE for WORLD.



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Aerospace & Defence

Nibrus Technologies launches GNSS surveying SurveyPod for enhanced accuracy

Nibrus Technologies Private Limited, under the brand name Surveyaan, a leader in drone manufacturing and developer of leading photogrammetry software, and aerial survey solutions, has launched the SurveyPod, a differential RTKPPK GNSS system designed to revolutionise precision surveying. SurveyPod offers unparalleled accuracy, reliability, and versatility for professionals across various industries.

SurveyPod is perfect for professionals from various industries who are into land surveying, precision agriculture, mining, and construction and require industry-leading accuracy, reliability, and versatility, making it a perfect solution for surveying.

Shubham Baranwal, Co-Founder & Director, Surveyaan said, "Innovation is just not about creating new products but trying to find solutions to real-life



problems, and our idea of creating SurveyPod was the same. We wanted to create something that addressed the needs and demands of professionals who are in the field of surveying. With SurveyPod, we have tried to make precision accessible, easy to use, and reliable, no matter what the environment is".

SurveyPod boasts several advanced features, including multi-constellation GNSS support that seamlessly integrates signals from GPS, GLONASS, Galileo, and BeiDou systems, ensuring enhanced satellite visibility and accuracy even in challenging environments. It can track up to 92 satellites simultaneously, providing strong signal acquisition and improved positioning precision by leveraging multiple GNSS systems.

Aerospace & Defence

TDB supports dvipa Defence to boost India's small arms manufacturing

In a significant push towards self-reliance in defence manufacturing, the Technology Development Board (TDB) under the Department of Science and Technology (DST) has extended financial assistance to dvipa Defence India Pvt Ltd, Hyderabad, for the development and commercialisation of the 7.62 mm x 51 mm UGRAM assault rifles.

The project aims to address the Indian Army's demand for modern, reliable assault rifles that meet General Staff Qualitative Requirements (GSQR). This initiative also supports the creation of a fully indigenous manufacturing facility equipped with integrated quality control and testing infrastructure.

India has long relied on imported small arms, leading to high foreign exchange costs and interoperability challenges. With ageing INSAS rifles proving inadequate for modern combat, GOI shifted policy in 2017 to replace them with NATO-standard 7.62 mm rifles.

dvipa Defence, established in 2018 and one of the first licensed private arms manufacturers in India, collaborated with DRDO's ARDE, Pune, to develop the

UGRAM rifle — named after the Sanskrit word for "ferocious." Impressively, the company delivered five prototypes in just 100 days, all of which passed initial testing.

Key features of the UGRAM rifle include a long-stroke piston mechanism that ensures high reliability in various operating conditions. All pressure-bearing components are made from high-strength steel, providing durability and robustness. The rifle also features a nylon-based ergonomic handguard, pistol grip, and buttstock designed for user comfort and ease of handling. Additionally, it is equipped with an ambidextrous magazine release and a side-mounted cocking handle, making it suitable for both right- and left-handed users.

According to Rajesh Kumar Pathak, Secretary, TDB, "TDB's support to dvipa Defence underscores our commitment to indigenising critical defence technologies under 'Make in India' and 'Atmanirbhar Bharat'. This project strengthens self-reliance and opens export opportunities."

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Packaging

Campa Cola to set up bottling plant in Bihar

Reliance Consumer Products Ltd (RCPL), led by Mukesh Ambani, is taking a major step in expanding the Campa Cola brand by investing ₹10 billion in a new bottling and manufacturing facility in Begusarai, Bihar. The project will span 35 acres, and the land has already been allotted to EPIC Agro Product Ltd, the company producing and distributing Campa Cola, as confirmed by Bihar Industrial Area Development Authority (BIADA).

This development comes on the heels of RCPL's recent launch of a similar plant in Guwahati, Assam, underscoring its aggressive growth strategy to deepen presence in eastern and northeastern India. Since acquiring Campa Cola in August 2022, RCPL has been rapidly scaling operations, creating an expansive infrastructure network including bottling plants, logistics, and supply chains. RCPL has ambitious plans to make Campa a pan-India FMCG player, with the brand projected to surpass ₹10 billion turnover in FY25.



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- Bichhwal Industrial Area: 14.3 km
- Rani Bazar: 21.8 km

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Smart Manufacturing

NAMTECH and TUM Asia celebrate first smart manufacturing graduates

NAMTECH (New Age Makers' Institute of Technology), Gandhinagar, and TUM Asia, the Singapore campus of the Technical University of Munich (TUM), celebrated a major milestone with the graduation of the first cohort of their joint International Professional Master's Program (iPMP) in smart manufacturing.

The one-year, fully residential iPMP, launched for engineering graduates (B.E./B.Tech), is tailored for the Industry 4.0 landscape. It equips learners with practical expertise in automation, Industrial IoT, Digital Twin, robotics, and advanced production technologies, offering a future-ready skillset backed by experiential learning and industry collaboration.

Following the previous success, NAMTECH and TUM Asia have three new iPMP programs set to begin from August 2025:

- Sustainability Engineering & Management
- Semiconductor Manufacturing
- Advanced Robotics Technology

These new offerings will continue the focus on hands-on, industry-aligned education, ensuring graduates gain both technical depth and leadership capabilities needed for emerging high-tech sectors.

Partnership for India's manufacturing growth

The NAMTECH-TUM Asia collaboration reflects a strategic commitment to addressing India's talent gap in advanced manufacturing. By merging TUM's globally recognised academic excellence with NAMTECH's strong industry connections, the partnership aims to nurture a new generation of highly skilled professionals.

"The graduation of our first cohort is a testament to the strength of this collaboration," said Dr Markus Wachter, Managing Director, TUM Asia. "As we launch new programs, we reaffirm our mission to prepare students for success in the global manufacturing industry."

ArunKumar Pillai, Director General, NAMTECH, added, "NAMTECH is evolving as a platform institution for experiential learning in the Manufacturing, Engineering, and Technology (MET) space. Together with TUM, we are creating world-class professionals who will lead India's future in high-tech manufacturing."

NAMTECH continues to position itself at the forefront of India's MET ecosystem by championing innovation, modular learning, and global partnerships that empower young technologists for the future.

Auto Components

Numeros Motors and IIT Bhubaneswar to pioneer RE-free motor topologies

Numeros Motors, a new-age OEM specialising in indigenous electric mobility solutions, has entered into a strategic research collaboration with the Indian Institute of Technology (IIT) Bhubaneswar. The two entities have signed an agreement to jointly undertake a two-year research

initiative focused on exploring and evaluating various non-magnet or rare earth-free (RE-free) motor topologies. Aimed at revolutionising the electric mobility space, this innovation will identify robust, cost-effective, and sustainable motor technologies catering to India's rapidly growing electric vehicle market.

The collaboration is intended to support India's clean mobility goals by reducing dependence on rare earth



materials—key components in traditional EV motors—and by encouraging local innovation in EV manufacturing. By combining IIT Bhubaneswar's academic expertise in electrical engineering with Numeros Motors' practical knowledge of electric drivetrain systems, the project will focus on developing motor

solutions that are both efficient and affordable. The initiative is aligned with India's vision to promote self-reliant, sustainable EV technologies.

Shreyas Shibulal, Founder & CEO, Numeros Motors, commented, "Innovation is at the core of everything we do at Numeros Motors. Our partnership with IIT Bhubaneswar marks a significant step in our mission to transform India's electric mobility landscape."

Aerospace & Defence

JCBL Group signs MoU with Slovakia

In a significant development for India's defence manufacturing capabilities, Airbornics Defence & Space Pvt. Ltd. (ADSL)—the dedicated defence arm of the JCBL Group—has entered into a strategic partnership with Slovakia to co-develop and manufacture next-generation technologies for Light Tanks, Future Ready Combat Vehicles (FRCVs), and Future Infantry Combat Vehicles (FICVs).

The first-ever Defence MoU between India and Slovakia was formalised during the official state visit of the Hon'ble President of India, Smt Droupadi Murmu, to Slovakia, accompanied by a high-level business delegation. This collaboration highlights India's growing global role in advanced defence production.

The collaboration is designed to foster technology transfer, operational excellence, and co-development of advanced combat platforms tailored for complex terrains and high-altitude environments.




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Renewable Energy

Suzlon secures 100.8 MW wind order from Sunsire Energy

Suzlon is accelerating renewable energy adoption among large corporations through Independent Power Producers (IPPs), supporting India's clean energy transition and the national goal of achieving 500 GW of non-fossil fuel capacity by 2030. Strengthening this commitment, Suzlon has secured a 100.8 MW EPC wind power order from Sunsire Energy, marking their maiden foray into wind energy. The project is set to be executed in Maharashtra's Jath region.

Under this agreement Suzlon will supply 48, S120 wind turbine generators (WTGs) with Hybrid Lattice Towers (HLT), each rated at a 2.1 MW capacity. It will supply the wind turbines, oversee equipment installation, and execute the project, including erection and commissioning, while providing comprehensive operations and maintenance services post-commissioning. This project will enhance Sunsire Energy's renewables portfolio and support its goal of delivering Round-The-Clock power to customers in Maharashtra.

JP Chalasani, CEO, Suzlon Group, said, "Adopting

wind energy by large corporations is imperative for achieving India's 500 GW non-fossil fuel target by 2030. Increasingly, Independent Power Producers (IPPs) are recognising wind's potential to make power more accessible, affordable, and high-quality."

Vivek Srivastava, CEO-India, Suzlon Group, said, "We are thrilled to partner with Sunsire Energy on their inaugural wind project, advancing India's renewable energy transition. We aim to collaborate with numerous Independent Power Producers (IPPs) in India, to amplify the country's renewable energy movement."

Manish Mehta, Co-Founder & Chief Commercial Officer (CCO), Sunsire Energy said, "At Sunsire, we are committed to empowering our customers with best-in-class renewable energy solutions. Expanding our portfolio to include wind energy in Maharashtra will enhance our Round-The-Clock (RTC) renewable energy capabilities, allowing us to offset an even larger share of our customers' power consumption with green energy. This project diversifies Sunsire Energy's renewables portfolio and marks a key milestone in our journey."

Auto Components

Tata Motors sets record with highest patent filings in FY25

Tata Motors, India's leading automobile company, has achieved a significant milestone in FY25 by filing 250 patents and 148 design applications — its highest-ever in a single year. These filings encompass a broad spectrum of product and process innovations, aligning with key automotive megatrends such as Connectivity, Electrification, Sustainability, and Safety (CESS), as well as emerging technologies like Hydrogen-Based Vehicles and Fuel Cells. Additionally, they cover various vehicle systems, including battery, powertrain, body and trim, suspension, brakes, HVAC, and emission control. The company also filed 81 copyright applications and secured 68 patent grants during the year, bringing its total granted patents to 918.

Pioneering the Future of Mobility, Tata Motors continues to set the benchmark in automotive innovation with its cutting-edge technologies and sustainable solutions. The record-breaking number of patents and design applications filed in FY25 underscores

the company's unwavering commitment to enhancing vehicle performance and safety. This proactive approach not only addresses future mobility challenges but also aligns with Tata Motors' vision of creating a smarter, greener, and more connected world. These pioneering efforts have solidified Tata Motors' position as a global leader in automotive innovation. In recognition of its excellence in intellectual property rights (IPR), Tata Motors received five prestigious accolades and honours in FY25, both in India & abroad.

Rajendra Petkar, President and CTO, Tata Motors stated, "Our innovation strategy is focused on delivering sustained value to customers while staying ahead of the industry shifts. This reflects our continued pursuit of automotive excellence and reinforces our long-term vision of manufacturing greener, safer, and more efficient vehicles. With a growing portfolio of pioneering technologies, we remain committed to supporting nation-building through cutting-edge solutions."

Process Industry

Superior polymers unit to be set up in Kathua

Jammu and Kashmir Lieutenant Governor (LG) Manoj Sinha virtually inaugurated the manufacturing unit of Superior Polymers India Private Limited in Kathua, marking a significant step towards strengthening the region's industrial base.

Congratulating the Superior Group of Industries on their new venture, the LG emphasised the unit's potential to positively impact the local economy and job creation, aligning with the broader vision of an Aatmanirbhar J&K.

The greenfield project, established with an investment of ₹750 million, is expected to generate hundreds of employment opportunities in the Union Territory.

"The progressive industrial policy and proactive interventions over the past few years have increased investor confidence in J&K," said the Lieutenant Governor. "We are witnessing the results, with multiple units operational and more investments in the pipeline."

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Electrical & Electronics

Toshiba and Telangana sign MoU to push investment in T&D manufacturing

Toshiba Transmission & Distribution Systems (India) Private Limited (TTDI), a subsidiary of Toshiba Energy Systems & Solutions Corporation (Japan), has signed a Memorandum of Understanding (MoU) with the Government of Telangana, on April 18, 2025, to advance its previous investment of JPY 10 billion in expanding its manufacturing capabilities in the state.

The MoU signing ceremony was held in Tokyo in the presence of Shri Anumula Revanth Reddy, Honourable Chief Minister of Telangana, accompanied by Shri Jayesh Ranjan, Special Chief Secretary, Industries, ITE&C, and Sports, Shri Emmadi Vishnu Vardhan Reddy, Special Secretary, Investment Promotion & External Engagement, Hiroshi Kaneta, Vice President, Grid Solution Division, Corporate Officer, Corporate Vice President, Toshiba Corporation and Hiroshi Furuta, Chairman and Managing Director, TTDI.

Hiroshi Furuta, CMD, TTDI said, "This MoU will bolster Toshiba's manufacturing footprint in India and



contribute to local employment and skills development. With strong support from the Government of Telangana, we are poised to accelerate our manufacturing capabilities and deliver high-quality, sustainable energy solutions for India and the world."

As part of the MoU, the proposed investment is expected to generate over 250 direct jobs over the three years from FY2024, further contributing to the socio-economic development of the region. TTDI and the Government of Telangana have also expressed their intent to explore future opportunities for growth and diversification, while jointly advancing skill development initiatives to nurture local talent and strengthen the industrial ecosystem in the state.

The MoU reaffirms Toshiba's long-term commitment to India and strengthens its alignment with the 'Make in India' and 'Export from India' initiatives through a significant investment to expand TTDI's manufacturing footprint in Hyderabad.

Renewable Energy

Tata Motors and TPREL to develop 131 MW wind-solar hybrid project

Tata Motors, India's leading automobile manufacturer, and Tata Power Renewable Energy Limited (TPREL), a subsidiary of Tata Power, have signed a Power Purchase Agreement (PPA) to co-develop a 131 MW wind-solar hybrid renewable energy project.

Set to generate approximately 300 million units of clean electricity annually, the project is expected to offset over 200,000 tonnes of CO₂ emissions. Enabled through co-investment and a long-term Power Purchase Agreement (PPA), this integrated wind-solar hybrid solution will provide a reliable supply of green, cost-effective energy exclusively to Tata Motors' six manufacturing facilities in Maharashtra and Gujarat, supporting the production of both commercial and passenger vehicles.

This initiative significantly advances the Tata Motors' clean energy transition for achieving its RE-100

commitment ahead of the 2030 target and accelerates meaningful progress toward climate-resilient operations. It also marks a major milestone in Tata Motors' sustainability roadmap, aligning with its broader ambition to achieve net-zero emissions and lead the shift towards environmentally responsible manufacturing.

Vishal Badshah, Vice President – Operations, Commercial Vehicles, Tata Motors, said, "As a key driver of India's mobility and logistics ecosystem, Tata Motors Commercial Vehicles is proud to lead by example in sustainable manufacturing. This project reinforces our commitment to integrate renewable energy into our operations and reducing our carbon footprint while meeting our RE-100 goals. It also reflects our broader purpose of delivering mobility solutions that are sustainable at every stage—from production to performance."

Auto Components

India's auto exports hit 5.36 million units

India's automobile exports soared to an all-time high of 5.36 million units in FY 2024-25, marking a 19 per cent increase over the previous fiscal's 4.5 million units, according to data from the Society of Indian Automobile Manufacturers (SIAM). The sharp rise underscores India's growing position as a global automotive manufacturing hub.

Passenger vehicle exports grew 15 per cent to 7,70,364 units, with Maruti Suzuki and Hyundai Motor India leading the segment. Maruti's off-roader Jimny, now being exported to Japan, Mexico, Australia, and South Africa, has seen strong traction, with over 38,000 units shipped in the first nine months of FY25. It joins the Fronx SUV, also being exported to Japan from Maruti's Gujarat plant. The surge in vehicle exports reflects India's improved manufacturing quality, strategic export market expansion, and the country's emergence as a key supplier for global automotive demand.

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Renewable Energy

MITWPU to pioneer novel hydrogen production from sugarcane juice

MIT World Peace University (MITWPU) has made significant advancements in sustainable energy research, with two pioneering projects: a novel process for generating green hydrogen directly from sugarcane juice and an innovative batch reactor system for biodiesel production using agro waste based heterogeneous catalysts. These developments underscore MITWPU's commitment to India's green energy transition and sustainable future.

The university has developed a unique process to generate hydrogen from sugarcane juice using microorganisms, which also converts carbon dioxide into acetic acid, making it more sustainable. This research supports Government's Green Hydrogen Mission and offers sugar industries an opportunity to produce hydrogen, reducing dependence on imported fossil fuels.

A patent has already been submitted for this technology. This project proposal has been submitted to



the Ministry of Non-Conventional Energy (MNRE) for funding. The centre of excellence on green hydrogen has also been submitted to MNRE, Government of India.

Dr Bharat Kale, Emeritus Professor & Director of Material Science [COE]s said "The

university's bioprocess operates at room temperature using sugarcane juice, sea water, and wastewater, contributing to global efforts to reduce hydrogen costs to \$1/kg. Unlike conventional water-splitting methods, this process generates valuable byproducts, ensuring zero discharge and making it a viable solution for India's energy transition. We are seeking industry partners for lab-scale development and eventual technology transfer."

The work on hydrogen storage is also in progress using Metallo-organic framework (MOF). The MOFs for hydrogen storage and CO₂ captures has been focused intensely.

Renewable Energy

Jindal and AB Energia setup Odisha's largest captive industrial solar plant

India's largest stainless steel manufacturer, Jindal Stainless, and one of India's leading clean energy solution providers, AB Energia Solutions Pvt Ltd, installed and commissioned a solar energy project at Jindal Stainless' manufacturing unit in Jajpur, Odisha. This initiative boasts a cumulative capacity of over 30 MWp, making it the largest captive solar energy plant within a single industrial campus in Odisha.

The solar energy plant installed by Jindal Stainless at its Jajpur unit in partnership with AB Energia comprises a 7.324 MWp floating solar plant and a 23.02 MWp rooftop solar system. The state-of-the-art plant is capable of generating approximately 44.3 million units (MU) of green energy annually, significantly reducing the Jajpur unit's dependence on conventional grid electricity. This is equivalent to powering 12,000-15,000 households or cutting CO₂ emissions by 32,208 metric tonne annually.

The Jajpur unit is Odisha's largest captive green energy generation plant, marking a major milestone in the state's renewable energy landscape. This makes it the largest captive solar plant in Odisha, showcasing the company's leadership in sustainable industrial practices.

The project exemplifies both scale and innovation, integrating AB Energia's engineering expertise with Jindal Stainless' strong commitment to sustainability. It includes a 7.324 MWp floating solar plant, cleverly deployed on an internal reservoir, as well as a 23.02 MWp rooftop solar system spread across 10 industrial roofs at varying elevations. This design maximises the use of available space and enhances overall energy output.

The environmental impact of this initiative is substantial. It is projected to reduce CO₂ emissions by 32,208 metric tonnes annually—equivalent to planting 1,288 trees each year—significantly cutting the facility's reliance on conventional grid electricity.



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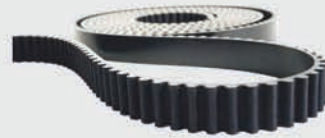


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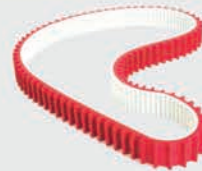
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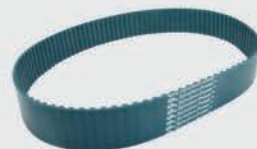
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Warehousing & Logistics

Crown Worldwide Group launches custom bonded warehousing service in India

Crown Worldwide Group, a global leader in storage, logistics, and records management, has introduced its new custom bonded warehousing service in India, operated under its Crown Workspace & Warehousing division. The new service is designed to provide businesses with a duty-free, secure, compliant, and technology-enabled solution for storing high-value imported goods without the immediate payment of customs duty. This initiative aims to streamline import-export operations, ensure superior logistics services, and provide global businesses greater agility in managing their supply chains.

The bonded warehouse is now operational in Mumbai. It offers ISO-certified, digitally managed, and tamper-proof, dust-free storage designed to handle a wide range of high-value products—including fine wines and spirits, luxury goods and fashion, jewelry, electronics, and general cargo. The facility also supports ESD-safe handling for sensitive electronic items and



includes flexible options for bulk and industrial goods.

In terms of security, the warehouse is equipped with 24/7 surveillance, restricted access protocols, and full insurance coverage against theft or damage. It is built to meet international standards for safety and operational efficiency, ensuring clients have complete peace of mind.

Kavitha Suresh, Assistant General Manager, Workspace and Warehousing- Crown Worldwide Group, spoke about this latest venture, "At Crown, we have always looked to push boundaries. The custom-bonded warehousing service integrates technology to provide our clients with a seamless storage and transit experience. Through this new development, we are effectively bridging global benchmarks with local needs. From luxury items to bulk to electrical, electronics and imported wine & spirits we look forward to catering to all sectors and offering a great experience to our clients."

Pumps & Valves

Crompton receives solar water pump order from MEDA

Crompton Greaves Consumer Electricals Ltd, renowned for its innovative solutions in the pumps industry, has received a Letter of Award (LoA) from the Maharashtra Energy Development Agency (MEDA) for the design, manufacture, supply, transport, installation, testing, and commissioning of 433 Solar Photovoltaic Water Pumping Systems (SPWPS) across various locations in Maharashtra with a value of over ₹106 billion.

With this order, Crompton continues to deliver on its commitment to enabling sustainable farming through reliable and efficient solar water pumping solutions. Backed by a strong service network, capable channel partners, and a legacy of trusted performance, the company is well-equipped to meet the increasing demand in this space. Crompton's pumps are engineered

Crompton

for durability and performance, supported by a five-stage product development process, advanced manufacturing capabilities, and deep R&D expertise. With plans to deploy increasingly more solar-powered pumps under the PM-KUSUM Scheme in the next few years, Crompton is playing a key role in efforts to make an impact in the energy efficiency category.

This development further strengthens Crompton's commitment to driving sustainable progress in agriculture through clean energy solutions. As part of Component-B of the PM-KUSUM scheme, this initiative directly supports the national objective of enabling farmers to transition from conventional power sources to renewable energy — offering both economic and environmental benefits.

Renewable Energy

Servotech wins 4.1 MW rooftop solar order

Servotech Renewable Power System Ltd (formerly known as Servotech Power Systems Ltd), a leading provider of solar energy solutions, has secured a prestigious order for a 4.1 MW on-grid rooftop solar project from the Waltair Division, East Coast Railway, situated in Visakhapatnam, Andhra Pradesh. The project is valued at ₹158 million.

Under the scope of this contract, Servotech will undertake the design, manufacturing, supply, installation, testing, and commissioning of rooftop on-grid Solar Photovoltaic (PV) plants of varying capacities across multiple sites within the Waltair division. This initiative is part of the Indian Railways' broader mission to integrate renewable energy into its infrastructure and reduce its carbon footprint, reinforcing its position as a leader in sustainable transportation.

This win further strengthens Servotech's growing portfolio in the public sector.

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- Ultrasonic Level Transmitters / Indicators / Switches
- RF Capacitance type Level Transmitters
- Reed level Transmitters / Indicators / Switches

LEVEL SWITCHES

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- Float Operated External Cage / Magnetic Level Switches
- Reed Level Switches
- Conductivity Level Switches
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- Cable and Float Level Switches
- Gear Box Oil Level Float Switches
- RF Capacitance Level Switches
- Vibrating Fork Level Switches

FLOW SWITCHES

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- Thermal Dispersion Flow Switches

FLOW METERS

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- Electromagnetic Flow Meters
- Ultrasonic Flow Meters
- Indicating Flow Relays
- Sight Flow Indicators
- Variable Area Flow meters

OPEN CHANNEL FLOW TOTALISERS / METERS

- Ultrasonic Open Channel Flow Totalisers
- Rate of Flow Transmitters
- Mechanical Open Channel Flow Meters

LOSS OF HEAD INDICATORS

- Capacitance type Loss of Head Indicators
- Float type Loss of Head Indicators

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- Cast Iron Valves
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MSMEs' Funding Puzzle

Despite contributing nearly 30 per cent to India's GDP, only 14 per cent of credit needs of Micro, Small and Medium Enterprises (MSMEs) are met through formal channels. The revised MSME classification may mark a pivotal shift in how India supports and enables its small business ecosystem, says Rakesh Rao.



In developing countries, Micro, Small, and Medium-sized Enterprises (MSMEs) often play a pivotal role in driving the country's economic growth. In India, MSMEs contribute 30 per cent to the country's GDP and 45 per cent to exports creating over 110 million jobs. MSMEs promote balanced regional development, entrepreneurship, and poverty reduction. Many MSMEs are family-

run businesses, self-funded start-ups, or small exporters that need localised solutions. "MSMEs are the backbone of India's economy. With around 63 million MSME units, their role in economic growth and employment generation is indispensable. Focusing on MSMEs is not just beneficial; it is essential for India's sustained economic development," states **R Srinivasan, Director, AIRA Consulting Pvt Ltd**, and Co-

Chairperson – MSME Forum, Bombay Chamber of Commerce and Industry (BCCI).

There are about 63 million MSMEs in India, as per the registration data available on the Udyam portal as of April 26, 2025. "If India needs to truly realise its potential, we need to enhance the productivity and global competitiveness of our MSMEs. While MSMEs battle many challenges, there are the top three areas - timely access to capital, better infrastructure, and technology adoption - where we must act. Despite MSMEs contributing nearly 30 per cent to GDP and employing over 110 million Indians, the ₹28 trillion credit gap is a stark reminder that we are far from done. If we can fix this — and fix it fast — the growth and innovation that MSMEs will unleash could transform the Indian economy in ways we're only beginning to imagine," observes **Sanjay Agarwal, CEO, Ambit Finvest Pvt Ltd**.

Funding hurdles

Despite their economic importance, MSMEs struggle to access formal finance. "The major challenge for MSMEs is access to finance because they are largely unorganised. Lending is based on collateral and often they do not have such backing. Further, when they borrow the cost would tend to be very high and this is where the government's MUDRA (Micro Units Development and Refinance Agency) scheme has helped a lot. Further, the guarantees provided by the

Table 1: MUDRA loans (under PMMY) in last 5 years

Financial Year	No. of PMMY Loans Sanctioned	Amount Disbursed (in ₹billion)
2024-25	49409301	5119
2023-24	66777013	5323.58
2022-23	62310598	4504.24
2021-22	53795526	3314
2020-21	50735046	3117.54

Source: MUDRA Portal

government have been an added advantage when it comes to borrowing from the banks. But on account of low creditworthiness, they tend to borrow more from Non-Banking Financial Companies (NBFCs) or informal channels which involves higher cost,” states **Madan Sabnavis, Chief Economist, Bank of Baroda.**

MSMEs operate with limited working capital buffers. Many depend on seasonal or order-based revenue, which makes them sensitive to supply chain shocks, global volatility, and macroeconomic shifts (for example, inflation and interest rates). Delays in receivables or increased input costs can severely affect liquidity. “Large companies often have extended payment terms, sometimes up to 90 days, while MSMEs need to pay suppliers upfront. Without adequate working capital, sustaining operations becomes challenging,” observes Srinivasan.

MSMEs need quick access to credit and documentation processes often delay this. As most of MSMEs operate in manufacturing, retail, or seasonal industries, uninterrupted supply is the key for them to fulfil orders and meet customer demand. There is higher demand for working capital expenses, emphasising the liquidity challenges and short-term cash flow gaps faced by these firms in managing their day-to-day operations.

Despite many government policies and financial schemes, the



“While there are challenges, given the push to increase the flow of credit to this sector by the government, we can see the coverage increasing sharply over time.”

**Madan Sabnavis, Chief Economist,
Bank of Baroda**

Hurdles for MSME finance & probable solutions

MSMEs face the following key challenges while accessing finance:

- **Lack of collateral & credit history:** Many MSMEs are informal or new businesses with limited assets or past financial records, making them ineligible for traditional loans.
- **Cumbersome processes:** Conventional lenders often require lengthy documentation, in-person visits, and have slow approval cycles, which deter MSMEs needing quick funds.
- **High interest rates from informal sources:** With limited access to formal credit, MSMEs often turn to informal lenders at exorbitant rates, impacting profitability.
- **Limited awareness:** A significant portion of MSMEs are unaware of available financial products, schemes, or digital credit platforms tailored to their needs.
- **Perceived risk by lenders:** MSMEs are often seen as high-risk borrowers due to sectoral volatility, lack of diversification, or dependence on a few clients — resulting in higher rejection rates.

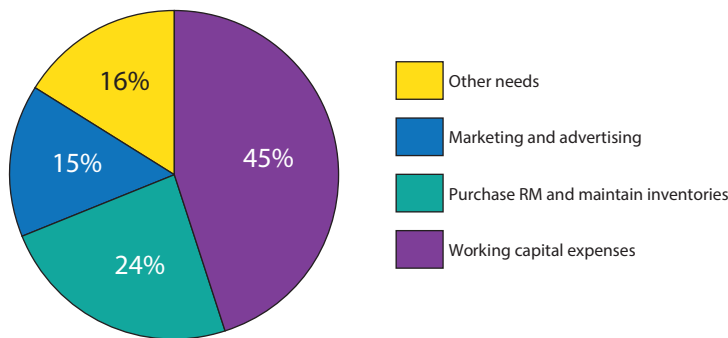
To improve the MSME finance ecosystem in India, Srinivasan recommends three key actions:

- **Expand credit access through partnerships:** Encourage more public-private partnerships between banks, fintechs, and NBFCs with defined roles and risk-sharing models. This can significantly widen the net.
- **Strengthen financial literacy and advisory support:** MSMEs need better guidance on structuring their finances, managing working capital, and preparing credit proposals. Creating MSME advisory cells in every district can help.
- **Enforce timely payments from large buyers:** Mandating strict payment timelines, especially from government departments and PSUs, will reduce MSMEs’ dependency on external funding.

balance sheets of MSMEs are always stressed. Attributing reasons to this, **Ramaswamy Iyer, Founder and CEO, Vayana Network**, states, “MSMEs’ balance sheets are distressed because of delayed payments from larger corporate buyers; ₹10.7 trillion is the total sum of delayed payment to MSME suppliers by large corporate buyers, according to GAME Report (5.9 per cent of gross value addition by Indian businesses). As they are perceived as high risky borrowers, roughly 14 per cent MSMEs have access to credit. The ₹20–25 trillion credit gap, as highlighted by the Lok Sabha Standing Committee on Finance, underscores the scale of exclusion MSMEs continue to face in India’s formal financial system. This is not merely a funding problem—it is a systemic issue rooted in how creditworthiness is assessed, how

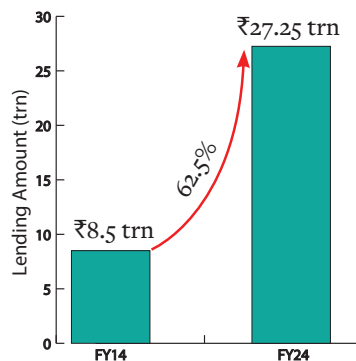
lending is structured, and how cash flows are managed within supply chains.”

Aggrieved MSMEs argue that while non-performing assets (NPAs) of MSMEs are a mere 2.80 per cent, they are charged higher interest rates than the large corporates. “I challenge the notion of low creditworthiness of MSMEs. Many MSME owners are technocrats deeply invested in their businesses. They might lack formal financial training, but their commitment is unwavering. Unlike large corporations with diversified portfolios, an MSME owner’s livelihood depends entirely on their business. Defaulting isn’t an option for them. Moreover, data shows that MSMEs often have lower Non-Performing Assets (NPAs) than larger companies. It is essential to recognise their dedication and potential,” says Srinivasan.



Break-up of business loan applications

Source: Paisabazaar.com



Credit availability for MSMEs

Source: SBI Research

Policy push

According to **Jitendra Meghrajani, Assistant Director, CareEdge Ratings**, as of September 2024, overall MSME credit stood at ₹32.58 trillion. While MSME lending continues to grow, the pace has slowed. “Bank MSME portfolios saw growth moderated from 20.7 per cent in FY24 to an annualised 10.7 per cent in H1FY25. For NBFCs, growth declined sharply from 33.6 per cent to 14 per cent over the same period, reflecting broader credit deceleration and emerging asset quality concerns. Despite this, the MSME share in NBFC portfolios has risen from 5.9 per cent in FY21 to 9.1 per cent in H1FY25—a more than 50 per cent increase on a low base. In contrast, banks’ MSME exposure has remained steady around 16–16.5 per cent,” he says.

The Indian government has a variety of credit schemes aimed at supporting small business owners

and entrepreneurs in many industries. These schemes are intended to empower prospective entrepreneurs, spur economic growth, and generate employment. Meghrajani opines, “Some of the prominent Schemes launched by the GoI to promote credit funding include, Pradhan Mantri MUDRA Yojana (PMMY), Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) scheme, and Emergency Credit Line Guarantee Scheme (ECLGS) launched during Covid. Recently, the Government of India in budget has enhanced the investment and turnover thresholds for MSME classification, with investment limits raised by 2.5 times and turnover limits doubled. A new Mutual Credit Guarantee Scheme has also been introduced, offering a 60 per cent guarantee on loans up to ₹1 billion. These measures are aimed at easing access to capital, particularly for the purchase of new machinery and equipment. Furthermore, initiatives such as the PMMY, enhancement of CGFMU guarantee coverage from ₹1 million to ₹2 million, and platforms like Udyam Registration, Udyam Assist, GST Sahay, TReDS (Trade Receivables electronic Discounting System), and broader digital public infrastructure are collectively enabling deeper credit penetration and support for MSMEs across geographies.”

According to a State Bank of India (SBI) Research report, credit

availability for India’s MSMEs has seen a remarkable rise, with lending to the sector more than tripling from ₹8.5 trillion in FY14 to ₹27.25 trillion in FY24, and projected to approach ₹30 trillion by FY25. Over the past decade, more than 520 million MUDRA accounts have been opened.

With 63 million MSMEs, 95 per cent of which are micro-enterprises, the demand far outstrips the supply of affordable credit. Banks often prioritise larger loans due to the similar effort required in processing, leaving smaller enterprises underserved. While attitudes are changing, the pace isn’t fast enough to meet the sector’s needs. Agarwal says, “For far too long, MSMEs, especially the micro and small businesses, have been left out of the formal lending ecosystem. Traditional lending models have expected them to produce audited financials and paperwork they often

 **“The rapid adoption of digital lending platforms and fintech solutions is transforming MSME financing in India, enabling quick, paperless, and collateral-free loans.”**

Jitendra Meghrajani, Assistant Director, CareEdge Ratings

 **“There’s a growing trend towards cash flow-based lending. Platforms like TReDS allow MSMEs to get their invoices discounted, providing immediate liquidity.”**

R Srinivasan, Director, AIRA Consulting Pvt Ltd

just don't have. Bridging this gap required solving two big challenges. First, there was a need for alternative lending models that don't depend on traditional financial data. Second, we needed to figure out how to offer small-ticket loans while keeping the unit economics viable — which means building a lean, tech-driven model."

Thankfully, the last decade witnessed confluence of several favourable events. Agarwal explains, "With Aadhaar based ecosystem, open-data architecture, and the overall push toward digitalization, we now have, based on a rigid consent mechanism, access to rich, alternative data that makes credit underwriting possible for these micro and small businesses. At Ambit Finvest, we've built our model exactly around this new reality. We're a new-age lender, combining deep on-ground market understanding with a strong technology backbone. Our policies are tailored to meet the unique requirements of each micro market and our completely digital processes enable us to deliver credit quickly, efficiently and affordably."

While initiatives like CGTMSE and emergency credit lines during COVID-19 have provided relief, their reach isn't as extensive as needed. "For instance, a company seeking a ₹5 million loan might still face hurdles despite these schemes. However, there's a positive shift with banks moving from asset-based to cash flow-based lending, leveraging data from platforms like the GST portal. This change is promising, but there's still a long way to go to ensure widespread access," comments Srinivasan.

Bridging the finance gap

The Government of India is actively working to enhance MSMEs' access to finance. Decentralised credit, through platforms like fintech companies, peer-to-peer (P2P) lenders, and blockchain solutions, is

Routes to finance MSMEs in India

There are number of routes/schemes for MSMEs to raise funds. Some of them include:

Finance through SIDBI: Small Industries Development Bank of India (SIDBI) – the nodal finance institution for MSMEs – offers various direct or indirect loans ranging from ₹1 million to ₹250 million.

MUDRA loans: Pradhan Mantri Mudra Yojana (PMMY) provides loans of up to ₹1 million to non-corporate, non-farm small or micro-enterprises.

CGTMSE: Jointly established by the Ministry of MSME and the SIDBI, Credit Guarantee Fund Trust for Micro and Small Enterprises (CGTMSE) offers credit guarantees to financial institutions providing collateral-free loans to MSMEs.

CLCSS: The Credit Linked Capital Subsidy Scheme (CLCSS) offers a 15 per cent capital subsidy on additional investments of up to ₹10 million for MSMEs upgrading to state-of-the-art or near state-of-the-art technology.

NSIC: National Small Industries Corporation (NSIC) facilitates credit requirements of small enterprises in the areas such as finance for procurement of raw material and marketing activities, and credit facilitation through banks.

CGSSD: Credit Guarantee Scheme for Subordinate Debt (CGSSD) extends support to promoters of operational MSMEs that are stressed and classified as NPAs as of 30 April 2020. Promoters can avail of subordinated debt by approaching scheduled commercial banks under this scheme.

Fund of Funds Scheme: Designed to assist viable and growth-oriented MSMEs, the Fund of Funds scheme provides equity support, encouraging businesses to scale and eventually list on stock exchanges.

MSME loans from Banks & NBFCs: Banks and other financial institutions offer a variety of MSME loans, including working capital loans and term loans. Working capital loans help businesses meet daily operational expenses, while term loans finance capital expansion, infrastructure development, or the purchase of fixed assets.

Listing on SME exchanges: MSMEs can raise capital by listing on SME exchanges, which offer simplified listing requirements compared to the main stock exchanges.

(Source: ClearTax.com and other portals)

offering MSMEs faster, more flexible, and inclusive financing options. Initiatives like the Open Credit Enablement Network (OCEN), Account Aggregator (AA) framework, and Open Network for Digital Commerce (ONDC) are further accelerating formal credit flow and expanding market access for small businesses.

For example, Aditya Birla Capital is embedding finance directly into MSME business workflows making credit accessible contextually on supply chain platforms, OCEN, ONDC etc. The company is expanding its Udyog Plus platform to

strengthen its B2B digital ecosystem, streamlining onboarding through straight-through and assisted digital journeys. This makes credit faster and more accessible for MSMEs, especially in manufacturing.

According to Meghrajani, the RBI's TReDS platforms – like RXIL, M1xchange, and Invoicemart – have been a game-changer for MSME invoice finance by connecting suppliers with multiple financiers online.

Srinivasan adds, "Yes, there's a growing trend towards cash flow-based lending. Platforms like TReDS allow MSMEs to get their invoices



“It (the new MSME classification) not only legitimises their ambitions but also aligns policy incentives with the

realities of modern manufacturing.”

Ramaswamy Iyer, Founder and CEO, Vayana Network

discounted, providing immediate liquidity. If large corporations and government entities mandate transactions through such platforms, it could revolutionise MSME financing by ensuring timely payments and reducing reliance on traditional credit.”

Speaking about the important of technologies and digital tools for the growth of MSME loan portfolio, Sabnavis says, “Given their large numbers and the fact that they are scattered across the country, the digital medium is the best way for them to access formal credit channels. This is where fintech companies play a role. Also, co-lending by banks with NBFCs is a model which is largely undertaken on a digital platform. The digital platforms are accessible and offer seamless processes as far as SMEs are concerned.”

Fintech revolution

Since most micro units operate within the informal sector, banks are



“We needed to figure out how to offer small-ticket loans while keeping the unit economics viable — which means building a lean, tech-driven model.”

Sanjay Agarwal, CEO, Ambit Finvest Pvt Ltd

often hesitant to extend credit to them due to the high-risk perception arising from inadequate professional bookkeeping practices. Additionally, the typically small loan amounts make it economically unviable for banks to bear the administrative costs associated with serving this segment. Srinivasan says, “Technology is a game-changer. Fintechs are already bridging the gap between lenders and MSMEs using data analytics, AI, and alternative credit scoring models. The Account Aggregator framework under the RBI is also promising; it can help MSMEs share verified financial data with lenders in real time, speeding up credit decisions. Moreover, platforms like ONDC are democratising market access, which indirectly improves financial viability and creditworthiness. If MSMEs embrace digital tools, from invoicing software to e-commerce platforms, they can vastly improve their funding prospects.”

The emergence of fintechs and tech-based lending models is widening financial access, particularly among new-to-credit customers and remote populations. Boosted by the rise of digital payments and e-commerce adoption, India’s digital lending market reached \$270 billion in 2022 and is projected to grow to \$1 trillion in assets under management by 2030.

Iyer says, “The current credit ecosystem is not built to serve the long tail of micro and small enterprises that dominate India’s supply chains. These businesses are typically excluded from formal finance due to a lack of collateral, limited credit history, and small ticket size requirements that don’t fit traditional lending models. Vayana has taken a fundamentally different approach to bridge this gap. We have built a Comprehensive Trade Credit Infrastructure, where we operate a network-centric, anchor-led model that integrates deeply into corporate

supply chains. By leveraging the creditworthiness of large anchor enterprises and capturing real-time trade data, we enable financial institutions to assess and extend credit to MSME vendors and dealers more accurately and with lower risk. At Vayana, our mission is to make access to affordable and timely credit a reality for every business, regardless of size or location.”

Reclassification, new direction

The Government of India, effective from April 1, 2025, has reclassified MSMEs, increasing the threshold for micro and small enterprises. The government has proposed revised investment and turnover thresholds for MSME classification, increasing the investment limit by 2.5 times and doubling the turnover limit. For example, in the case of micro enterprises, the investment cap has been raised from ₹10 million to ₹25 million, and the turnover ceiling from ₹50 million to ₹100 million. This reclassification is expected to bring a larger number of enterprises under the MSME category. Madan Sabnavis comments, “With the new classification more companies would fall within this ambit and as such lending comes under priority sector commitments, the canvas becomes bigger for banks. As bigger companies tend to be better organised, the flow of credit should increase.”

The revised MSME classification marks a pivotal shift in how India supports and enables its small business ecosystem. “By raising investment limits by 2.5 times and doubling turnover thresholds, the government has redefined the growth trajectory for India’s MSMEs—especially for manufacturing units that previously faced hard ceilings on scale due to fears of losing policy-linked benefits,” explains Iyer.

According to him, the revised

Table 2: Revision in MSME classification criteria

Types of Enterprises	Changes in	
	Investment Limit	Turnover Limit
Micro	₹10 mn to ₹25 mn	₹50 mn to ₹100 mn
Small	₹100 mn to ₹250 mn	₹500 mn to ₹1 bn
Medium	₹500 mn to ₹1.25 bn	₹2.50 bn to ₹5 bn

limits are likely to lead to:

- Improved access to credit, particularly for growing firms that previously straddled the line between small and medium classification.
- Longer growth runways, as firms can scale operations and technology investment without an immediate reclassification.
- Better risk-adjusted credit models, as turnover-based assessments provide a more holistic view of financial performance than capital investment alone.

The reclassification has both pros and cons. Srinivasan elaborates, “While it allows larger enterprises to benefit from MSME schemes, there’s a concern that truly small businesses might get overshadowed. However, expanding the MSME pool can lead to increased funding, which, if distributed equitably, can benefit all tiers. It is crucial to ensure that micro and small enterprises aren’t left behind in this expanded framework.”

Iyer adds, “With 99 per cent of India’s MSMEs still operating below ₹10 million in turnover, there is a genuine concern that the top 1 per cent—now enjoying a wider benefit net—may capture a disproportionate share of incentives and credit. Moreover, access to finance remains uneven, particularly for micro-enterprises and those in tier 2 and 3 cities, who may lack the financial literacy, digital adoption, or collateral required even under relaxed definitions.”

Another challenge is lack of awareness. Many MSMEs are still

unfamiliar with the evolving definition, government benefits, or how reclassification affects their financing opportunities. Unless this gap is addressed through targeted outreach, much of the reform’s potential may go unrealised.

Nonetheless, Iyer believes, the 2025 classification update is a significant enabler for MSME manufacturers that are growth-oriented, export-ready, or already digitised. “It not only legitimises their ambitions but also aligns policy incentives with the realities of modern manufacturing. Over time, as financial institutions adapt to the new classification with revised products, risk frameworks, and outreach strategies, we expect to see more MSMEs accessing structured finance, expanding capacity, and investing in innovation without having to choose between growth and government support,” he adds.

However, it is important to note that the revised classification is yet to be incorporated into the Priority Sector Lending (PSL) framework. “As MSME lending qualifies as part of the PSL mandate for banks, once notified under PSL, this expansion will likely lead to increased credit flow to these entities—either through direct lending at more favourable rates or via buyouts from NBFCs,” says Meghrajani.

New avenues of MSME finance

Large lending opportunity to MSMEs, growing number of co-lending partnerships and government support in sector has created a supportive environment for the

expansion of MSME lending. Based on IFC estimates and CareEdge assumptions, the total MSME funding requirement is pegged at ₹127.5 trillion. Of this, ₹50.7 trillion is expected to be addressable through formal finance. With current MSME credit at about ₹32.5 trillion, a ₹18.2 trillion formal credit gap remains—largely in the underserved micro-enterprise segment.

According to Meghrajani, certain risks persist including rising share of new-to-credit (NTC) borrowers, which may impact asset quality. He adds, “As more NTC customers enter the market, lenders need to leverage data and analytics to understand borrowers better. Nonetheless, the government’s continued emphasis on employment generation is expected to bolster MSME lending and enhance formal credit access for first-time borrowers.”

Access to capital markets via SME exchanges remains underutilised, largely due to concerns over losing sector-specific benefits, market volatility, and limited awareness. Promoting SME listings is essential, as listed firms consistently show stronger financial health compared to the smallest companies on the main board.

So, how does the road ahead for the MSME finance sector look? Sabnavis answers, “While there are challenges, given the push to increase the flow of credit to this sector by the government, we can see the coverage increasing sharply over time. MUDRA, for instance, will remain one of the frontrunner schemes, while the CGTMSE scheme will provide the guarantee backing that is required for this segment going forward.”

While significant progress has been made in terms of access to finance, further simplification and stronger outreach efforts are essential to build a more supportive ecosystem for India’s dynamic MSME sector to thrive.



US Tariff Impact on MSME Finance

While Micro, Small and Medium Enterprises (MSMEs) continue to face barriers in accessing funds, the new tariff war could add to their woes, says Rakesh Rao.



On April 2, 2025, the US President Donald Trump announced a minimum 10 per cent tariff on all US imports, effective April 5, and higher tariffs on imports from 57 countries (including India) sending a shock wave across the globe. "Export-oriented Micro, Small and Medium Enterprises (MSMEs) are facing challenges due to global uncertainties. Delays in shipments, extended payment terms, and inventory pile-ups are straining their cash flows. Many MSMEs export indirectly by supplying to larger companies. If these larger entities face export hurdles, the ripple effect impacts the MSMEs. Additionally, the complexities of direct exporting—like compliance and currency fluctuations—deter many MSMEs from venturing into global markets independently," says **R Srinivasan, Director, AIRA Consulting Pvt Ltd.**

The current tariff war couldn't have come at a more delicate time for the global economy. Growth was already under pressure, with recession fears looming large across major markets. J.P. Morgan recently raised

the probability of a global recession to 60 per cent, and the IMF has downgraded global growth forecasts to 2.8 per cent this year, down from 3.3 per cent last year. "For Indian MSMEs, which account for nearly 49 per cent of the country's exports, these headwinds present both risks and opportunities. The US, one of India's largest export destinations, alone absorbs about \$87 billion worth of goods. With tariffs driving up costs in the US, demand for imported goods could soften, affecting Indian exporters too. Rising input costs and global supply chain volatility add another layer of complexity," observes **Sanjay Agarwal, CEO, Ambit Finvest Pvt Ltd.**

However, there's a silver lining. Differential tariffs are creating a unique cost advantage for Indian MSMEs. He explains, "With countries like China, Vietnam, and Bangladesh facing steeper tariffs compared to India, our businesses have a real opportunity to expand their footprint, especially in sectors like electronics and textile manufacturing. The global supply chain realignment also opens doors

for Indian MSMEs to position themselves as reliable partners on the world stage."

US tariff tantrum

The recent decision by the US administration to pause the imposition of higher tariffs for 90 days on countries including India offers a welcome, albeit temporary, relief. **Ramaswamy Iyer, Founder and CEO, Vayana Network**, says, "For now, Indian exports to the US face only a 10 per cent base ad valorem tariff, rather than the steeper 26 per cent that was initially announced. However, for India's MSMEs—many of which are heavily dependent on the US market—the uncertainties around global trade policy continue to influence their financial and operational planning."

India's MSME exporters are more engaged in global trade than ever before. The number of exporting MSMEs has surged from 52,849 in 2020–21 to over 1.73 lakh in 2024–25, reflecting the sector's growing role in international commerce.

Iyer elaborates, "This expanding global footprint also means greater vulnerability to policy shocks. Even with the 90-day tariff suspension, buyers in the US are hesitant to commit to long-term contracts, uncertain about whether higher duties might return. For MSMEs, this translates into: Delayed payments and postponed shipments disrupting cash flow cycles; Inventory pile-ups, as goods meant for export remain stuck; Greater need for short-term working capital, often without the

assurance of corresponding receivables; and Pressure on margins, as businesses must decide whether to absorb tariff costs or renegotiate contracts.”

What complicates matters further is that many MSMEs operate with single-market exposure. “The US accounts for nearly 18 per cent of India’s total exports, making any disruption in that corridor especially consequential. Even a base 10 per cent tariff—if perceived as a long-term structural change—can erode competitiveness and force MSMEs to either accept tighter margins or seek financing to manage operational continuity,” opines Iyer.

Perhaps the most significant impact is not the tariff itself, but the uncertainty it introduces. He explains, “For MSMEs, particularly those without geographic diversification or deep financial reserves, uncertainty affects everything—from creditworthiness assessments to the timing of raw material purchases and production planning.”

Need flexibility in credit

According to **Madan Sabnavis, Chief Economist, Bank of Baroda**, as MSMEs account for a large proportion of exports which can be as high as 40 per cent any setback on the exports front due to the tariffs will impact their business as well as profitability. “Therefore, their financing needs become even more critical as they seek new export markets or substitute the potential loss of turnover through domestic means,” he says.

In this climate of flux, the financial needs of MSMEs are evolving rapidly. They require flexible credit, faster disbursements, and more dynamic risk assessment models that account for external trade shocks. Even MSMEs with solid fundamentals may find themselves in need of urgent working capital to deal with longer sales cycles, renegotiated contracts, or higher logistics costs. “Financial institutions and lenders must now account for this evolving external risk in their underwriting models. For MSMEs, this period demands agility, real-time access to working capital, and constant recalibration of financial planning,” says Iyer.

The changing global dynamics will need policy adjustments or institutional support for MSMEs. “While large exporters have the cushion to absorb global shocks, MSMEs are far more vulnerable. We need more robust export credit support mechanisms tailored for MSMEs. Also, procedural handholding, for example, simplifying documentation and ensuring timely realisation of export payments, can make a big difference. Schemes like ECGC (Export Credit Guarantee Corporation) need to become more MSME-friendly in terms of both cost and access,” suggests Srinivasan.

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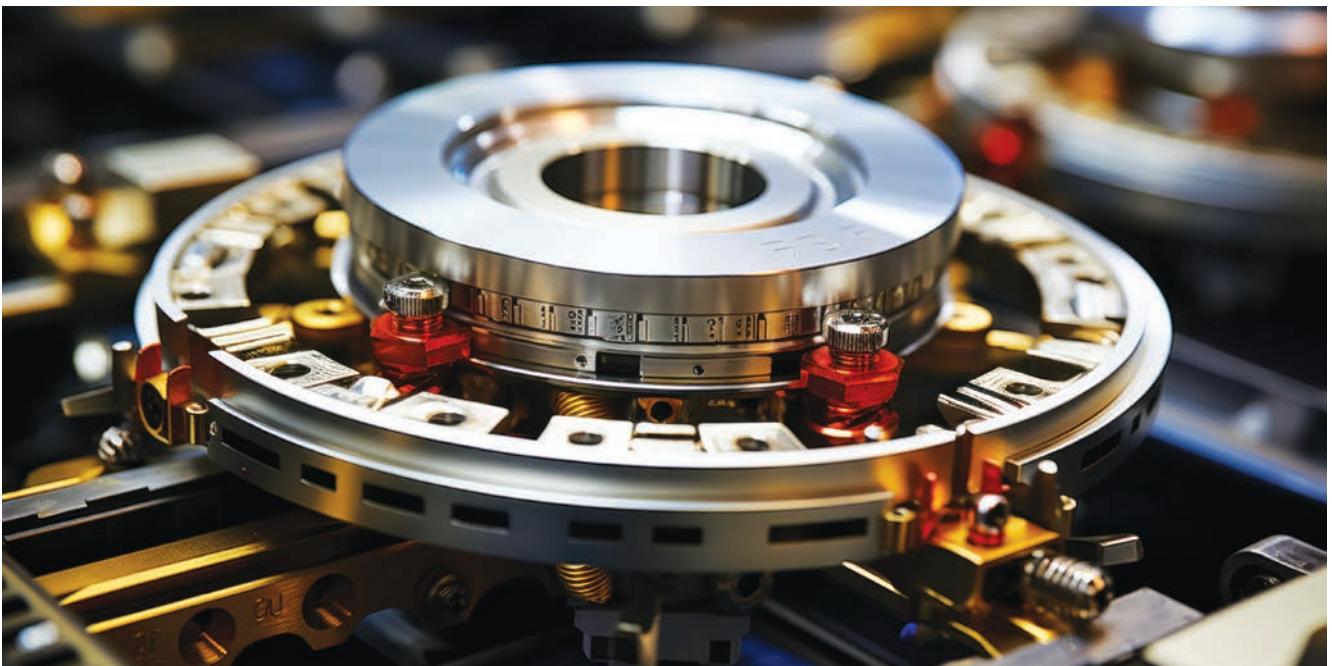
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Bearings Spinning India Forward

Bearings may be small, but they play a critical role in keeping India's industries running smoothly. With rising demand from sectors like automotive, infrastructure, and energy, the bearings market is expanding rapidly. Backed by government policies and local manufacturing, India is gaining strength, says **Sanskriti Ramachandran**.



Source: Freepik

When you spin the wheels of a car or power up a massive wind turbine, chances are a tiny, hidden component, a bearing, is working quietly behind the scenes to keep the motion smooth and efficient. In India, these modest mechanical marvels are driving an industrial transformation far bigger than their size would suggest. As the country accelerates toward becoming a global manufacturing powerhouse, the bearings industry is shifting gears at an unprecedented pace. With a blend of traditional engineering and next-gen technology, India's bearings sector is driven by a dynamic mix of industrial expansion, technological innovation, and the increasing needs of the automotive sector.

Heart of industrial growth

According to data from Astute Analytica, valued at \$2,179.9 million in 2023, the Indian bearings market is



Photo quote: Global trade policies and supply chain disruptions have made customers rethink their sourcing strategies.

Rajesh Premchandran,
Chief Sales & Marketing Officer, NBC Bearings

projected to grow at a robust CAGR of 13.5 per cent, reaching \$6,714.8 million by 2032. Several macro and microeconomic factors are currently fuelling this expansion. According to **Rajesh Premchandran, Chief Sales & Marketing Officer, NBC Bearings**, "Infrastructure expansion is a key driver. Major investments in highways, railways, ports, and mining are translating into higher demand for construction and

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heavy equipment bearings. Secondly, the mobility sector is undergoing a transformative shift. Electrification of vehicles, the adoption of lightweight components, and new drivetrain technologies are generating demand for newer, application-specific bearing solutions.” He further adds, “Policy push under ‘Make in India’ and the China +1 strategy is encouraging OEMs and Tier 1 suppliers to localise their supply chains. This has opened up large opportunities for domestic bearing manufacturers both in India and abroad.” Highlighting the environmental perspective, he points out, “Increased focus on energy efficiency and sustainability is prompting industries to look for high-performance, low-friction, long-life bearings. Innovations in materials, coatings, and tribological systems are well aligned to these needs.”

The automotive sector alone accounts for over 60 per cent of India’s total bearing consumption, highlighting the strong correlation between vehicle production and bearing demand. In addition to automotive production, the expansion of key industries such as agriculture, mining, energy, and aerospace is significantly contributing to market growth. A shift towards the adoption of high-precision and smart bearings that enable real-time condition monitoring is further catalysing industry transformation. Technology integration, alongside innovations in materials like chrome steel and specialty alloys, is enabling the creation of bearings that are more durable, efficient, and suitable for modern machinery.

Innovation and a push for sustainability

Another important trend shaping the industry is the rising popularity of remanufactured bearings. Remanufacturing, which restores used bearings to their original specifications, is gaining traction due to its twin benefits of cost-effectiveness and sustainability. In a price-sensitive market like India, remanufactured bearings offer a compelling value proposition by providing significant cost savings without sacrificing performance. Additionally, the environmental benefits

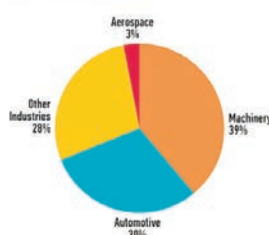
are substantial, as remanufacturing helps conserve natural resources and reduces industrial waste. This aligns well with government initiatives such as ‘Make in India’ and ‘Aatmanirbhar Bharat,’ which emphasise self-reliance and sustainable manufacturing practices. The advancement of additive manufacturing technologies in remanufactured bearing production is also improving product quality and reducing lead times. These developments are making remanufactured bearings an increasingly viable and attractive option, especially as the automotive industry gradually transitions towards lighter and more efficient vehicles, including electric ones, where remanufactured solutions can complement sustainability goals.

Tackling imports and unlocking opportunities

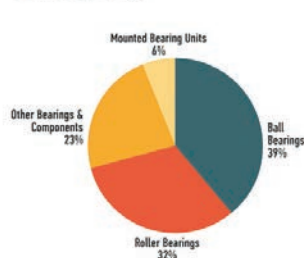
Despite these positive developments, the Indian bearings industry faces significant challenges due to the influx of cheap Chinese imports. In 2023 alone, India imported over \$1.2 billion worth of bearings, with China accounting for 44.5 per cent of these imports. Many of these products are attractive to customers due to their low cost, but concerns about their quality persist. Premchandran notes, “The influx of low-cost, low-quality bearings—mostly from China—has been a longstanding concern in the Indian market. While these products may be attractive due to price, some of them fall short on performance, leading to frequent failures and increased total cost of ownership for customers.”

Recognising the threat posed by inferior imports, the Government of India has introduced important measures. Premchandran explains, “The Government of India has taken proactive steps to address this through the introduction of the Quality Control Order (QCO), which is being rolled out gradually. This has been a major step forward in levelling the playing field and promoting the use of quality products.” From an industry perspective, companies like NBC Bearings are focusing on customer education and authenticity measures. “From NBC’s side, we are also focusing on educating

Main Industries

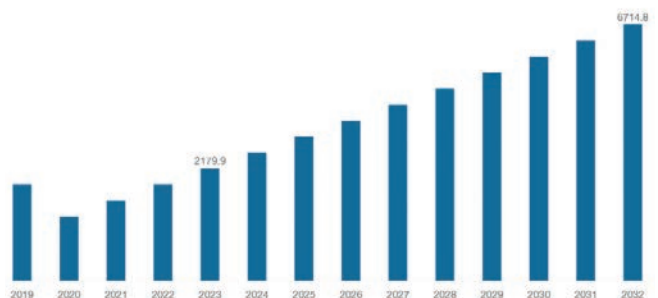


Main Bearings



Market segmentation and dominant bearing types.

Source: Bearing News



The Indian bearings market size, 2019-2032 (\$ million)

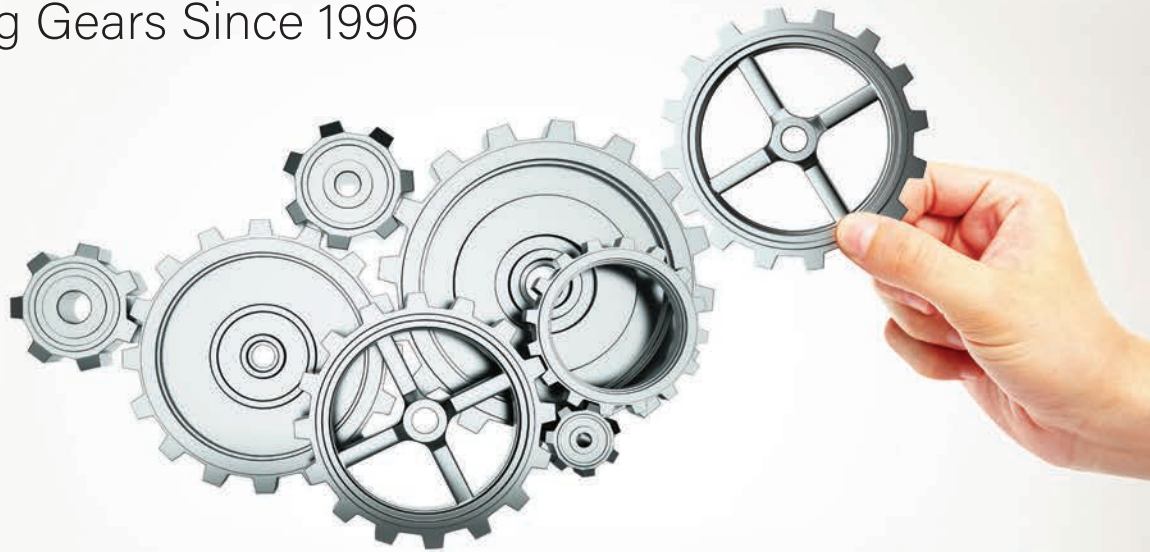
Source: Astute Analytica



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customers on total cost of ownership, the performance advantages of our solutions, and the safety and sustainability risks associated with inferior imports. We are also expanding our digital platforms like NBC Connect to authenticate genuine products and protect customers from counterfeits,” he adds. Moreover, global shifts in supply chains are creating new openings for Indian manufacturers, as Premchandran notes, “Additionally, global trade policies and supply chain disruptions have made customers rethink their sourcing strategies. This has presented a significant opportunity for Indian manufacturers to become preferred local partners.”

Amidst these challenges, significant opportunities are emerging in both automotive and non-automotive sectors. In the automotive sector, the transition towards electric vehicles represents a major growth frontier. Although EVs typically require fewer bearings compared to traditional internal combustion engine vehicles, the bearings they do require must meet extremely high standards of speed, efficiency, and reliability. This creates opportunities for manufacturers specialising in high-tech, smart bearing solutions. The growing preference for lightweight vehicles, driven by stricter emission norms such as Bharat Stage VI, is also driving demand for innovative bearing designs that minimise friction and reduce overall vehicle weight.

The non-automotive sectors such as industrial machinery, construction, mining, agriculture, and renewable energy are increasingly becoming strong pillars of growth for the bearings market. Rising investments in wind energy, requiring large-sized and high-load-capacity bearings, are opening new frontiers. Similarly, the modernisation of Indian railways and increased aerospace investments are fuelling demand for precision-engineered, high-durability bearings. Across industries, the growing adoption of predictive maintenance and smart manufacturing is boosting the market for sensor-integrated bearings capable of real-time performance monitoring and data analytics.

Looking ahead, the future of the Indian bearings industry appears highly promising. Technological advancement will continue to be a major catalyst, with smart bearings set to become the industry norm. The shift towards electric mobility will further stimulate demand for specialised solutions, while sustainability



Source: Freepik

initiatives will make remanufactured and eco-friendly bearings increasingly mainstream. As India intensifies efforts to build local supply chains through policies like the Production Linked Incentive (PLI) scheme, the domestic bearing industry will not only grow self-reliant but also become a serious global competitor, especially in emerging markets across Asia, Africa, and Latin America.

In terms of future plans, leading players are gearing up to ride this wave of opportunity. Companies are expanding their manufacturing capacities across strategic locations to meet growing domestic and export demand. Heavy investments in research and development are being made to create lighter, smarter, and longer-lasting bearings. Simultaneously, strengthening digital and aftermarket networks is becoming a strategic focus, with companies building stronger connections to end-users through digital platforms and partnerships. Strategic collaborations with automotive and industrial OEMs are helping bearing manufacturers secure long-term growth trajectories while ensuring they stay competitive in a rapidly evolving market.

As India rolls into a future defined by electric mobility, smart industries, and sustainability, bearings will be the invisible champions making this silent revolution possible. What was once seen merely as a mechanical necessity is today an ecosystem of smart, sustainable solutions driving the engines of modern progress. In the race toward a technologically driven future, the Indian bearings industry is not just turning wheels; it is turning history in its favour.

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Source: Astute Analytica

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“Cheap Chinese bearings are a major concern for India.”

While the Chinese products may be attractive due to price, some of them fall short on performance, leading to frequent failures and increased total cost of ownership for customers, remarks **Rajesh Premchandran, Chief Sales & Marketing Officer, NBC Bearings** in conversation with Sanskriti Ramachandran.

How does NBC Bearings drive growth in the sector?

At NBC Bearings, our focus has always been on innovation, quality, and customer-centric solutions. We play a pivotal role in driving sectoral growth by offering technologically advanced and application-specific bearing solutions across automotive, railways, aerospace and industrial segments. Our ability to cater to a wide range of industries allows us to respond to evolving needs across different sectors.

In the automotive domain, we are at the forefront of enabling new-age mobility—supporting EVs, ICE, and hybrid powertrains with specialised bearing designs. Our leadership in the 2W/3W and passenger car markets, along with growing penetration in CVs, has made us a preferred partner for OEMs.

In railways, our solutions extend beyond core bearings. We are now offering products for adjacent systems such as suspension tubes and axle boxes, supporting the modernisation of rail infrastructure.

Additionally, our commitment to ‘Make in India’ has helped us reduce dependence on imports, align with global quality benchmarks, and enhance domestic supply reliability. Through these efforts, we are not only fuelling sectoral growth but also contributing to India’s ambition of becoming a global manufacturing hub.

What are the primary drivers fuelling growth in the bearings industry?

Several macro and microeconomic factors are currently fuelling growth in the bearings industry.

Fierstly, major investments in highways, railways, ports, and mining are translating into higher demand for construction and heavy equipment bearings.

Secondly, the mobility sector is undergoing a transformative shift. Electrification of vehicles, the adoption of lightweight components, and new drivetrain technologies are generating demand for newer,



Rajesh Premchandran,
Chief Sales & Marketing Officer,
NBC Bearings

application-specific bearing solutions.

Third, policy push under ‘Make in India’ and the China +1 strategy is encouraging OEMs and Tier 1 suppliers to localise their supply chains. This has opened up large opportunities for domestic bearing manufacturers like NBC, globally. Finally, increased focus on energy efficiency and sustainability is prompting industries to look for high-performance, low-friction, long-life bearings. Our innovations in materials, coatings, and tribological systems are well aligned to these needs.

How do remanufactured bearings contribute to sustainability and cost-effectiveness?

Remanufacturing is a key element in our sustainability strategy. Currently, we offer remanufactured bearings for the railway sector, where it has been well-accepted due to high lifecycle costs and the criticality of operations. Remanufacturing helps extend bearing life while significantly reducing waste and energy consumption.

The environmental benefits are clear—remanufactured bearings reduce the need for raw materials, energy used in production, and carbon emissions. From a customer’s perspective, they offer a highly cost-effective solution without compromising performance when done under strict quality controls.

We see immense potential to expand this initiative to other industries, particularly in high-load and slow-speed applications in construction, mining, and industrial sectors. We are in the process of developing a scalable remanufacturing framework that aligns with OEM requirements and sustainability goals of our customers.

How are cheap Chinese imports and global policies affecting the Indian bearings market?



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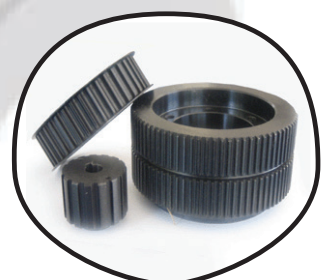
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The influx of low-cost, low-quality bearings—mostly from China—has been a longstanding concern in the Indian market. While these products may be attractive due to price, some of them fall short on performance, leading to frequent failures and increased total cost of ownership for customers.

The Government of India has taken proactive steps to address this through the introduction of the Quality Control Order (QCO), which is being rolled out gradually. This has been a major step forward in levelling the playing field and promoting quality products.

NBC is focusing on educating customers on the total cost of ownership, performance advantages of our solutions, and the safety and sustainability risks associated with inferior imports. We are also expanding our digital platforms like NBC Connect to authenticate genuine products and protect customers from counterfeits.

Global trade policies and supply chain disruptions have made customers rethink their sourcing strategies. This has presented a significant opportunity for Indian manufacturers to become preferred local partners.



Electrification of vehicles, adoption of lightweight components, and new drivetrain technologies are generating demand for newer, application-specific bearings.

What are some of the opportunities in the automotive and non-automotive sectors?

In automotive, the biggest opportunity lies in the electrification of mobility. Bearings for EV motors, e-axes, and wheel hubs require new specifications in terms of speed, thermal resistance, and insulation. We are well-positioned here with dedicated R&D and application engineering focused on EV solutions.

Hydrogen ICE and fuel cell-powered mobility present the next wave of innovation. NBC is already developing bearings suited for these environments, including corrosion-resistant and high-temperature variants.

In the aftermarket, we see immense potential in expanding our offerings beyond bearings. We've entered the lubricants and tools segment and are leveraging platforms like NBC Connect for customer engagement.

On the non-automotive front, the industrial sector is gaining importance. We've identified segments like power, construction and mining, metal processing, and

paper as high-potential zones. We are offering customised bearing solutions for these sectors along with digital tools for condition monitoring and predictive maintenance.

How do you envision the future of the bearings industry?

The bearings industry is poised for rapid transformation. Going forward, the industry will be shaped by five key themes:

Electrification and new mobility: Bearings will have to adapt to higher speeds, lower torque, and stricter insulation demands.

Digitalisation: Condition monitoring, sensor integration, and remote diagnostics will become integral to industrial applications.

Sustainability: There will be a shift towards green steel, remanufacturing, and eco-friendly lubricants. Energy-efficient bearings will become the norm.

Localisation: Supply chain disruptions will drive OEMs to work with nearby, reliable, and innovation-focused partners.

Customisation at scale: As industries diversify, off-the-shelf bearings will reduce, and customers will demand co-developed, application-specific products.

At NBC, we have already begun investing in each of these areas—whether it's through product innovation, process digitisation, or strategic alliances across geographies.

What are your future plans in India?

India continues to be a high-priority market for us, both as a consumer base and as a manufacturing hub. Our plans can be summarised across three key pillars:

Capacity expansion: With growing demand from rail, 2W/3W, industrial and export markets, we are expanding our production capabilities. The new plant in Bagru and automation upgrades across facilities are part of this roadmap.

Innovation and new product development: We are expanding our engineering teams and strengthening R&D in areas such as sensor-integrated bearings, hydrogen-compatible materials, and advanced sealing systems.

Segment growth and diversification: We are actively building our presence in non-automotive sectors. We've created segment-specific go-to-market teams and plan to partner with channel players to penetrate industrial markets more deeply.

We are also investing in people and digital transformation. From employee development programs to digital tools for our dealers and customers, our goal is to create a connected and agile enterprise ready to lead the next era of growth.

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“ABB is actively shaping a low-carbon future.”

For new and emerging industries, particularly those built around green hydrogen, e-mobility, or large-scale data centers, maintaining a stable and resilient power supply is crucial, says **Neeraj Kulkarni, Regional Division President – India, MEA & LatAm, Large Motors & Generators Division, ABB India**, in dialogue with Rakesh Rao.

Kindly provide us with an overview of ABB’s Large Motors & Generators Division.

The Large Motors & Generators (LMG) division, part of ABB’s Motion business portfolio, delivers a range of reliable, high-performance solutions made to meet the needs of industrial, infrastructure, marine and renewable sectors. Our offerings include low and high voltage induction, synchronous, and special-purpose motors, as well as synchronous and special design generators, all engineered for demanding applications that require maximum uptime, efficiency, and energy savings.

Our manufacturing facility in Vadodara is a key hub, supporting both domestic demand and exports to markets including the Middle East, Africa, Latin America and beyond. As part of ABB’s commitment to the ‘Make in India’ initiative, this facility manufactures motors and generators that serve a wide spectrum of industries such as metals, chemicals, oil & gas, cement, mining, marine, water & wastewater, pulp & paper and power. With deep domain expertise and a future-focused approach, ABB’s LMG division plays a vital role in helping industries outrun inefficiencies, improve asset longevity, and drive productivity ensuring they remain competitive, resilient, and sustainable in a rapidly evolving world.

Why are quality industrial motors important for end-user industries to achieve sustainability and efficiency?

Industrial motors are the workhorses of modern industry, powering everything from pumps and compressors to fans and conveyors. For end-user industries, the quality of these motors is not just a technical requirement but a strategic lever to drive operational efficiency and sustainability. Quality also translates to reliability and longevity, which means fewer breakdowns, less downtime, and reduced need for



Neeraj Kulkarni,
Regional Division
President – India, MEA &
LatAm, Large Motors &
Generators Division, ABB India

frequent replacements, all of which contribute to a lower carbon footprint over the lifecycle of the equipment. ABB’s large motors and generators are engineered with advanced materials, robust insulation systems, and precision manufacturing processes to deliver high performance even in the most demanding environments – such as oil & gas, mining, to metals and marine.

In short, quality industrial motors are not just about motion, they are about progress. They empower industries to outrun inefficiencies, minimise environmental impact, and achieve ambitious sustainability targets, all while maintaining peak productivity.

Many industries face challenges in adopting energy-efficient solutions. What ABB innovations are helping industries to overcome some of these barriers?

While the shift to energy-efficient operations is essential, industries often face challenges like integration complexity, high upfront costs, and limited system visibility. At ABB, we are turning these barriers into opportunities through innovation and domain expertise.

Our MV Titanium concept simplifies adoption by combining a medium-voltage motor and drive into a single, compact, easy-to-install package, reducing complexity while delivering energy savings, better performance, and lower total cost of ownership.

Complementing this is our Top Industrial Efficiency (TIE) initiative, which optimises the entire motor-driven system for maximum energy efficiency and reliability.

To support a smooth transition from legacy systems, we offer end-to-end lifecycle management services, from audits and retrofits to upgrades and digital monitoring—ensuring a low-risk, future-ready shift to sustainable operations.

What role can ABB's synchronous condensers play in enabling new and emerging industries to transition to cleaner energy systems?

ABB's synchronous condensers play a vital role in enhancing grid stability and supporting the energy transition, especially as industries move toward cleaner, more electrified operations. As renewable energy sources like solar and wind continue to replace traditional fossil-based generation, power grids are increasingly facing challenges related to inertia in the grid, voltage stability, and short-circuit capacity. ABB's synchronous condensers provide these critical grid support services without generating real power, making them essential assets in modern, low-carbon energy networks.

For new and emerging industries, particularly those built around green hydrogen, e-mobility, or large-scale data centers, maintaining a stable and resilient power supply is crucial. ABB's proven synchronous condenser technology helps these sectors by ensuring voltage regulation, improving power quality, and providing dynamic grid support even during peak loads or sudden disturbances. With decades of experience in delivering synchronous condenser systems globally, ABB combines deep technical expertise with modular, scalable solutions that meet the specific needs of evolving industries and regional grid demands.



Quality industrial motors empower industries to outrun inefficiencies, minimise environmental impact, and achieve ambitious sustainability targets, all while maintaining peak productivity.

What changes do you see for industrial motors from industries across India, MEA, and Latin America?

As regulatory frameworks and ESG imperatives continue to tighten across the globe, we are witnessing a clear shift in industrial demand, from conventional motor systems to high-efficiency, future-ready solutions. Across the region, industries are no longer just looking at motors as components of mechanical motion, they see them as critical enablers of energy savings, carbon reduction, and compliance.

In India, the rollout of Minimum Energy Performance Standards (MEPS) for low voltage motors has



As regulatory frameworks and ESG imperatives continue to tighten, we are witnessing a shift in demand, from conventional systems to high-efficiency, future-ready solutions.

accelerated the adoption of IE3 and above motors, aligning local requirements with global efficiency norms. In MEA and Latin America, where sustainability agendas are increasingly being integrated into national policies and corporate strategies, we see growing interest in motors that combine performance with reliability and digital intelligence. IEC has published a new standard 60034-30-3 on efficiency class for high voltage motors, this will enable customers to choose the right efficiency motors. At ABB we already deliver IE4 efficiency for HV motors from India.

Demand is rising for smart, sensor-enabled motors that support real-time monitoring, predictive maintenance, and optimised lifecycle performance, solutions that ABB is uniquely positioned to deliver.

What role do you envision ABB playing in accelerating the global transition to low-carbon industrial operations?

As industries worldwide commit to decarbonisation, ABB's Large Motors & Generators division is set to drive this transition by delivering solutions that combine energy efficiency, performance, and digital intelligence. We are actively shaping a low-carbon future through our industry-leading product platforms. By consolidating our induction motor portfolio and establishing a strong base machine offering, we are simplifying selection and improving efficiency across applications. Our TIE – Top Industrial Efficiency initiative and continued product innovations are designed to help customers meet and exceed their sustainability targets especially in energy-intensive segments.

On the operations front, we are focused on delivering world-class efficiency and responsiveness. Through global supply chain leverage, mass customisation, and enhanced delivery reliability, we ensure customers get the right solutions faster with a lower lifecycle footprint. Through a blend of innovation, operational excellence, and deep customer understanding, our outlook is to help industries outrun inefficiencies and reduce their carbon footprint, all while enhancing productivity and performance.

SME



Drive Specialist NORD Celebrates 60 Years

Nord serves the global market with 48 of its own subsidiaries.

NORD DRIVESYSTEMS was founded on 1 April 1965 by G. A. Küchenmeister and Günter Schlicht. Since then, the family business has evolved into an important system provider for mechanical and electronic drive technology with more than 4,800 employees worldwide. This year, the drive specialists celebrate their 60th company anniversary.

60 years of NORD – this milestone is a special one. The company is characterised by long-term experience, extensive know-how in more than 100 industries, own production facilities, great production depth, and a global network. Thanks to its qualified employees, NORD can provide its customers worldwide with individual drive solutions from a comprehensive range of modular products and high quality standards.

Company history in retrospect

After the foundation in 1965, Zahnradwerk NORD was built in Glinde in 1977 for the manufacturing of gear components. In 1979, the first foreign subsidiaries have been founded in the USA, France and Sweden. Today, NORD serves the international market with 48 of its own subsidiaries in 36 countries and further sales partners in more than 50 countries. This allows for service, advice, storing and assembly directly on site – always close to the customers.

NORD has expanded its production by in-house manufacturing of electric motors, and shortly afterwards started the production of electronic components in Aurich. Due to the high demand, the NORD Electronic Drivesystems subsidiary in Aurich, Lower Saxony, has grown ever since. In 1991, Fertigungstechnik Nord was founded in Gadebusch – a plant for machining for the manufacture of housings and shafts. The plants in Germany, Italy, Poland, the USA and China are steadily expanded and modernised. The headquarters in Bargteheide is also in continuous development.

Technological highlights

In 1981, NORD has developed the UNICASE™ housing concept, a groundbreaking invention for the industrial production of gear unit housings, which is still international standard. In 2000, the focus was on the product launch of decentralised drive technology.

Innovations pay off. Just before the turn of the years



2022/2023, NORD passed the one billion euro sales threshold for the first time in the company's history. This shows, how well the manufacturer's drive solutions meet the requirements from different industries and how much NORD is appreciated as a strong and reliable partner – expressed in 2023 by the company's claim 'Our Solution. Your Success'.

Sustainability and digitalisation

With its sustainability strategy for 2025, NORD promises to consequently act in an ecological, economic and socially responsible manner. The manufacturer's efficient drive solutions contribute to the reduction of energy consumption and CO₂ emissions in industry. Furthermore, the drive experts support companies with consultation services such as the efficiency analysis programme or the NORD ECO service.

With the digital my NORD platform, NORD also provides a service solution with which the company significantly increases the accessibility of its services, while streamlining processes and facilitating configuration and ordering of drive technology.

Outlook after 60 years

For more than 60 years, NORD has been representing reliable and innovative drive solutions. Despite the current economic challenges and uncertainties in the global markets, the company looks ahead confidently. Innovative drive solutions, industry expertise, international orientation, high quality standards and a strong global network form the basis for sustainable growth. The anniversary is an incentive to further set new industry standards and to further convince customers with powerful solutions.



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Timken Inaugurates Bearing Plant in Bharuch

Timken India Limited, a leader in engineered bearings and industrial motion products, expanded its bearing manufacturing capabilities in Bharuch, Gujarat. **Andreas Roellgen, Executive Vice President and President-Engineered Bearings and Sanjay Koul, President - India and South-East Asia and Chairman, Timken India Ltd**, joined other Timken officials, key customers and suppliers to commemorate the event.

"This is an exciting time for Timken," Roellgen said. "As we continue to accelerate profitable growth in attractive markets with innovative products, the expansion of our world-class manufacturing facility in Bharuch will help increase the value and service we provide to customers in the region and around the world."

The expansion is adjacent to Timken's existing manufacturing facility in Bharuch and will cater to growing demand for the company's spherical roller

bearings (SRBs), cylindrical roller bearings (CRBs) and related products.

"This marks an important milestone in the company's continued expansion in India," Koul said. "We are now able to manufacture Timken CRBs and SRBs locally, which will bring us closer to our customers while boosting our speed to market."

The plant was engineered with sustainability at its core with solar rooftop panels, zero liquid discharge, rainwater harvesting, energy-efficient heating, ventilation, air conditioning and lighting, electric material handling equipment and more than 900 trees planted on site. The 55,465-square-meter facility features fully automated and seamlessly connected grinding machines along with advanced superfinishing equipment, helping to ensure precision and efficiency at every stage of production.

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Igus Equips 2,000th STS Crane with E-Chains

An increasing amount of operators are relying on energy chains instead of festoon systems to modernise their setups and meet growing demands.



basins, but also owing to thousands of components that are often overlooked: traditional festoons, for instance, i.e. looped cables that supply the trolley with energy and data. "To keep up with the increasing speeds and longer travels of STS cranes for ever larger ships, manufacturers would have to start motorising the festoons. However, this is complicated and error-prone. There is a constant risk of the trolley and festoons not running in synchronisation and excessive tensile loads damaging the cables and leading to breakdowns - especially over long travels," says **Jens Göbel, Industry**

Seaports are under pressure worldwide to remain competitive as terminals have to handle larger ships in shorter periods of time. Therefore, more and more operators use modern components such as igus' robust energy chains that are compatible with Industry 4.0. The motion plastics specialist has now equipped the 2,000th STS crane with e-chains and is making more and more terminals fit for the future.

According to a recent report by the United Nations Conference on Trade and Development (UNCTAD), over 80 per cent of cross-border trade in goods is now transported by sea. The sector is expected to grow by an average of 2.4 per cent per year until 2029. This development is putting pressure on many ports to modernise their infrastructure and handle more and larger ships quickly. There are technical restrictions, however - not only due to large elements such as harbour

Manager Cranes & Material Handling, igus. "This is why more and more port operators are switching from festoons to energy chain systems." Hence, the motion plastics specialist igus has now equipped the 2,000th STS crane with e-chains.

Switching systems offers many advantages

This development marks a decisive step in the modernisation of seaports across the globe. The e-chains from igus offer numerous advantages over traditional festoons. The igus rol e-chains consist of high-performance plastic that is resistant to weathering effects and radiation. They have been developed specifically for this industry, and ensure a long service life and reliable operation in all weather conditions. The systems can operate at speeds of up to 10m/s without the

need for complicated motorisation. Thanks to the integrated rollers and the associated low coefficient of friction, it is possible to increase the payload and acceleration while maintaining the same push/pull force. Compared to gliding applications, the drive energy is reduced by around 57 per cent, a major advantage in times of rising energy prices. The interior separation of the energy chain is also easy to change, so that new cables can be inserted without much ado - an important feature in times of rapid technological developments. Popular models such as the roller energy chain P4HD.56.R in the heavy-duty version are so robust that they achieve a running performance of over 200,000km, which corresponds to an average service life of up to 15 years. A special clevis-and-tongue principle in the P4HD.56.R ensures maximum stability with higher additional loads, while a pin/bore connection made from tribologically optimised plastic minimises wear. In addition, all roller energy chains can be equipped with sensors from the i.Sense series, which allow for real-time monitoring and predictive maintenance. This reduces maintenance intervals, increases crane service life and makes operation more economical. Customers receive additional security through a unique 4-year guarantee.

Market presence continues to increase

The e-chains from igus have become particularly popular in Asian ports, where new technologies are quickly adopted. Since the development of the very first roller energy chains more than 25 years ago and the first installation at Shenghai Zhenua Industries (ZPMC) in 2000, igus has achieved a market share of around 60 per cent in the new crane business. Terminals around the world, including APMT, DP World and AGL, are following suit. In 2017, igus celebrated the installation of its 1,000th energy chain in an automated port facility at APM Terminals in Rotterdam. With the 2,000th installation, igus has now marked another milestone, demonstrating how important innovative solutions are for the future of port logistics. Another award-winning system, igus Mobile Shore Power Outlet (iMSPO), is a mobile connection system for shore power supply that can be positioned according to the location of the ships at the berth, including at the Port of Hamburg. At the same time, igus has developed lubrication-free and maintenance-free high-load bearings that are becoming increasingly popular in port cranes. Fibre-reinforced plain bearings minimise maintenance costs and avoid the risk of incorrect lubrication. Göbel remarks, "We are confident that these technological developments will enable us to work even more closely with STS crane manufacturers and terminal operators to design ports for the efficient and sustainable maritime transport of the future."

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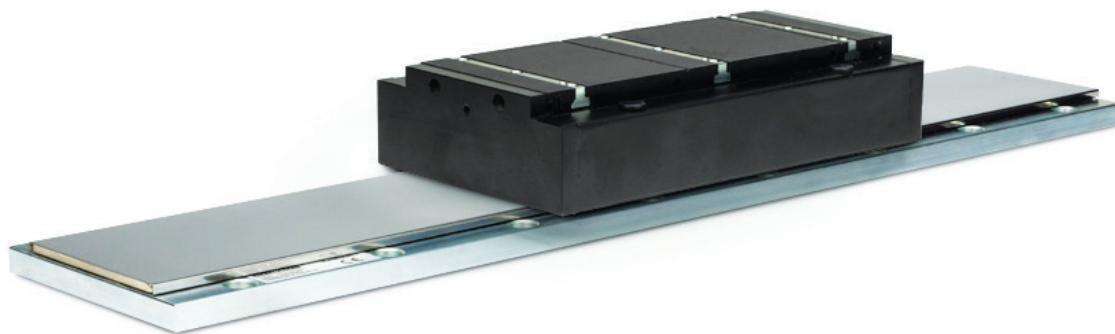
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Kollmorgen Unveils High-Voltage IC Ironcore DDL Motor

A key benefit of the IC Ironcore DDL motor is that it enables OEMs to serve global markets without significantly redesigning their machines for each region.



Kollmorgen Corporation, a global leader in motion control and automation systems, introduced an addition to its IC Ironcore DDL motor family, expanding beyond 230 VAC products with a new capability to support 400/480 VAC-powered applications.

Kollmorgen's new direct drive linear motor delivers a continuous force range up to 8,211 N and peak force up to 13,448 N. When powered at higher bus voltages, the motor is inherently capable of delivering its rated force at higher speeds, making it ideal for applications like machine tools, semiconductor manufacturing, battery production and industrial automation that require rapid and precise movement of heavy loads.

Simpler, lighter, more compact machinery

In environments with a 400 or 480 VAC bus voltage, the IC Ironcore DDL may eliminate the need for a transformer that would otherwise be required to run a motor with a lower voltage rating. In addition, a motor that runs at a higher voltage can perform a given amount of work at a lower amperage level. This lower current draw in a higher-voltage environment may allow for the use of a smaller drive amplifier and a lighter cable set.

With smaller drives, lighter cables and no transformers, machine builders may be able to use a smaller control cabinet with lower cooling requirements. In addition, the IC Ironcore DDL motor also offers a water cooling option that increases continuous force output by up to 40–60 per cent, potentially allowing specification of a smaller-size motor. All of these advantages support a lighter, more compact, and sustainable machine design that's simpler and more

affordable to build and delivers greater value to both OEMs and their customers.

Enabling versatile solutions for customers worldwide

Another key benefit of the IC Ironcore DDL motor is that it enables OEMs to serve global markets without significantly redesigning their machines for each region. The 230/400/480 VAC bus voltage rating meets the needs of most customers across North America, Europe and Asia. The motor is UL and CE Certified — plus RoHS and REACH Compliant — simplifying the approval process for selling machines in each target market worldwide.

The IC Ironcore DDL motor joins Kollmorgen's complete lineup of direct drive linear motors including the ICD Ironcore Low Profile DDL and the IL Ironless DDL. When paired with AKD® or AKD2G servo drives, these motors offer ultimate precision, smoothness and reliability for demanding applications. AKD2G dual-axis servo drives can even synchronise two motors — for example in an x/y table application — while saving even more space in the control cabinet.

"We're proud to greatly expand the size range, power range and versatility of our direct drive linear motor portfolio with the addition of the high-voltage IC Ironcore DDL," said **Chris Cooper, Senior Director-Product Management**. "This latest Kollmorgen product enables machine builders to achieve an entirely new level of linear motion performance that differentiates their designs in an increasingly competitive global marketplace."



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Fire-Rated Rolling Shutters : Why Fire Resistance Matters

Fire-rated rolling shutters are engineered with high-grade, fire-resistant materials like galvanised or stainless steel, often treated with special coatings and insulation to endure extreme heat for extended periods.

In today's commercial and industrial landscape, rolling shutters are a common feature—offering security, privacy, and thermal control. But when it comes to fire safety, not all shutters are up to the mark.

Standard rolling shutters, usually made from aluminum or regular steel, lack the resilience to withstand fire. In contrast, fire-rated rolling shutters are engineered with high-grade, fire-resistant materials like galvanised or stainless steel, often treated with special coatings and insulation to endure extreme heat for extended periods.

The key difference? Survival time. Fire-rated shutters are rigorously tested and certified to withstand flames for up to 4 hours, complying with standards like UL 10B, UL 10C, BS 476, and NFPA 80. Standard shutters, on the other hand, can fail in 15–30 minutes, offering little to no protection in emergencies.

Regulatory bodies such as the National Building Code (NBC) and OSHA mandate fire-rated shutters in high-risk facilities—malls, hospitals, warehouses, and manufacturing units. Non-compliance not only poses a safety risk but can also invite legal consequences.

Beyond compliance, these shutters provide real-world protection. Take the 2022 industrial fire in Mumbai, where fire-rated shutters contained the blaze for 90 minutes. This crucial delay helped first responders control the fire and reduced asset loss by 65 per cent.

Industries that benefit most include:

- Warehouses & logistics hubs – Isolates fire-prone zones.
- Manufacturing units – Safeguards expensive machinery.



- Hospitals & labs – Protects critical equipment and patients.
- Commercial spaces – Ensures safe evacuation routes.

Fire-rated rolling shutters also act as insulators, reducing internal heat and smoke penetration—critical for minimising injuries and damage.

Bottom line

Investing in fire-rated rolling shutters isn't just a tick-box on compliance checklists—it's a life-saving, loss-reducing measure that brings unmatched peace of mind. As fire risks grow, so should our commitment to smart protection.

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Innovative Materials Making Automobiles Lighter

Although these are some of the most common materials used to make automobiles weigh less, researchers are constantly working to discover better methods, says **Emily Newton**.



Courtesy: Freepik

When used successfully, lightweighting materials can make cars more fuel-efficient and aerodynamic. Additionally, because they are more nimble than their heavier counterparts, they can help drivers avoid accidents. Some materials have come to the forefront in the ongoing efforts to make cars lighter while maintaining or even increasing safety.

1. Magnesium alloys

Magnesium alloys have many desirable characteristics that make them ideal choices for making cars lighter. They have an excellent strength-to-weight ratio that allows designers to use them without compromising an automobile's structural integrity.

Magnesium is also one of the Earth's most abundant materials, and its high availability could safeguard companies from the supply chain challenges caused by harder-to-source materials.

Wheel designs featuring magnesium alloys instead of steel can be up to 32 per cent lighter, showing the measurable benefits of incorporating these materials into cars.

People have also investigated how to formulate magnesium alloys to increase an automobile's flame resistance while keeping the materials light. These research findings could be important for helping automobile manufacturers reduce fire risk for both electric and gas-powered vehicles. However, fires associated with electric cars are typically more challenging for firefighters to manage due to factors such as the batteries' chemical composition and toxicity.

Additionally, some electric car fires have quickly spread, affecting far more vehicles than the one where the fire originated. However, a 2023 airport incident impacting 1,500 automobiles proves that electric vehicles are not entirely to blame, as investigators found that a diesel-powered car was responsible for the massive incident. Magnesium alloys empower engineers to focus on improving lightweighting materials while addressing other pressing challenges.

2. Next-generation steels

People have used steel for thousands of years, but recent progress in manufacturing has helped make significant strides in reducing cars' weight. Material scientists and others have explored the use of polymers and carbon fiber-spun materials to make steel stronger and lighter.

However, there is still a lot to learn about the most effective ways to modify steel so it will have the most



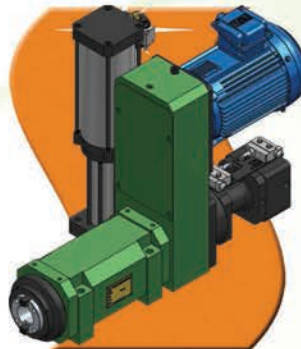
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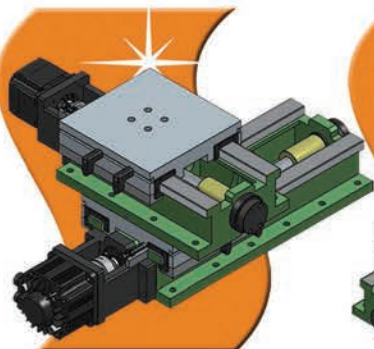
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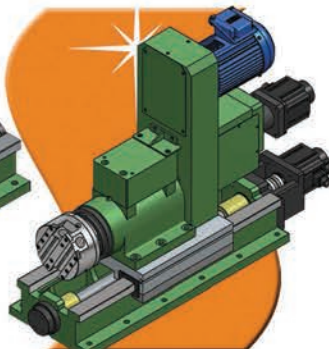
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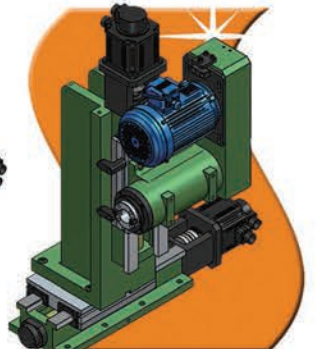
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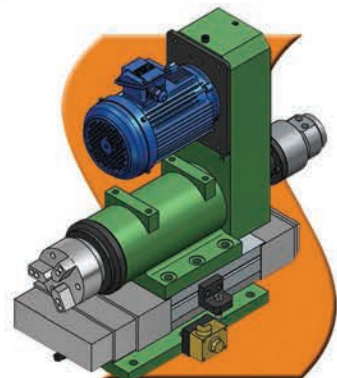
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desirable properties and effects. A team at Osaka Metropolitan University emphasized that the material will continue playing a crucial role in society's transition from gas-powered to electric vehicles, but only if people can figure out how to make steel stronger and more lightweight for these applications.

The team wanted to learn more about how the elements within steel interact. They made theoretical calculations about 120 combinations associated with 12 alloy elements. The team members expect their findings to improve material development efforts by increasing strength and durability. Achieving those goals could keep vehicle weight down and assist automotive decision-makers and other industry authorities.

3. Bio-based materials

As automakers keep exploring feasible options for lightweighting materials, many understand that improvements will have far-reaching benefits. For example, shipping vehicles made from lightweighting materials should cost less because the vehicles are lighter.

Additionally, automotive manufacturers that develop high-performance cars for racing can charge top-dollar if their creations are faster and lighter than alternatives. Thoughtful designs can also make big differences in overall environmental impact. For example, a 10 per cent weight reduction can increase fuel efficiency by eight percent.

Many designers know that today's decisions could impact the future for better or worse. That is why many are invested in understanding the usefulness of bio-based products as lightweighting materials. Finding effective options could reduce or eliminate manufacturers' dependence on resource-intensive alternatives such as metallic alloys or glass. Although such materials can make cars lighter, they also have large carbon footprints.

A 2023 undergraduate research project at the Oak Ridge National Laboratory involved extracting fibers from banana stems and trunks. Research intern Brianna Greer created nonwoven fiber composites for future automotive applications. Other material options include hemp, coconut and flax fibers.

Although bananas feel soft when ripe, that texture is misleading because their trees contain strong fibers. Greer extracted them and put them into bundles for cleaning and drying. That process allowed her to reinforce a bicycle's wheel well, indicating the potential of using fibers to improve composite performance. She envisions adapting this process to cars, too.

Some manufacturers have also investigated how to replace interior materials — such as foams — with bio-based alternatives. Regardless of whether these attempts reach the mainstream, scientists will undoubtedly learn valuable lessons that could improve auto manufacturing across the board.

Lightweighting materials will advance modern cars

Although these are some of the most common materials used to make automobiles weigh less, researchers are constantly working to discover better methods. The demand for lighter cars is already high and still growing, especially since many people want more sustainable and efficient vehicles.

Parties tasked with finding additional materials should challenge themselves to think outside the box and pursue possibilities that may at first seem too far-fetched. That commitment to doing things differently could cause world-changing innovations that affect people inside and beyond the auto industry.

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About the author:

Emily Newton is a tech and industrial journalist and the Editor-in-Chief of Revolutionized magazine.

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“Festo is committed to shape the future of automation.”

The Germany based Festo, which is celebrating its 100th anniversary in 2025, is known for developing pneumatic and electrical automation technology for a wide range of industries. Today, the company has set standards in industrial automation technology and technical education. In India, Festo is setting up a new state-of-the-art manufacturing facility in Krishnagiri (Tamil Nadu), which is likely to open in June 2025. In conversation with Rakesh Rao during Hannover Messe 2025, **Frank Notz, Member of the Management Board Sales, Festo AG & Co. KG**, elaborates on trends shaping the future of automation, Festo's new offerings and its plans for India.

What are the major global trends shaping the automation industry today and how is Festo aligning itself with them?

One of the most important aspects in today's automation landscape is the need to keep up with innovation while remaining deeply aligned with the changing needs of the market. At Festo, we began our journey with pneumatic solutions, but now we are focusing on delivering broader automation technologies. We are moving beyond being a pneumatic company to becoming a holistic automation solutions provider.

Another crucial area is people. Technology on its own cannot deliver results unless the people using it are skilled and trained. Therefore, we must ensure we have both the right technologies and the right people capable of using them effectively. Additionally, it is important to recognise that innovation is happening all over the world, not just in traditional hubs such as Germany or the United States. To stay ahead, we are decentralising our R&D operations to be closer to where new technologies are emerging, especially in regions like Asia. This helps us stay relevant and responsive to global innovation.

How is Festo approaching the integration of future technologies?

I strongly believe that the future of industrial automation will be shaped by software-defined hardware. While mechanical functions will always be present in industrial products, the advanced capabilities and value-added features will increasingly be driven by software. This means we need to focus on building



Frank Notz,
Member of the Management
Board Sales, Festo AG & Co. KG

ecosystems that allow our products to integrate seamlessly with other technologies.

Customers today are looking for integration that is smooth and efficient. They may be using products of various brands, but they expect these systems to connect and operate without compatibility issues. The key lies in creating open, flexible ecosystems that reduce integration time and improve ease of use. In the coming years, the success of automation companies will depend not only on the hardware they produce but also on how seamlessly that hardware integrates with software-driven environments.

Could you please elaborate on the concept of “Being the best partner” for your customers?

In today's competitive environment, delivering a good product is no longer enough. A successful product must be both cost-effective and tailored to the specific needs of the customer. There is no room for over-engineering if customers do not see a clear return on investment. Beyond the product itself, what matters most to customers is convenience and support.

They want fast availability, reliable service, easy return processes, and strong after-sales support. Time has become the most scarce and valuable resource for businesses, and people want to work with companies that respect their time. That is why being the best partner goes beyond offering the best product. It involves building long-term relationships based on trust, responsiveness, and added value.

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Given the current global uncertainties, how do you see the market evolving in the short and long term?

It is true that we are in a period of global uncertainty right now. However, I believe this phase is temporary. Whether these challenges last three or six months, they will eventually ease. What remains constant is the tremendous potential of automation across all industries.

One key trend that we are observing is a move towards localisation. Countries are trying to become more self-reliant in critical sectors. This shift from a globalised supply chain model to a more regional or localised one may not be the most economically efficient, but it is expected to dominate the next decade. Every market will require its own customised solutions, and companies like Festo must be agile enough to adapt to these regional differences.

What is the significance of Festo's new facility in India?

Our decision to invest in India is based on two strong strategic imperatives. First, we believe in the long-term potential of the Indian market. For many years, people spoke of India's promise as a growth engine, and now we are finally seeing that promise being fulfilled. Increased foreign direct investment and the shift in global supply chains are bringing real benefits to India.

Second, India is competitive from an export standpoint. With the new facility, we aim to serve both the domestic market and international markets. Our vision is to create products in India that are not only used locally but also exported to other regions. We are particularly focused on process automation and stainless-steel components. We are also expanding our R&D capabilities to support the development of these products within India.

What are the types of products to be manufactured at the new Indian facility?

The focus of the new facility will be on relocating parts of our pneumatic and process automation portfolio to India. These will primarily be mechanical products such as cylinders and other pneumatic components. At this stage, we do not plan to manufacture electronics at the facility.

We will officially open the new facility in June 2025 with Phase I. We have already secured land for future expansion and are planning Phase II accordingly. This is part of our broader global manufacturing strategy, which also includes building new capacities in countries such as Turkey and Mexico. Now, our task is to efficiently utilise the new capacity and continue expanding based on future demand.

Which end-user industries are the major contributors to Festo's revenue?

Automotive, food and beverages, and electronics and light assembly sectors each account for approximately 18 to 20 per cent of our global revenue. Looking ahead, I expect the electronics segment to grow more rapidly over the long term. The food sector will also remain strong, as more people are consuming processed and packaged food, which requires higher levels of automation.

Automotive is currently going through a significant investment cycle, especially with the development of electric vehicles and the continued production of combustion engines. In regions like Southeast Asia and India, we are seeing major investments from local companies. However, in Europe, I anticipate that once the current wave of investments concludes, there might be a period of reduced activity in the automotive sector.

Does Festo see India's growing electronics manufacturing sector as a potential growth market?

The growth of electronics manufacturing in India presents significant opportunities. We are already witnessing substantial progress in chip manufacturing, PCB production, and the assembly of consumer electronics. Large companies like Apple are increasing their footprint in India.

Local manufacturing of chips and electronic components is essential for building a resilient supply chain. Wherever there is large-scale production, automation becomes a necessity—not just to reduce costs but also to ensure consistent quality. Festo is well-positioned to support this growth with automation solutions tailored to the electronics sector.

How do you envision the future of automation with Festo?

As a global leader in automation, Festo has a responsibility to continue pushing the boundaries of innovation. We must avoid complacency. Although we have a 100-year legacy, our journey is far from over. Being a family-owned company allows us to take a long-term view. We do not think in quarters; we think in generations.

Our job as today's industry leadership is to ensure that Festo remains at the top for the next 100 years. That means continuously challenging ourselves, adapting to changing market needs, and staying close to our customers.

The future of automation is bright, and we are committed to shaping it through excellence, innovation, and trusted partnerships.



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“Machine builders are Delta’s leading customers.”

As a global innovator in power electronics, the Taiwan-based Delta Electronics provides innovative solutions for energy management, industrial automation, UPS & datacenter, rail transportation, energy storage, etc. With three manufacturing facilities and two R&D centres, Delta has a strong presence in India. In this interview with Rakesh Rao, **Andy Sun, Deputy Head Industrial automation, Delta Electronics**, discusses manufacturing trends and Delta’s future growth plans for the industrial automation division.

What is the current focus of Delta Electronics’ Industrial Automation Business Group (IABG)?

Delta’s Industrial Automation Business Group (IABG) focuses on industrial automation solutions, and we have seen it evolve significantly over the years, from basic automation to digitalisation, and now moving into intelligent manufacturing. Our goal is to help global industries transition through these phases with our advanced solutions.



Andy Sun,
Deputy Head Industrial
automation, Delta Electronics

What are some key trends you are observing in the manufacturing industry?

Over the past two decades, manufacturing has moved from basic automation to digitalisation, and is now entering the age of intelligence. One driving factor is the labour shortage; fewer people are willing to work in factories, which make automation and intelligent systems critical. Delta was founded in 1971, and IABG was established in 1995. Initially, we offered basic automation components like drives and motion control systems. Now, our portfolio includes sensors, cameras, software, robotics, and system integration. We are not just selling components; we are enabling entire smart factories and production lines by integrating hardware with software platforms.

How do you tailor your offerings to suit varying levels of automation in different global markets, especially in developing countries?

That’s a great question. In emerging markets, labour costs are typically lower than in developed countries. But

it is not just the cost; precision and consistency in production are equally important. Human labour can lead to errors due to fatigue, cultural differences, or deviation from standard procedures. To tackle this, we offer technologies such as standard automation platforms, AI, and automated optical inspection (AOI) systems. These help manufacturers in emerging markets improve accuracy and quality while maintaining cost efficiency.

What’s your view of the Indian market in particular, given its large number of small and medium manufacturers?

India is a very important and promising market for Delta. With a massive population and growing manufacturing base, we saw the potential early and have been present for over 20 years. We have established a manufacturing plant in Krishnagiri (Tamil Nadu) and an R&D centre as well. Our goal has always been to tap into India’s talent pool and contribute to local development. That is why we focus not only on manufacturing but also on local R&D; developing local for local products for the Indian market. This also helps us reduce dependency on imports and strengthens our local footprint.

Could you elaborate on your efforts to localise solutions for India?

We have invested heavily in R&D in India to create solutions designed by Indian engineers for Indian manufacturers. We also have dedicated solution teams here that integrate hardware and software to deliver customised automation for Indian industries. Furthermore, we work closely with key local accounts and machine builders to co-develop solutions that suit

their specific needs. Our long-term strategy is to empower Indian talent to eventually lead the entire product development cycle—from concept to execution.

Which industries are your major customers in India and globally?

Globally and in India, our largest customers are in the machine-building sector. We started by supplying inverters, motors, and controllers to machine builders, and they remain a core customer base today. These OEMs embed our components into their machines to deliver complete automation solutions. We also serve global customers through ODM and OEM models, especially in America and Europe, by providing private-label solutions.

How is your collaborative robot (cobot) business progressing globally and in India?

We launched our cobot in the second half of last year. It's seeing strong demand, particularly in the U.S. and Europe, where labour costs are high. Interest in cobots has risen significantly post-launch. In India, the demand is also growing, but pricing remains a concern. To address this, we are planning to launch an Asia-specific version of the cobot this year, more affordable but still high-performing, to better suit price-sensitive markets.

What sets Delta apart in the industrial automation space?

Our strength lies in our full-stack capability, from components to integrated solutions, to global presence and local customisation. We are not just offering automation products; we are enabling the entire transition from manual to intelligent manufacturing. With long-term investments in markets like India, and a commitment to local R&D and talent development, we are building sustainable, future-ready solutions for the global manufacturing sector.

What are Delta's future growth plans for the industrial automation division?

Originally, most of our R&D was concentrated in Taiwan, but due to geopolitical uncertainties, we are now diversifying globally. We have set up manufacturing and R&D centres around the world. One of our core strategies is local for local, for example, India for India, China for China. In India, we plan to continue expanding our R&D team. Initially, Indian engineers will collaborate with the Taiwan R&D team, and eventually, we aim for them to independently lead product development tailored to Indian needs. Once these locally developed products prove their quality and innovation, we can even take them global. That's the long-term vision, local innovation leading to global growth.

SME



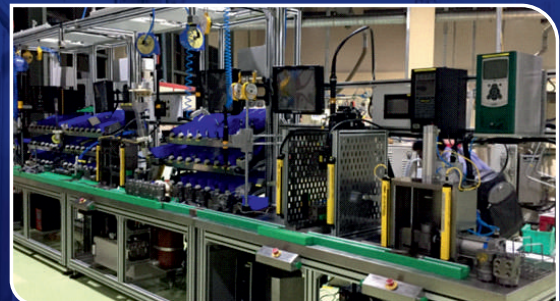
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“India is a key strategic market for Hexagon.”

The future of manufacturing is considered to be intelligent, interconnected ecosystems where every process, machine, and individual works in a cohesive digital environment. Making this transition possible is Hexagon AB – the Sweden based multinational industrial technology company. In this interaction with Rakesh Rao during Hannover Messe 2025, **Jason Walker, VP, General Manufacturing Practice Lead, Hexagon**, sheds light on the factories of the future and importance of India for Hexagon.

How is Hexagon supporting the growth of the manufacturing sector?

Hexagon is a global leader in digital reality solutions, providing a wide array of technologies that support industries in their transition to intelligent and connected ecosystems. Hexagon is a €5 billion company with approximately 25,000 employees worldwide. I belong to the Manufacturing Intelligence division, which is the largest of Hexagon’s business units, contributing about €2 billion annually and comprising more than 9000 employees.

Our division focuses on discrete manufacturing, serving industries such as automotive, aerospace, energy, and medical devices. We cover the full spectrum of the product lifecycle. This begins with design and engineering, moves through to production with our CAD/CAM solutions, and finishes with inspection. Our initial presence in manufacturing was established through metrology, where we developed expertise in both hardware and software. This includes advanced laser scanning, non-destructive testing solutions, and traditional touch-probe systems like CMMs.

How does Hexagon help manufacturers navigate challenges?

This is a very relevant concern for today’s manufacturers. One of the biggest barriers we see to digital transformation is what I like to call ‘choice paralysis’. Manufacturers are faced with a dizzying number of technology options. Many of them already have a patchwork of systems in place and often do not know which direction to take next.

Our approach is to simplify this landscape. Hexagon’s



Jason Walker,
VP, General Manufacturing
Practice Lead, Hexagon

open, cloud-based platform Nexus serves as a digital connective tissue that links and optimises the various technologies already in use within a company. Whether a manufacturer is dealing with design data, machine operations, or inspection outputs, Nexus allows these systems to communicate and function more effectively together. It gives manufacturers the flexibility to innovate while protecting the investments they have already made in existing technologies.

How is Hexagon adopting the ‘digital factory as a service’ model to stand out in the market?

The traditional notion of a digital factory often involved a static 3D CAD model of the facility. We have moved far beyond that. Hexagon offers digital factory solutions that are built on real-world scan data, capturing the exact physical conditions of the factory. This can range from a basic point cloud for visualisation purposes to advanced models used for interactive simulation and planning.

This allows manufacturers to plan physical changes digitally. For example, when we deliver an automated inspection cell to a client, we first simulate its placement within the facility to ensure it fits, works within the spatial constraints, and integrates smoothly with existing infrastructure. This digital pre-validation significantly reduces on-site delays and errors.

In addition, we integrate IoT functionality by tagging assets with sensors. This is particularly useful for companies with multiple sites. It allows them to monitor equipment performance in real time across different locations and even conduct virtual walkthroughs. The

result is improved consistency, faster troubleshooting, and more informed decision-making at the enterprise level.

Is the digital factory solution primarily suited to large corporations, or can it also benefit SMEs?

At present, we are seeing the most traction among large, multi-site manufacturers. These companies have complex operations and derive immense value from having a unified digital view of all their facilities. However, the benefits of this approach extend well beyond the large enterprise segment.

There is considerable potential for small and medium-sized enterprises to adopt digital factory solutions, and we are actively working to refine the offering to meet their unique needs. It is essential to ensure that the solutions are scalable and cost-effective for SMEs. While large OEMs often receive attention, the reality is that the majority of our customers are SMEs. These are businesses that range from five-person shops to tier-one suppliers with a few hundred employees. We are committed to helping them take practical, incremental steps toward digitalisation.

How important is the Indian market for Hexagon?

India is a key strategic market for Hexagon, and our presence in the country has grown significantly over the past few years. We have invested in local manufacturing capabilities for metrology and inspection equipment, aligning closely with the goals of the Make in India initiative. Our goal is not just to serve the Indian market, but to make India a hub for innovation and development that supports our global operations.

While Indian customers have access to Hexagon's globally developed and manufactured technologies, we also produce equipment within India. In October 2024, Hexagon Manufacturing Intelligence introduced ENSPEC — a new multidimensional coordinate measuring machine (CMM) and Hexagon's first metrology product made in India. Designed to meet the specific needs of Indian manufacturers, ENSPEC features cutting-edge, future-ready technology. We also plan to export ENSPEC to international markets.

We have built strong local teams, expanded our workforce, and introduced advanced solutions like Nexus in the Indian market. We also work closely with a network of trusted partners who bring valuable domain expertise and help us deliver tailored solutions to a wide range of customers, including SMEs.

Given that India has a large base of SMEs and relatively low levels of automation, do

you see this as a challenge or an opportunity?

We see it as a huge opportunity. India has a large, young, and highly skilled workforce, but there is a need for continuous up-skilling and training. Automation and digitalisation can complement this by taking over repetitive, low-value tasks, allowing human workers to focus on more valueable and complex activities.

Rather than replacing people, we see automation as an enabler of human potential. It helps businesses increase output and quality while giving employees more fulfilling and intellectually engaging roles. In this way, digital transformation can improve both productivity and job satisfaction.

What technologies will be most disruptive in the manufacturing sector?

AI is certainly at the forefront of this transformation. However, what excites us is not AI in isolation, but how it integrates with physical systems. When AI is combined with robotics, automation, or design platforms, it creates highly adaptive, intelligent manufacturing environments. For example, we are using AI to optimise inspection processes, predict maintenance needs, and enhance quality control. These AI-enhanced systems can reduce waste, improve accuracy, and respond more quickly to changes in production requirements. AI is not just a trend. It is becoming embedded in every layer of the manufacturing workflow and is already reshaping how decisions are made and executed.

What are your future plans in India?

Our Asia-Pacific business contributes around 42 per cent of Hexagon's total revenue, and more than 10 per cent of that comes from India. Beyond the commercial figures, India plays a central role in our R&D and software development activities.

We have made investments in manufacturing infrastructure, and are committed to growing our footprint in the country, through expanding our local teams and capabilities.

What is your long-term vision for the Indian manufacturing industry?

We believe the future lies in creating intelligent, interconnected ecosystems where every process, machine, and individual is part of a cohesive digital environment. Manufacturers need to move away from isolated systems and toward smart platforms that provide real-time insights and seamless communication.

At Hexagon, we aim to remove complexity, reduce risks, and accelerate the adoption of new technologies. We see India as a partner in driving the next era of intelligent manufacturing.





“Automation is reshaping laser design with AI and ML.”

Laser integration with traditional or CNC machine tools significantly enhances precision, speed, and cost-efficiency by enabling precise cutting, welding, and surface treatment processes, comments **Hrishikesh Sawant, Director, C And C Laser Engineering Pvt Ltd** in this interview with Rakesh Rao.

Could you brief us about CnC Laser & its offerings?

C And C Laser Engineering Pvt Ltd provides lasers as well as laser based marking, engraving, micro-machining systems and the services for such applications. The technology of laser marking is demanding because the laser processing method is a non-contact procedure, but it is permanent. Lasers can mark on all metals, non-metals, whether the part is bare, painted, powder-coated, anodised or hardened. Laser marking machines can mark 2D barcodes for identification where in the user can add the entire history of the production of the part into a code that can as small as possible. The identification marking being non-contact, permanent & personalised is the USP of our systems.



Hrishikesh Sawant,
Director, C And C Laser
Engineering Pvt Ltd

What factors are driving demand in the Indian laser market?

The laser technology/solutions market in India is experiencing robust growth, driven by increasing adoption in healthcare, manufacturing, and other sectors. Key factors include advancements in laser technology, rising demand for high-speed internet, and the use of laser-based solutions in various industries. Advances in photonics technology, increased oil and gas demand, medical, favourable government investments, increased demand for lasers in military and defence sectors, and more applications are all driving up demand for laser technology.

How is CnC Laser catering to the needs of the machine tools industry?

To effectively address the needs of the machine tool industry, our company is focusing on several key areas: offering advanced technologies, providing comprehensive support, and fostering a collaborative environment. This includes embracing Industry 4.0

principles, investing in talent development, and working closely with customers to develop tailored solutions.

What are key challenges before the machine tools industry?

The machine tools industry faces challenges like high initial investment costs, material quality issues, and evolving customer demands, including the shift towards EVs. We address these by focusing on efficient resource management, implementing strict quality controls, and developing flexible and adaptable solutions for diverse customer needs.

Several common issues can affect machine performance, including wear and tear, misalignment, and mechanical failures. These problems can lead to downtime and increased repair costs, impacting overall productivity. Our preventative maintenance programs play a crucial role in extending the life of machine tools.

What advantages do lasers offer over conventionally used technologies?

Lasers offer several advantages over conventional technologies due to their unique properties like high energy concentration, precision, and versatility. These advantages lead to faster processing speeds, reduced maintenance, and increased accuracy in applications.

Unlike traditional methods such as polishing or cutting, laser processing technology does not involve direct contact between the tool and the material being processed. This eliminates wear and tear and the need for oil replenishment, leading to a reduction in maintenance time and costs.

Do you offer customised solutions in the machine tools space?

We do offer custom solutions in machine tools, which can be tailored to specific needs. In fact, many of our

machines are customised according to the customer's requirements. Many customers from the tools industry have a database of their products that need to be identified with a permanent marking. Some of these customers have the identification data to be relayed from their server, which can be achieved with our machines.

How is the growing trend toward automation influencing your laser solution designs?

The growing trend towards automation is significantly influencing laser solution designs by driving the integration of intelligent features like AI and machine learning, focusing on real-time monitoring and optimisation, and incorporating IoT connectivity for remote control and data access. This leads to more efficient, precise, and user-friendly laser systems that can adapt to various manufacturing needs.



Emerging trends include automation and AI, ultrafast and green lasers, and the integration of robotics for improved material handling and optimisation.

How do your laser solutions enhance precision, speed, or cost-efficiency when integrated with traditional or CNC machine tools?

Laser integration with traditional or CNC machine tools significantly enhances precision, speed, and cost-efficiency by enabling precise cutting, welding, and surface treatment processes. Our laser systems offer high accuracy, reducing material waste and increasing material utilisation. They also boost production speed and minimise downtime, leading to faster completion of projects. Furthermore, the versatility of our laser systems allows for cost-effective production across varying batch sizes and reduces the need for specialised equipment and tooling.

How critical is access to timely and affordable finance for SMEs to sustain growth in the highly uncertain marketplace? What are the key challenges?

Access to finance plays a major role in the entrepreneurship development and economic growth of the company. It encourages new entrepreneurial

initiatives. Timely access to finance sustains the survival and growth of micro, small, and medium enterprises (MSMEs). A survey was conducted in 400 MSMEs from various industrial clusters across India. The samples were selected using the quota sampling technique. The conceptual framework was developed and tested using the structural equation model (SEM). Results show that firm attributes, sources of finance, and the life cycle of an MSME have a significant positive impact on its access to finance, whereas financial obstacles have a negative impact that prevents the growth of MSME and affects the economic growth of the nation.

What would your suggestions be to the government and banks/NBFCs for solving the funding challenges of SMEs?

One way to reduce financing obstacles for SMEs is to strengthen the infrastructure that supports financial transactions, including laws, regulations and institutions to create, register and enforce collateral, insolvency regime and credit reporting tools. The most influential factors were availability of financial resources, networking, and adoption of technology which were highlighted by over 80 per cent of the studies as critical success factors for SMEs. To have the most impact, banks need to focus on the real needs of SMEs, get the basics right, transform their credit operations, and become more flexible. Banks also have an opportunity to change their relationship with SMEs by leveraging and developing the SME ecosystem via new platform models.

What are emerging trends in the laser technology space?

Emerging trends in laser technology include automation and AI integration, enhanced laser sources like ultrafast and green lasers, and the integration of robotics and AI for improved material handling and optimisation. CnC Laser is likely gearing up to capitalise on these trends by incorporating these advancements into their systems, improving efficiency, precision, and adaptability across various materials and applications.

What are your growth plans for CnC Laser?

C And C Laser Engineering Pvt Ltd will be starting a laser manufacturing and repair CO₂ centre in India by mid of 2025. The centre would also be manufacturing lasers, provide extensive service for the lasers manufactured by us and also for most of the lasers manufactured by our principal companies. C And C Laser Engineering Pvt Ltd plans to install IR-GR-UV-CO₂ (nanosecond, picosecond, femtosecond) Laser marking, engraving, micro-machining, welding, cutting systems all under one roof, very shortly.

SME



The Future of Automobiles Begins in Production

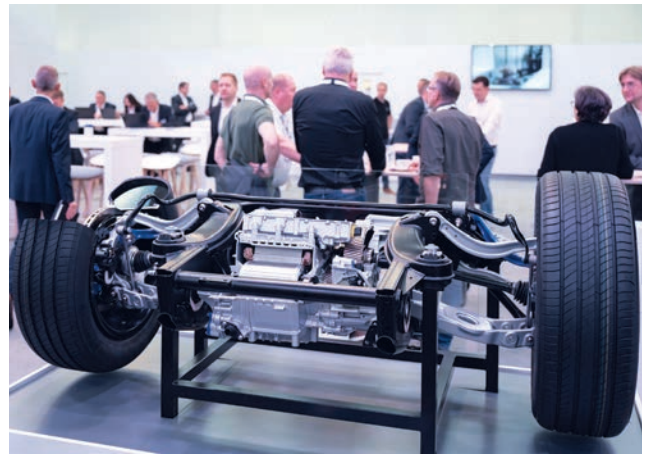
New drive concepts are raising questions as to whether the focus should be on the production of mechanical components for electric cars or compressor and motor shafts for fuel cells.

How can process data from automobile production be recorded and used to increase energy and resource efficiency in production? What influence does the component quality of gearing elements such as drive shafts and axle drives have on noise generation in electric cars? Which grinding tools can be used to machine new materials and steels that are difficult to machine?

For 50 years now, the search for the most efficient machines, tools and systems has attracted trade visitors and experts from vehicle manufacturing and supplier companies to EMO Hannover, the world's leading trade fair for production technology. The transformation of the automotive industry – the second largest customer for machine tools – is changing the focus of the EMO. Topics such as automation, digitalisation and artificial intelligence mark the development. New drive concepts are raising questions as to whether the focus should be on the production of mechanical components for electric cars or compressor and motor shafts for fuel cells. Industry solutions for the circular economy or battery recycling are moving into focus because the regulatory framework is changing drastically. And the challenge above all else is to be as efficient and flexible as possible in order to be able to respond quickly to customer requests.

Efficient automobile factories for greater competitiveness

"Modern machine tools and innovative production systems are essential for building efficient, flexible and resilient factories," stresses **Dr Markus Heering, Managing Director of EMO** organiser VDW (Verein Deutscher Werkzeugmaschinenfabriken – German Machine Tool Builders' Association). The trade fair concept is currently being presented on an international stage at the EMO World Tour. Under the motto "Innovate Manufacturing", EMO stands for innovation, internationality, inspiration and the future of metalworking. At the same time, Heering underlines the trade fair's expertise in industry solutions: "The machine tool industry is always in close contact with vehicle



Many EMO exhibitors offer a tailor-made program for the automotive and automotive supplier industry.

manufacturing companies," he says.

In fierce international competition, especially with Chinese car manufacturers, the focus is on design, features, quality and costs. In order to assert themselves here, the modernisation of factories is a pressing concern for both OEMs and medium-sized supplier companies. The modern factory features end-to-end process automation, precisely coordinated interfaces and integrated digitalisation solutions. Machine tool manufacturers have come up with a solution and are equipping machines with extensive sensor and monitoring systems ex works. They provide the basis for data collection and analysis. The aim is to make it easier for customers to get started with data-driven production technologies in which processes can be visualised and optimised.

Digitalisation is not an end in itself, emphasised **Dr Milan Nedeljković, Member of the Board of Management responsible for production at BMW AG**, in a recent interview. Rather, it is an important enabler. The trend is towards integrated machine systems that can be used to manufacture comparatively small quantities in the powertrain area of electric cars just as economically, efficiently and reliably as mass products.

The wide range of equipment variants and design features with which vehicle manufacturers want to incentivise buyers also require flexible solutions.

Automation in a modular system

EMO Hannover 2025 picks up on such trends, for example with a wide range of automation solutions that can be implemented successively and also in conjunction with existing machines. Automation extends from simple solutions such as pallet changers and handling systems through to the use of robots and autonomous factories with self-driving systems. Secondary processes such as cleaning, labeling and measuring can be integrated. At the Cobot Area joint stand, for example, the focus was on collaborative robots and their potential applications.

In order to support and relieve machine operators, assistance systems were presented where AI can also be used. AI solutions can also be used for predictive maintenance and adaptive process management. The AI + Digitalization Area joint stand offers visitors from the automotive industry the opportunity to find out more about best practice examples.

Sustainability along the supply chain

The automotive industry is intensively discussing how energy and material consumption can be reduced in production. This was also demonstrated recently at the VDA (German Association of the Automotive Industry) Mobility Innovation Summit in Berlin. According to the EMO organiser VDW, investments in new machines already pay off, with energy savings of 25 per cent. However, other levers can also be identified to make production processes more efficient and reduce carbon emissions. With new simulation methods in component development and innovative production processes, for example, components can be designed to be even more resilient and durable.

The recyclability of vehicles must be ensured by taking recycling into account when developing new vehicle components. According to the VDA, around 85 per cent of a vehicle is currently recyclable. Around a third of a new vehicle is made of secondary material. In order to further increase these quotas, a functioning circular economy must be set up in which all stakeholders work closely together and share their data.

SME

Author: Cornelia Gewiehs
Article Courtesy: EMO 2025

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Schmersal Launches Electromechanical Solenoid Interlock 2.0

It doesn't always have to be electronic. When selecting solenoid interlocks, an electromechanical switching device can be either sufficient or even better, depending on the application profile.



Fig. 1: With the AZM 150, Schmersal offers a compact electromechanical solenoid interlock for mounting to standard profile systems.

The task is clear: solenoid interlocks are designed to keep a guard door locked until a hazardous overrun movement has come to a halt. Varied types of solenoid interlock have this same basic principle in common. Manufacturers, like the Schmersal Group, have more than just one series in their range – Schmersal has eight, in fact, each with its own specific application profile (Figure 1).

Slimline design, good integration

The AZM150 series, one of the newer types of solenoid interlock, is now available as a fundamentally overhauled version and is aimed at users looking for a more slimline design (Figure 2). It is suitable for mounting on standard 40 mm profile systems as well as for mounting on conventional machinery enclosures, particularly those with smaller guard doors. The AZM150 has only a small installation footprint and can be easily

integrated into the surrounding structure, thus having no impact on machine loading and unloading. The locking force of 1,500N is also perfectly adequate for common applications in mechanical engineering.

When costs play a role

Another criterion is the desire for a cost-effective solution for a maximum safety level of PL d/Cat 3. This level is achieved just as efficiently with the electromechanical AZM150 as excellent tamper protection with coding level 'High'. At this level, the designer or machinery builder benefits from needing to implement fewer additional measures in accordance with ISO 14119 to guard against tampering, such as inaccessible or concealed mounting. This makes the design 'leaner' and more straightforward indirectly being cost-effective.

Wide range of uses

A notable feature of the AZM150 is its actuator head, which can be rotated by 4x 90°, rather than being bolted in place, and locked easily by simply putting the enclosure cover in place. The version with integrated eight-pin M12 metal connector also enables rapid



Fig. 2: A door latch is available to match the AZM150, along with other accessories.



Fig. 3: A noticeable feature of the AZM150 is the actuator head, which can be rotated by $4 \times 90^\circ$.



Fig. 4: More compact than the AZM 40 is the AZM150 – the new versions of the Schmersal AZM40 solenoid interlock can be expanded to include emergency release or unlock.

connection to the safety logic and connection to the failsafe Schmersal 'Safety Fieldbox'. This makes this series extremely versatile. The combination option with different actuators for different installation situations is also a perfect match. The range includes straight and angled actuators for sliding doors, as well as an adjustable movable actuator for revolving doors. The extensive range of accessories includes; mounting plates, locking tongs and an emergency release (from the outside) as well as auxiliary release and escape release (from the hazard zone) help to ensure optimal customisation to the individual application. In the event of installation on security fences or heavy doors, the corresponding DHS150 door bolt can also be used (Figure 3).

Less can be more

If the features mentioned here fit the profile (spatially and in the figurative sense), the user has no need for an electronic solenoid interlock and would be better off using the electromechanical AZM150. Exclusion criteria are both a required performance level of PL e/Cat 4 and the desire for a connection to safety-related bus systems (ASi Safety at Work), so anyone



Fig. 5: Universal safety module for safety interlocks: the SSW 303HV sensorless standstill monitor.



Fig. 6: If multiple solenoid interlocks are used on a machine, users also benefit several times over from the cost benefit of the AZM150 when compared to electronic solenoid interlocks

who needs these features should consider the range of electronic solenoid interlocks, such as the AZM40 (Figure 4). As the world's smallest electronic solenoid interlock, it is even more compact, but has a higher price due to the integrated electronics.

Simple actuating via standstill monitor

Each interlock has an evaluation unit and standstill monitors, which issue the signal to unlock as needed, have become a firmly established component for this. An appealing model that fits well with the AZM150 is the SSW 303HV, a universal failsafe standstill monitor that works without sensors. This means that the machine designer of the machine need not intervene in the surrounding construction. The safety module is connected directly to a three-phase motor and measures the frequency of the induced voltage, at rated motor voltages of up to 690V. The enable fields close as soon as the motor comes to a halt.

SME

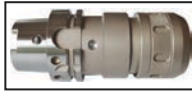
About the author:

Marco Kiederle, Product Manager-Safety Technology, Schmersal Group, Wuppertal.

(Communication provided by the management of the company)

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Techno Crafts offers a wide range of Boschert Profi 28 a press brake with hydraulic drives. With a press force of 280 kN (28t) and, for example, a bending length of 300 mm, this can bend material of up to 10 mm thickness. The standard tool holder system is type Amada or Promecam; other systems are available on request.



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“India is among EPLAN’s fastest-growing markets.”



EPLAN – as part of the Friedhelm Loh Group – is known for providing software and service solutions to streamline challenging engineering processes in the fields of electrical, automation and mechatronics. The German firm has been in India for more than 15 years and opened a new sales office in Bangalore in July 2024. Our vision is to make EPLAN the engineering backbone for Indian manufacturers, states **Haluk Menderes, Managing Director, EPLAN GmbH & Co KG**, in this exclusive interview with Rakesh Rao during Hannover Messe 2025, as discusses global engineering trends and EPLAN’s plans for India.

How significant is India in EPLAN’s global growth strategy?

India is one of our most promising and fastest-growing markets globally. Over the past five years, we’ve seen a growth rate of more than 30 per cent annually in India, which is remarkable. This growth isn’t just due to the size of the market, it’s because Indian companies are actively embracing modern engineering practices and investing in digital transformation.

There is a clear push from the Indian government for digitisation, skill development, and Make in India. These initiatives perfectly align with EPLAN’s mission to enable smarter and more standardised engineering. India today is not just a consumer market; it’s also becoming a hub for global exports, and companies here are realising the need to compete at an international level. EPLAN helps them do that efficiently.

We now consider India a strategic market, not just an emerging one. It’s already among our top 10 markets and, if current trends continue, it will likely break into the top five within the next few years.

What strategic investments has EPLAN made in India recently?

We have been in India for more than 15 years, and we are consistently deepening our commitment here. Just recently, we inaugurated a brand-new facility in Bengaluru, which is a major step forward for our India operations. This new space isn’t merely about expanding square footage, it represents a strategic consolidation of

Haluk Menderes,
MD, EPLAN GmbH & Co KG

our local competencies. The facility brings together our customer support, R&D, training, and professional services teams under one roof. This integration enhances collaboration and enables faster responses to local customer needs.

We are also ramping up hiring and training in India, not only to serve the domestic market but also to contribute to our global software development efforts.

India plays a dual role for us: it's a high-potential market, and it's also a talent-rich country where we can innovate and build solutions for the world.

EPLAN is best known for its integrated engineering platform. What makes this platform stand out?

The EPLAN Platform is designed to simplify and optimise the entire engineering process, especially in multidisciplinary environments. Traditionally, electrical, mechanical, and automation teams work in silos, which leads to communication gaps, rework, and delays. EPLAN breaks down these silos.

What makes our platform unique is the ability to integrate electrical, fluid, automation, and cabinet engineering into one coherent workflow. All changes are synchronised automatically across disciplines, reducing the risk of errors and inconsistencies.

We also offer deep integration with upstream and downstream systems, ERP, PLM, and manufacturing tools. This ensures that engineering data flows seamlessly across the value chain, creating what we call a digital thread. This is increasingly important for companies that want to implement Industry 4.0 principles and improve traceability and efficiency.



There's a clear push from the Indian government for digitisation, skill development, and Make in India. These initiatives perfectly align with EPLAN's mission to enable smarter and more standardised engineering.

How does this integration impact real-world manufacturing operations?

Let me give you an example. Suppose you're building an electrical control panel. With EPLAN, the schematic design, wiring diagrams, parts list, and cabinet layout are all automatically generated and kept in sync. If an

engineer changes a component in the schematic, that change is reflected instantly across the layout and bill of materials. Now, imagine multiplying this benefit across hundreds of projects a year. The time savings are enormous. More importantly, errors are reduced dramatically, which means fewer surprises on the shop floor.

This has a big impact on productivity and cost-efficiency. For companies doing repetitive or modular production, like machine builders or switchgear manufacturers, this level of integration is a game-changer.



Many Indian companies are already working with international clients who expect globally accepted engineering standards.

Many companies struggle with the shift to digital. How does EPLAN support that journey?

That's a great point. Digital transformation is not just about software, it's about changing how people work. That's why we take a very hands-on, partnership-oriented approach. Our focus is on enabling our customers, not just selling to them.

We begin by understanding their current engineering processes and pain points. Then we help them redesign workflows to be more standardised and efficient. Our consulting teams guide them through implementation, and we provide extensive training and support to ensure adoption.

In India, we have gone a step further by partnering with universities and technical institutes to introduce EPLAN in engineering curricula. This helps build a pipeline of talent that is ready to work in digital environments from day one.

We also provide flexible subscription models and modular onboarding so that even small and medium-sized enterprises (SMEs) can start their journey at their own pace and scale up as they grow.

What role does standardisation play in modern engineering, and how does EPLAN facilitate it?

Standardisation is at the core of efficient engineering. It's about creating reusable building blocks, standardised components, templates, and workflows that reduce complexity and accelerate project timelines. Once you

have a standard set of blocks, you can build faster and more reliably.

EPLAN enables this through features like macro libraries, standard symbol databases, and modular project structures. Once a company creates a library of approved components and processes, engineers no longer need to start from scratch every time.

This leads to better quality, fewer errors, and much shorter design cycles. It also makes it easier to train new staff and scale up operations. For Indian manufacturers who are aiming for global competitiveness, adopting such standardisation is essential.

Do you think Indian companies are ready to adopt this level of engineering automation and digitalisation?

I have been visiting India regularly for nearly two decades, and I can confidently say the pace of change here is impressive. Indian engineers are highly skilled, curious, and eager to learn. We see tremendous openness to digital tools, especially among younger professionals.

Many Indian companies are already working with international clients who expect globally accepted engineering standards. This has become a strong driver for digitalisation. The real shift, however, happens when company leadership sees digital transformation not as a cost, but as an investment with clear ROI. And we are seeing that shift happen. From large enterprises to ambitious SMEs, Indian companies are realising that to stay competitive, locally and globally, they must modernise their engineering processes. We are here to support them in that journey.



From large enterprises to ambitious SMEs, Indian companies are realising that to stay competitive, locally and globally, they must modernise their engineering processes.

What global engineering trends should Indian manufacturers be preparing for?

There are a few key trends. First is the move towards a fully connected, end-to-end digital value chain. Companies want to eliminate data silos between engineering, production, and business systems. EPLAN supports this through our open interfaces and partnerships with major automation and ERP providers.

Second is modularisation. By designing systems in standardised modules, companies can reduce time-to-market and improve scalability. We provide tools that support this engineering strategy.

Third is sustainability. Efficient engineering leads to less material waste, lower energy use, and better lifecycle performance. Governments and customers alike are pushing for greener products, and digitalisation helps meet those expectations.

For Indian manufacturers looking to scale or export, adopting these trends is no longer optional, it's essential for long-term success.



Efficient engineering leads to less material waste, lower energy use, and better lifecycle performance.

What's your vision for EPLAN's growth in India over the next 3-5 years?

We are extremely bullish about our future in India. We've already built a strong foundation, and now we are scaling up across all dimensions, sales, support, R&D, and education. Our vision is to make EPLAN the engineering backbone for Indian manufacturers, whether they're building machines, switchboards, vehicles, or infrastructure. We aim to be their long-term partner, helping them adopt best practices, reduce costs, and deliver better products faster.

We are also expanding our ecosystem of partners, system integrators, panel builders, and solution providers, to ensure customers can get end-to-end support across India. With all the right ingredients in place, market demand, talent, and government support, we are confident that India will be a key pillar of EPLAN's global growth story.

Finally, what would you say to Indian companies still hesitating to begin their digital journey?

My message is simple: don't wait for the perfect time to start. Begin with small, achievable steps. The benefits of digitalisation - faster turnaround, better quality, global competitiveness - are real and measurable. EPLAN is here to help. We are not just offering software; we are offering a proven roadmap to smarter engineering. Together, we can build an engineering environment that is efficient, standardised, and future-ready.

India has the talent, the ambition, and the momentum. We are excited to be part of this journey.

SME



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Igus Bearings Powers Robot to Move 600 kg Shelves

Solid lubricants incorporated into the material ensure low-friction dry operation. As a result, the bearings are maintenance-free and cost-effective.



The French company Scallog has developed an autonomous robot called 'Boby' that can transport shelves weighing up to 600kg in logistics warehouses. To maximise the robot's range and minimise maintenance, the engineers rely on lubrication-free iglidur plain bearings from plastics specialist igus, which are wear-resistant and significantly lighter than comparable metal solutions.

The work of order pickers in e-commerce warehouses is physically demanding. Every day, they travel up to 15km to pick up the products needed for orders from the shelves. The French company Scallog has developed 'Boby' to relieve employees and increase their performance. The autonomous logistics robot can independently transport shelves to the picking station and thus manage up to 600 picks per hour. Several robots can also work in a swarm, allowing the automation capacity to be scaled flexibly. According to Scallog, this leads to a 40 per cent increase in productivity. The solution is now used not only in e-commerce, but also in industry, e.g. at Decathlon, Farmy, Bricolux and the Blondel Group.

Polymer plain bearings withstand high loads

The engineers faced a particular challenge when developing 'Boby'. They had to find plain bearings for the scissor joints of the integrated lifting table that were robust enough to bear the weight of the shelves, which can amount to 600kg. At the same time, the bearings had to be low-maintenance, cost-effective and compact

enough for the robot's limited installation space. For this reason, the engineers decided in favour of iglidur G slide bearings from igus. Thanks to the use of tribologically optimised high-performance polymers that are optimised for friction and wear, they are particularly resistant and durable even when subjected to high edge loads and impacts. This means that they still operate reliably even with a load capacity of 600kg. To ensure this, the plain bearings are put through their paces in advance in the igus test laboratory. The results of the wear tests are documented and fed into an online tool that allows users to easily calculate the service life of their product.

Self-lubricating effect: Sustainable and cost-effective

Another advantage is that the polymer bearings do not require any additional lubricants. Solid lubricants incorporated into the material ensure low-friction dry operation. As a result, the bearings are maintenance-free and represent a cost-effective alternative to metal plain bearings. Users save costs for maintenance, labour and lubricants, particularly in the case of large robotic swarms. At the same time, the polymer plain bearings also have a demonstrably positive impact on the environment, as an independent study by RWTH Aachen University shows. The elimination of lubricants reduces the environmental impact and energy consumption during production, use and disposal at the end of the service life. Lubrication-free plastic bearings therefore have a lower CO₂ footprint and also contribute to more sustainable production.

Order picking like at a drive-in counter

As they require neither lubrication nor maintenance, iglidur plain bearings reliably fulfil their task in the Scallog logistics robot. And this is how 'Boby' works: as soon as the picker starts an order on the computer, the 1m-long autonomous robots, which look like lawn-mowing robots, travel to the appropriate storage locations. With a height of just 450mm and a width of 650mm, the autonomous vehicles are compact enough to drive under the shelves. Once there, they lift them using an integrated scissor system and then travel to the picking station at a speed of up to 1.5km/h.

SME



Steel Import Duty Concerns Indian CE Sector

If the safeguard duty is implemented, it will further escalate steel prices, forcing construction equipment (CE) manufacturers to pass on the increased costs to consumers, according to ICEMA. It also risks undermining the export potential when markets are exploring 'China Plus One' strategies to diversify their supply chains.



Source: Freepik

The Indian Construction Equipment (CE) industry, currently valued at around \$9.5 billion, stands as the third-largest in the world, following only the United States and China. The sector plays a pivotal role in enabling infrastructure development across the country by supplying advanced, high-performance machinery required for building roads, bridges, railways, and urban infrastructure efficiently and cost-effectively.

Steel is a critical raw material in the manufacture of construction equipment, forming the backbone of heavy-duty machines used across multiple sectors. Various grades of steel, including specialised high-strength and high-tensile steel, as well as pipes and tubes, are essential for the structural and functional components of construction equipment. Notably, many of these high-spec materials are currently not manufactured domestically and are required to be imported to meet production needs.

In this context, the regarding the imposition of a 12 per cent safeguard duty on imports of non-alloy and alloy steel flat products by the Directorate General of Trade Remedies (DGTR) has raised serious concerns within the CE industry, stated the Indian Construction Equipment Manufacturers' Association (ICEMA) in a press statement. A sudden restriction on imports could severely affect downstream industries such as construction equipment

manufacturing by limiting access to critical raw materials, particularly where domestic production does not meet the required technical specifications or volumes. Any disruption in the availability or affordability of these materials will directly impact manufacturing timelines and equipment delivery, and slow infrastructure execution across the country.

Moreover, the mere initiation of the safeguard duty discussion has already caused market disruptions. Steel prices have reportedly increased sharply—by approximately ₹10,000 per tonne—since the beginning of the inquiry process. This has led to a rise in input costs for construction equipment manufacturers, squeezing already thin margins and creating uncertainty across the supply chain, added ICEMA.

If the safeguard duty is implemented, it will further escalate steel prices, forcing equipment manufacturers to pass on the increased costs to consumers. This comes at a time when the industry is already facing heightened cost pressures due to the implementation of the CEV Stage V emission norms, which came into effect on January 1, 2025. The cost impact of compliance with these norms has already been transferred, at least partially, to end-users.

The imposition of additional duties would exacerbate these challenges and could have a cascading impact on infrastructure development, which is crucial to India's economic momentum. Furthermore, it risks undermining the CE industry's export potential at a time when global markets are exploring 'China plus One' strategies to diversify their supply chains. Indian manufacturers stand well-positioned to capitalise on this shift, but rising input costs could impair competitiveness and erode the country's export edge.

Given these far-reaching implications, the CE industry strongly urges the government to undertake a thorough and transparent assessment of the necessity and impact of the proposed safeguard duty. Any policy intervention must strike a careful balance between supporting domestic steel production and preserving the health of downstream industries to nation-building. **SME**



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"HARTING views India as a high-potential market."

HARTING, a traditional, family-owned company, is celebrating its 80th anniversary this year. The company, currently led by Philip Harting (the third generation of the HARTING family), is today a truly international organisation with 14 production facilities and 42 sales companies spread across the world. In this interaction with Rakesh Rao during Hannover Messe 2025, **Jörg Scheer, Managing Director of HARTING Electronics & HARTING Customised Solutions**, highlights on emerging opportunities with the rise in electrification across industries.

Could you describe your role in more detail?

In my position, I lead the global product portfolio strategy. My team and I work to understand current and future market needs and translate those insights into a strong and relevant product lineup. We ensure that our subsidiaries across the globe are equipped with the right solutions tailored for their respective markets.

What is HARTING best known for in the global market?

HARTING is globally recognised for its excellence in the field of rectangular connectors. In fact, we have been pioneers in this domain and have helped to set industry standards for decades. As the needs of various industries evolved, we also expanded our product offerings. We added circular connectors, such as the M8, M12, M17, and M23 series, which are commonly used in field installations and suit a wide range of industrial applications. This expansion has allowed us to meet the growing demand for reliable and versatile connectivity solutions.

What industries and sectors does HARTING primarily serve?

Our work is guided by a central mission, which we call connecting the All Electric Society (AES). This phrase reflects our firm belief that the world is steadily moving toward full electrification. We see this transformation occurring across the value chain — from renewable energy generation through wind and solar sources to electrified applications on the user end. HARTING plays an integral role in this transition by delivering the connectivity and cabling infrastructure



Jörg Scheer,
Managing Director of HARTING
Electronics & HARTING
Customised Solutions

needed to bring everything together.

To align with this mission, we focus on five major sectors: industry, energy, infrastructure, mobility, and agriculture.

How important is the rise in electrification for your business?

It is extremely significant and a major driver for our future growth. According to projections, global energy demand will double by 2050 due to factors such as population growth and increased electrification. Alongside this rising demand, there will be a rapid increase in the share of renewable energy sources in the global energy mix. This shift is already visible worldwide, including in fast-developing markets like India. HARTING's

solutions are well-positioned to support this transformation.

How is HARTING addressing the growing renewable energy segment?

We have adopted a focused approach to renewable energy by targeting specific applications such as wind



Asia is a crucial region for HARTING, contributing around one-third of our global turnover. Within Asia, India accounts for approximately 25 per cent.

turbines. In this space, we collaborate closely with leading manufacturers to co-develop connector and cabling solutions tailored to their unique needs. Our goal is to deliver solutions that meet evolving customer expectations for higher power, improved reliability, and cost efficiency. Additionally, through our sister company Studer Cables AG, which specialises in cables, we are able to offer complete connectivity packages that combine connectors and cables into a unified solution.



We have adopted a focused approach to renewable energy by targeting specific applications such as wind turbines. In this space, we collaborate closely with leading manufacturers to co-develop connector and cabling solutions tailored to their unique needs.

What role does Asia, and India in particular, play in your global operations?

Asia is a crucial region for HARTING, contributing around one-third of our global turnover. Within Asia, India accounts for approximately 25 per cent. Over the years, we have continuously expanded our footprint in India through investments in manufacturing, sales, and support infrastructure. Our presence in the country is growing steadily, and we view India as a high-potential market with long-term growth prospects.

Could you please shed light on your investment plans?

We are investing around €75 million over the next five years to build a fully automated and digitalised manufacturing facility in Germany. This “Future Factory” will serve as a benchmark for modern production and innovation. However, our investments are not limited to Germany. We are also expanding our capabilities in other parts of the world, including India, Vietnam, and the United States. In India, we are enhancing our local manufacturing step by step by installing new machines and expanding our production footprint to meet regional demand.

Do you anticipate any major disruptions or challenges in the next couple of years?

I do not foresee any major disruptions to our core business of physical connectors and cabling, especially

for demanding environments such as energy infrastructure. Wireless technologies cannot completely replace the reliability and robustness required in such applications. However, artificial intelligence (AI) is one area that could become a game changer. While AI may not directly impact our business model, it can significantly improve internal processes. Companies that successfully implement AI in areas like development, production, and supply chain management will gain a strong competitive edge. In that sense, AI has the potential to be disruptive.

What kind of opportunities do you see in the Indian data centre area?

We already support major global data centre operators with our connectivity solutions. Since many of these companies are expanding their presence in India, it is a natural extension for us to support them locally as well. Moreover, if Indian data centre operators continue to grow in scale and sophistication, we are open to working with them too. We see this as a promising opportunity for our business.

How do you see India’s role evolving within HARTING’s global growth strategy?

India is following a growth trajectory that is, in many ways, reminiscent of China’s development over the past decade. As global companies diversify their manufacturing and investment strategies, India is emerging as a natural choice. We see significant opportunities in India, particularly in areas aligned with the government’s long-term strategic plans. For instance, India’s roadmap for hydrogen energy aligns well with our capabilities, and we already offer connectivity solutions tailored to hydrogen applications. Our goal is to grow alongside India by supporting such national initiatives.

Which sectors are driving demands for HARTING?

Without a doubt, the strongest sector for us in India is rolling stock—the railway industry. Today, there is virtually no Indian train that does not have at least one HARTING connector installed. During my recent visit, I met with a local manufacturer working on India’s first indigenous high-speed train, and they are using our products in that project as well.

The second most important sector for us is machinery and industrial automation. We are also seeing growing interest in sectors related to India’s electrical grid, including transformers and substations. These areas offer substantial potential for growth and innovation, and we are actively developing solutions to meet their requirements.





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“At Thermax, we are building next-gen captive plants.”

The concept of captive power is constantly being redefined. The future lies in hybrid captive plants facilities that blend sources like solar, biomass, waste-to-energy, and traditional fuels with advanced storage solutions, says **Kirtiraj Jilkar, Executive Vice President & BU Head – P&ES, Thermax Limited** in dialogue with Rakesh Rao.

What role do you see EPC companies like Thermax playing in enabling the shift toward cleaner energy systems?

India’s energy transition requires not only policy interventions and investments in new technologies, but also strong on-ground execution. This is where EPC companies like Thermax play a pivotal role. Our strength lies in seamlessly bridging engineering expertise, advanced technologies, and end-to-end project execution. We don’t just deliver services at Thermax—we enable meaningful energy transitions across industries. Whether it’s a greenfield captive power plant, a retrofit for flue gas desulfurisation, a waste to energy plant or a hybrid energy system combining biofuels and renewables, we design and deliver with sustainability at the core. We integrate complex systems with seamless solutions within required timelines, cost, and quality, which is essential for clients under pressure to meet global ESG benchmarks and comply with evolving regulatory frameworks. In that sense, our work is not just technical; it is also strategic. Our solutions are helping industries to reimagine their energy systems from the ground up.

How are large-scale industrial projects evolving today to align with sustainability goals and global climate mandates?

There’s a significant shift underway in how industrial projects are conceptualised and executed. 5-10 years ago, the focus of industrial projects was output and efficiency. Today, that equation has expanded to include carbon impact, compliance with global standards. We’re seeing a growing demand for decarbonised systems plants that are capable of operating on multiple fuels, including renewables and bio-based alternatives. There is a growing emphasis on sustainable practices such as waste heat recovery, zero liquid discharge, and the utilisation



Kirtiraj Jilkar,
Executive Vice President & BU
Head – P&ES, Thermax Limited

of industrial by-products for energy generation. Technologies like flue gas desulfurisation (FGD) and carbon capture are no longer considered peripheral enhancements—they are increasingly integral to core plant design, driven by tightening environmental regulations and heightened ESG commitments.

Thermax has been exploring ethanol, methanol, and hybrid energy solutions. What are the key opportunities and challenges in scaling these alternatives for industrial use?

We at Thermax are actively developing turnkey solutions that enable industrial-scale production and utilisation of ethanol and methanol. This includes upstream production systems, downstream chemical processing, and the full lifecycle integration into industrial plants. We are also exploring advanced technologies like gasification to produce methanol, Di Methyl Ether (DME) and ethanol from coal or biomass.

However, the transition to biofuels is not without challenges. Feedstock availability and consistency is a concern. Infrastructure for distribution and storage is still in development. On the industrial side, adapting existing systems to accommodate new fuels often requires retrofitting or entirely new plant configurations.

The good news is that we are addressing many of these barriers through innovation and partnerships. We are working with government platforms such as the Biofuels Alliance and engaging with both public and private sector players to pilot scalable solutions. Our in-house R&D teams are also optimising processes to make biofuel production more cost-efficient and less water intensive.

What are upcoming focus areas that you are targeting in your future roadmap?

Thermax’s P&ES is focusing on driving technology

led and sustainability solutions as industries transition toward low-carbon operations. Key areas include waste to energy and refinery processes, and emerging technologies like biofuels and carbon capture. We are also advancing digital solutions with EDGELive™ and Value-Added Services (VAS) to help customers enhance performance, reliability and optimise energy use.

Geographically, while India and Southeast Asia remains a core market, we're expanding into the Middle East, and Africa, where industrial growth and clean energy adoption are accelerating. Additionally, we see strong potential in sectors like biofuels, green hydrogen, and sustainable chemicals, where integrated, clean process solutions are in demand. These focus areas align with our vision of supporting industries in their energy transition while delivering operational and environmental value.

How can industries optimise their power consumption while reducing emissions and maintaining operational efficiency?

Optimising energy consumption while ensuring operational efficiency and emissions control is a strategic imperative. Industrial are expected to reduce their carbon footprint without compromising productivity. This requires a holistic approach.

One effective strategy is adopting Energy Management Solutions (EMS). At Thermax, our EMS offerings involve a comprehensive audit of existing plants, examining energy flows, load patterns, and inefficiencies. Based on this, we offer retrofit solutions. This approach not only de-risks the investment but ensures measurable impact.

Digitalisation enhances this further through smart sensors, IoT-enabled controls, and predictive analytics, which identify inefficiencies, forecast maintenance, and optimise fuel use and emissions. Coupled with process integration like co-generation and heat recovery, this significantly lowers energy intensity.

We also support the shift to hybrid systems, combining solar or biomass with conventional energy sources to manage peak demand and ensure reliability. These solutions deliver both environmental and economic benefits, especially for energy-intensive industries like cement, steel, and chemicals.

How do you see the future of captive power plants evolving—particularly with the advent of renewables and storage technologies?

With the rapid growth of renewables and storage technologies, the very concept of captive power is being redefined. The future lies in hybrid captive plants facilities that integrate multiple energy sources including

solar, biomass, waste-to-energy, and conventional fuels with advanced storage solutions. These plants provide the flexibility to switch fuels while maintaining consistent power quality and reliability.

At Thermax, we are building next-gen captive plants that not only deliver energy independence but also meet stringent emissions norms. These plants are equipped with smart controls, fuel-flexible boilers, and emission monitoring systems. We also design them to be modular and scalable, allowing customers to add new technologies such as green hydrogen or carbon capture as they become commercially viable.

Energy storage is another game-changer. With battery prices falling and technology improving, industrial users can now store excess renewable energy generated during the day and use it during peak hours or outages. This reduces dependence on the grid, improves power quality, and contributes to sustainability targets.

How is Thermax integrating smart technologies into its energy projects to enhance performance, compliance, and lifecycle efficiency?

We are embedding smart technologies across the entire project lifecycle from design and commissioning to operations and maintenance. Our digital framework includes advanced process simulations, digital twins, and IoT-based monitoring systems. This allows us to anticipate operational bottlenecks, optimise fuel consumption, and ensure that performance metrics are met or exceeded. For instance, our smart dashboards provide real-time visibility into emissions, energy usage, and equipment health, enabling predictive maintenance and reducing downtime.

We are also leveraging AI and machine learning algorithms to improve control logic, enhance energy efficiency, and identify optimisation opportunities that might otherwise go unnoticed. These technologies help us not just meet regulatory compliance but also ensure long-term performance reliability for our clients.

What is your broader outlook on India's industrial decarbonisation journey?

India's industrial decarbonisation journey is gaining strong momentum, driven by policy initiatives, global climate commitments, and rising awareness among industries. Sectors are actively seeking cleaner, more efficient technologies to reduce emissions while maintaining competitiveness. The shift towards renewable energy, waste heat recovery, biofuels, and CO₂ capture is expected to accelerate in the coming years. Thermax's focus is on enabling customers to optimise energy use, lower carbon footprints, and build long-term operational resilience.





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Manual to Smart Warehousing

The integration of AI and automation is not only enhancing operational efficiency but also creating new job roles in machine learning, programming, and data science to operate the tech-driven warehouse management industry. Additionally, automated warehouses are enabling businesses, opines **Ananth Seshadri, President, TVS Industrial & Logistics Parks.**



Source: Freepik

As India cements its position as a global logistics and manufacturing hub, the transition from traditional and labour-intensive warehousing to AI-driven and automated facilities is picking up pace. This transformation, marked by the integration of AI and automation into warehousing operations, is driven by the need for greater efficiency, accuracy, and cost reduction. India's warehousing industry is projected to reach 500 million sq. ft. by 2030, with automation expected to cut operational costs by up to 30 per cent. Therefore, the adoption of cutting-edge technologies like artificial intelligence (AI), robotics, and the Internet of Things (IoT) has become a necessity for businesses looking to offer the best while staying competitive in this dynamic environment.

Push for smarter warehousing

Warehousing in India has long been affected by inefficiencies due to manual workforce, fragmented supply chains, and lack of real-time data visibility. The exponential rise in e-commerce, fuelled by platforms such as Amazon, Flipkart, Blinkit and Instamart, has put immense pressure on warehousing and logistics companies to meet growing consumer expectations for

quick and same-day deliveries. Therefore, warehousing companies are now leveraging AI-powered predictive analytics, autonomous mobile robots (AMRs), and automated storage and retrieval systems (AS/RS) to optimise inventory management and streamline supply chain operations.

As a tech-enabled infrastructure solutions provider, the logistics parks have integrated automation based on client requirements. For example, we have implemented dock levellers and docking bay as a safety automation measure for First Solar at the Pillaipakkam facility, and for Alstom at the Coimbatore facility. Additionally, most of the industrial parks feature advanced sensor lighting to enhance energy efficiency.

Government initiatives such as Make in India and Digital India have further propelled the warehousing industry toward tech-driven solutions. The rise of Grade A warehouses designed for seamless integration of AI and automation reflects this shift. These advanced warehouses enhance storage efficiency, streamline inventory management, and significantly improve turnaround times.

Key technologies driving the transformation

AI-driven inventory management & demand forecasting: AI-powered analytics and machine learning are predicting demand patterns, optimising stock levels, and minimising wastage. Predictive analytics helps businesses anticipate order fluctuations, ensuring a responsive supply chain. Predictive maintenance can reduce machine downtime by 30-40 per cent while extending equipment lifespan by 20-40 per cent.

Robotics and automation: Automated guided vehicles (AGVs) and robotic arms significantly enhance picking, packing, and sorting efficiency. Autonomous Mobile Robots (AMRs) are increasingly being deployed in Indian warehouses to transport goods, reducing manual handling and improving workplace safety. Companies that adopt automation experience reduced

turnover rates, lower insurance costs due to fewer injuries, and greater overall employee satisfaction.

IoT and real-time tracking: Smart sensors and RFID (Radio-Frequency Identification) technology provide real-time inventory tracking, improving visibility across the supply chain. IoT-enabled systems monitor temperature, humidity, and other environmental factors crucial for industries such as pharmaceuticals and food storage.

Blockchain for supply chain transparency: Secure and decentralised blockchain technology ensures transparency in transactions and traceability of goods, preventing warehousing fraud and inefficiencies. This is beneficial in sectors like pharmaceuticals, where regulatory compliance and authenticity verification are paramount. For instance, The Karnataka State Drug Logistics and Warehousing Society has used blockchain technology to modernise drug supply management for government healthcare facilities statewide.

Warehouse Management Systems (WMS): Next in line, advanced WMS software enables centralised control over inventory, order processing, and workflow automation. These systems integrate seamlessly with AI and IoT technologies to ensure real-time data

synchronisation and operational efficiency.

Impact on Indian market

The integration of AI and automation is creating new job roles in ML, programming, and data science to operate the tech-driven warehouse management industry. Additionally, automated warehouses are enabling businesses to reduce turnaround times, lower costs, and improve customer satisfaction. Moreover, India's rapidly growing urban population and expanding consumer base in tier-2 and tier-3 cities are driving increased demand for last-mile delivery solutions. AI-driven route optimisation and autonomous delivery vehicles are expected to play a crucial role in meeting this demand, now more than ever.

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About the author:

Ananth Seshadri is the President of TVS Industrial & Logistics Parks. Seshadri brings with him 25+ years of expertise in leading strategy, profit improvement & company turnaround engagements, new geography market entry/expansion, product management and business planning, etc. across different geographies including India, USA, and China. Of the total period, he has worked for 15+ years in the TVS Group including TVS SCS.

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India Makes a Mark at Hannover Messe 2025

Presence of more than 80 Indian exhibitors at Hannover Messe 2025 – one of the world's leading industrial trades – reflected the country's growing influence in the global manufacturing landscape. By organising India Day, VDMA India helped in fostering Indo-German business relations in the engineering sector.



L-R: Rajesh Nath (MD, VDMA India), Soumya Gupta (Consul General of India in Hamburg) and Christian Kienzle (Chairman, VDMA Fluid Power Association) unveiling "India Next" – a special edition brought out by Smart Manufacturing & Enterprises for Hannover Messe 2025 – at the India Day event.

Hannover Messe 2025 – one of the world's leading industrial trades – showcased how artificial intelligence (AI), automation, digitalization, and electrification are helping companies to take a quantum leap in industry efficiency. Around 4,000 exhibitors from all over the world showcased their industrial solutions. More than 40 per cent of the visitors came from abroad. Apart from the host country Germany, the top visitor nations were China, the Netherlands, Canada, Poland, South Korea and Japan.

India at HM2025

India has been an active participant in Hannover Messe, serving as the official partner country in 2015. With its engineering capabilities and growing emphasis on innovation and sustainability, India plays a crucial

role in the global manufacturing industry. The country's focus on sectors like automation, robotics, and digital manufacturing positions it as a significant contributor to global industrial transformation. In 2025, more than 80 Indian exhibitors participated in the world's largest engineering trade fair, reflecting the country's growing influence in the global manufacturing landscape.

Given the current global environment, there is a huge opportunity to increase cooperation between Indian and European companies. "There is a growing interest among German and other European companies in India. With the current geopolitical tensions, particularly with China, India is increasingly being seen as a viable sourcing hub. This shift is evident at this year's Hannover Messe. The participation of Indian companies at the fair is helping to position them as potential suppliers to European businesses. It's an excellent opportunity for Indian manufacturers to integrate into global value chains, especially in sectors requiring high-quality engineering and technological capabilities," said **Rajesh Nath, Managing Director, VDMA India**, in an exclusive interview with SME during Hannover Messe 2025.

The Frankfurt-headquartered VDMA, which stands for the German Engineering Federation, is the largest industrial association not just in Germany, but across Europe. It represents over 3,600 member companies involved in mechanical engineering and plant manufacturing. "Collectively, they have an annual turnover of around € 262 billion. In total, VDMA operates 20 offices globally with around 500 employees supporting various industry segments," stated Nath.

VDMA India acts as a key facilitator for fostering Indo-German business relations in the engineering sector. For many German companies exploring the Indian market, VDMA serves as the first point of contact by offering valuable insights and guidance. He added, "We keep our members regularly informed about India's industrial landscape and its evolving opportunities. For those already established in India, we offer a platform for networking and collaboration. Our ultimate goal is to

promote bilateral trade and cooperation between the two regions in the mechanical and plant engineering sectors.”

India Day

One of the major initiatives of VDMA at Hannover Messe 2025 was the India Day event, hosted on April 3, 2025. This event presented India’s industrial potential to the international audience, especially German and European companies. The intention of the event was to bring both sides together—to help German companies understand the Indian market and to support Indian firms aiming to expand into Europe.

A key highlight of India Day was the panel discussion, moderated by Rajesh Nath. The event witnessed participation of a diverse group of speakers including representatives from German companies already operating in India and Indian companies looking to establish or expand their presence in Europe. “This exchange is important because it provides a two-way view—German firms will share their experiences of setting up in India, while Indian firms can discuss how their ‘Make in India’ products are being received in global markets. This kind of dialogue can go a long way in deepening mutual understanding and accelerating Indo-German cooperation,” explained Nath.



“There is a growing interest among German and other European companies in India. With the current geopolitical tensions, particularly with China, India is increasingly being seen as a viable sourcing hub.”

Rajesh Nath,
Rajesh Nath, MD, VDMA India

From the German companies, insights emerged around why they had chosen India as a business destination, the challenges they had encountered, their views on India’s industrial growth, and the sectors they found most promising. From the Indian companies, the discussion revealed how their products—particularly those developed under the ‘Make in India’ initiative—were being positioned in global markets. Participants shared their experiences with quality benchmarking, obtaining certifications, and gaining market acceptance in Europe.

He said, “By bringing these perspectives together, the panel discussion helped lay a stronger foundation for future partnerships. India was highlighted not only as a growing market but also as an emerging hub for



Abhishek Dubey (3rd from left), Dy Chief of Mission, Embassy of India in Germany, Soumya Gupta (4th from left), Consul General of India in Hamburg, and Avishek Ghosh (1st from left), Dy Director, EEPC India, at Hannover Messe 2025

manufacturing and innovation. Events like India Day played a key role in making these strengths visible and tangible to the international business community.”

Looking beyond Hannover Messe

Indo-German trade has shown steady growth over the past few years. German machinery exports to India are now over € 4 billion annually. On the other side, Indian engineering exports to Germany have also seen an increase. “In fact, for the first time last year, Indian engineering exports to Germany crossed the €1 billion mark. This growth is continuing at a rate of around 10 to 12 per cent,” Nath disclosed.

German companies see a strong market in India for advanced machinery and solutions, while Indian manufacturers are gradually becoming more competitive in terms of quality and pricing. The scope of trade is broadening with collaboration increasing in areas like R&D, design engineering, and automation.

Digitalisation is a major opportunity. Germany has innovative technologies in areas like automation, Industry 4.0, and advanced manufacturing. At Hannover Messe, many German firms showcased their digital innovations. As Indian manufacturing becomes more complex and globally integrated, there is an increasing need to adopt digital tools to improve efficiency and product quality.

“For Indian companies, embracing these technologies can boost productivity, streamline operations, and meet global standards. There’s also a growing interest in sustainability and green technologies, where German expertise and Indian market potential can create powerful synergies. So, I believe the future holds a lot of promise for deeper Indo-German partnerships in high-tech manufacturing, digital transformation, and sustainable engineering solutions,” concluded Nath.

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AWSi Showcases Office-on-Wheel at HM2025

Recently, August-Wilhelm Scheer Institute (AWSi) collaborated with an Indian company to develop AI-driven tools to optimise insect farming operations.



L-R: Christian Bennoit and Urs Liebau, Digitalisation Professionals of AWSi

At Hannover Messe 2025 (HM2025) in Germany, the August-Wilhelm Scheer Institute (AWSi) - a non-profit research institute dedicated to digital transformation and innovation - presented groundbreaking innovations at the intersection of artificial intelligence (AI), green technologies, and digital transformation. Among the highlights was a unique Indo-German collaboration involving AI-powered insect farming in Hyderabad, which promises to enhance India's role in the global insect export market.

Urs Liebau and Christian Bennoit, Digitalisation Professionals of AWSi, showcased their institute's latest developments, including a futuristic Office-on-Wheel concept and their involvement in India-centric sustainability projects. AWSi is known for converting research into practical applications for businesses, especially small and medium-sized enterprises.

Liebau, who specialises in green technologies, detailed his work with a Hyderabad-based insect farming company, Arthro Biotech. In collaboration with the

company, AWSi developed AI-driven tools to optimise insect farming operations. "One of the most important things for insect farmers is to accurately count the insects. We used AI technologies to automate and improve this process," Liebau explained.

The objective was not only to streamline operations but also to enable better scalability and quality control, making the produce viable for export to European markets. "It's a great example of how India and Germany can collaborate, combining technical innovation with practical applications in agriculture," he noted. Liebau acknowledged that while the insect products from India are still in development stages, optimised production will lead to cost reductions and enhance India's competitiveness, especially when compared to China.

He emphasised that such partnerships could unlock numerous possibilities across sectors. "Digitalisation doesn't always need expensive or radical solutions. Sometimes, even simple tools can solve very specific problems," he added. For instance, Christian Bennoit introduced visitors to the institute's Office-on-Wheel, a solar-powered, autonomous concept car designed to serve as a fully equipped mobile workspace. Developed in partnership with a solar panel company and automotive tuner Wolf Hartke, the project aims to address how time spent in autonomous vehicles can be made productive.

"This car is designed to give you all the comforts of a stationary office, stable internet via Starlink or 5G, ergonomic seating to reduce motion sickness, video conferencing capabilities, and more," said Bennoit. The prototype, which took around two years from ideation to development, is continuously evolving with new features being added based on user feedback and industry needs. He added that the car is part of AWSi's broader approach to innovation, identifying real-world problems faced by companies and then co-developing digital solutions. "The idea is to look at practical use cases, whether it's AI for biodiversity monitoring or mobile office solutions, and bring research into everyday life," said Bennoit.

Both speakers stressed the importance of industry-academic partnerships, especially in developing economies like India. "India presents a vibrant environment for digital experimentation. Our Hyderabad collaboration is just the beginning," Liebau said.

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“Sustainability remains a key driver in Washmatic’s evolution.”

The future of the commercial warewashing industry is driven by automation, sustainability, and smart technology. There is a growing emphasis on water and energy conservation, pushing manufacturers to develop eco-friendly, high-efficiency machines, remarks **Jacob George, CEO, Washmatic India Limited**.

What inspired the founding of Washmatic India Limited, and how has the company evolved over the years?

Washmatic India was founded with a clear vision—to provide the Indian food service industry with world-class warewashing solutions. The inspiration came from the growing demand for efficient, hygienic, and sustainable dishwashing systems in commercial kitchens, hotels, restaurants, and institutional cafeterias. At the time, most businesses relied on either manual dishwashing or expensive imported machines that were not always suited to Indian conditions. In the year 2006, we saw an opportunity to bridge this gap by designing dishwashers specifically for the Indian market—machines that were durable, cost-effective, and optimised for local operating conditions.

Since our inception, Washmatic India continuously evolved by embracing innovation and adapting to industry needs. Initially, we focused on manufacturing compact under-counter and hood-type dishwashers. As demand grew, we expanded our product range to include rack conveyor and flight-type dishwashers, catering to high-volume establishments. Our commitment to quality and efficiency helped us establish a strong presence across India, earning the trust of leading hospitality brands, caterers, and institutional clients.



Sustainability also remained a key driver in our evolution. We integrated water-saving and energy-efficient technologies into our machines to help businesses reduce operational costs while maintaining high hygiene standards. Additionally, our focus on customer service, including after-sales support and maintenance, set us apart in the industry.

How do you approach R&D to stay ahead of competitors?

At Washmatic India, R&D is central to our innovation strategy and a never-ending process. We continuously analyse industry trends, customer feedback, and hygiene regulations to develop advanced dishwashing solutions. Our focus is on enhancing machine efficiency, reducing water and energy consumption, and incorporating smart technology for real-time monitoring.

A key aspect of our recent innovations is the launch of new dishwashing machines equipped with touchscreen controls and intelligent fault-finding systems. These user-friendly interfaces simplify operations, allowing kitchen staff to monitor machine performance and detect issues instantly, minimising downtime.

Collaborating with chefs, hospitality experts, and kitchen consultants helps us design high-performance machines tailored to real-world needs.

We stay ahead of competitors by offering technologically superior, cost-effective, and eco-friendly warewashing solutions for the Indian market.

What are some of the key solutions developed by you?

Washmatic develops a range of advanced warewashing solutions tailored to the Indian market. Our portfolio includes under-counter and hood-type dishwashers for small and medium establishments, as well as high-capacity rack conveyor and flight-type dishwashers for large-scale operations.



We recently introduce touchscreen-enabled machines with intelligent fault detection, making operations more efficient and user-friendly. Our dishwashers are designed with water and energy-saving features, ensuring sustainability and cost-effectiveness. Additionally, we provide customised pre-rinse and drying solutions, helping businesses maintain the highest hygiene standards while optimising workflow in commercial kitchens.

What are the key growth drivers for Washmatic in the industry?

Several factors drive Washmatic India's growth in the commercial warewashing industry. The increasing demand for hygiene and automation in hospitality, food service, and institutional kitchens is a major driver. Our focus on innovation, such as touchscreen-enabled dishwashers with fault diagnostics, enhances efficiency and reliability.

Sustainability is another key factor, as our water- and energy-efficient solutions help businesses reduce operational costs. Strong after-sales support, customisation options, and adherence to global hygiene standards further set us apart. As the industry evolves, our commitment to technology, quality, and customer-centric solutions continues to fuel our expansion.

What trends do you foresee shaping the future of the industry?

The future of the commercial warewashing industry is driven by automation, sustainability, and smart technology. Touchscreen controls, IoT-enabled monitoring, and AI-driven fault diagnostics enhance efficiency and reduce downtime. There is also a growing emphasis on water and energy conservation, pushing manufacturers to develop eco-friendly, high-efficiency machines.

With stricter hygiene regulations, demand for high-temperature and chemical-free sanitation solutions continues to rise. Additionally, modular and customisable warewashing systems gain popularity, allowing businesses to optimise their kitchen workflow. As the industry evolves, innovation and smart technology remain key to staying competitive.

What are some of the biggest challenges faced by you and how do you tackle them?

One of our biggest challenges is creating cost-



effective yet high-performance dishwashing solutions suited to Indian operating conditions, such as hard water and inconsistent power supply. We tackle this by using durable, corrosion-resistant materials and incorporating energy-efficient technologies.

Another challenge is educating businesses about the long-term benefits of automated warewashing over manual cleaning. We address this through training, demonstrations, and strong after-sales support.

Supply chain disruptions and rising raw material costs also impact production. To counter this, we focus on self-manufacturing of parts, local sourcing, and process optimisation to ensure consistent quality and timely deliveries.

What are Washmatic's future plans?

We aim to expand our exports to key international markets, leveraging our expertise in commercial warewashing. We are already exporting to Nepal, Sri Lanka, Maldives, Bangladesh, and the Middle East.

Currently, we are investing in robust R&D to develop advanced, energy-efficient solutions tailored for global standards. Additionally, we plan to double our manufacturing facility to enhance production capacity and meet growing demand. Strengthening our distribution network and after-sales service remains a priority as we scale operations both in India and overseas.



(Communication provided by the management of the company)



Tacklers Renewables Brightens India's Future with Solar Solutions

By offering efficient and reliable rooftop, ground-mounted, carport, cleaning, and storage solutions, Tacklers Renewables is a key partner in India's bright solar journey.



India's vast solar potential is crucial for its sustainable energy future, with an estimated potential of 748 GW. The nation aims for 500 GW of non-fossil fuel capacity by 2030, heavily relying on solar, which currently stands at over 105 GW. Government initiatives like the National Solar Mission and the Solar Park Scheme are driving this growth.

Building on 45 years of engineering excellence from Tacklers Engineering Pvt Ltd, Tacklers Renewables is a leading provider of commercial and industrial solar solutions, empowering businesses to save costs and enhance sustainability.

Solar rooftop solutions

Tacklers Renewables offers state-of-the-art rooftop systems enabling industries to generate cheaper power than the grid. Significant savings and depreciation benefits lead to an ROI of under 3 years in most cases.

Ground solar solutions

For large power needs, Tacklers Renewables provides ground solar with tracking systems, generating more kWh than static systems. These also offer passive income opportunities through schemes like PM KUSUM and Gujarat's DREBP - underground installations.

Solar carport solutions

Our solar carports offer a dual benefit: shading vehicles and generating power for on-site use, net metering, or EV charging.

Robotic cleaning solutions

Tacklers Renewables provides robotic cleaning to ensure solar panels operate at peak efficiency with minimal manual effort.

Battery Energy Storage Systems (BESS) with smart BMS

Our BESS with smart BMS allows commercial and industrial clients to store generated solar power for use during non-solar hours or as a backup during outages.

India's commitment to solar energy, supported by innovative solutions from Tacklers Renewables, is paving the way for a sustainable and economically sound future for its commercial and industrial sectors. By offering efficient and reliable rooftop, ground-mounted, carport, cleaning, and storage solutions, Tacklers Renewables is a key partner in India's bright solar journey.

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Tel: +91-7859817562
Email: renewables@tacklers.in, or visit www.tacklersrenewables.com

(Communication provided by the management of the company)



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Gandhi Automation's Sectional Overhead Doors Offer Unrivalled Soundproofing

The doors are known for their reliability and durability. Engineered to withstand rigorous use; they provide excellent thermal insulation and soundproofing. The doors are also customisable to fit a range of opening sizes and designed to meet high aesthetic standards.



Sectional overhead doors offer numerous benefits for commercial buildings, making them an excellent choice for both retail and industrial settings. These doors consist of multiple panels connected by hinges, allowing the door to bend/slide and open vertically. When fully opened, the door rests parallel to the ceiling, maximising space both inside and outside the building. This design is ideal for a variety of environments, including industries, warehouses, retail stores, and service centres, where efficient space utilisation and accessibility are crucial.

Sectional overhead doors by Gandhi Automations are renowned for their reliability and durability. The doors are engineered to withstand rigorous use while providing excellent thermal insulation and soundproofing. Customisable to fit a range of opening sizes and designed to meet high aesthetic standards, the doors enhance the appearance of the facility while contributing to long-term cost savings. Their robustness and energy-efficient features make them a smart investment, ensuring both operational effectiveness and financial benefits over time.

The range of sectional overhead doors, including the Porto and Max Vista models, are designed for industrial and commercial buildings. They are available in multiple operational versions: manual push-pull, electrically operated, and chain-hoist operated by pulling an endless chain. This flexibility ensures the doors meet the diverse needs of various applications.

Additionally, both models are offered with different lifting systems tailored to the available overhead

space. The sliding system options include normal lift, high lift, vertical lift, low headroom lift, and inclined lift, providing optimal solutions for every setting.

- Porto Sectional Overhead Doors seamlessly blend with any architectural style. They are easy to use, quiet, and reliable. Built with pre-painted, galvanised steel and 40 mm thick sandwich panels, they ensure robust protection and energy efficiency.
- Max Vista Sectional Overhead Doors combine aluminium panels with special glazed panels enhancing natural light, gridded, or meshed windows for a distinctive look. These doors provide ample natural light, creating a bright and pleasant work environment. They are durable and visually appealing, suitable for various commercial and industrial applications.



Key features:

- Reliable and low-noise operation
- Extreme robustness for long-lasting use
- Includes safety features in accordance with EN 13241-1 CE, including finger trap protection between the door panels to avoid the risk of fingers being pinched, and side trap guards where the side frames are completely closed to prevent injuries.
- Design-oriented surfaces and optimal light solutions
- Minimal bulk, providing more usable space indoors and outdoors
- Easy and practical to open and operate
- Energy savings and enhanced comfort
- Bright indoor environments and attractive design aesthetics
- Constructed from pre-painted, galvanised steel with a 40 mm thick sandwich panel
- Equipped with special non-aging rubber gaskets

that seal the perimeter, preventing water, air, and dust infiltration

- Customisable as Gas Tight Ripening Room Doors
- For easy access for people and small transport vehicles, a side door or pedestrian door can be provided to reduce the number of times the door is operated, making it energy efficient.
- Opening-closing speed: 0.2–0.4 m/s
- Available sizes: Width up to 15,000 mm, Height up to 10,000 mm

Sectional Overhead Doors by Gandhi Automations are the ideal solution for all industrial and logistic needs.

SME

For details, contact Gandhi Automations, Mumbai, on
Tel: +91 22 6672 0200, 6672 0300, or
Email: sales@geapl.com, or visit www.geapl.com

(Communication provided by the management of the company)

Communication Feature

Partite 7535: Structural Adhesive for Solar Panel Roof Mounting

Parson Adhesive is offering a structural adhesive for solar panel roof mounting, Partite 7535.

Key features & benefits of Partite 7535 are:

- **High-performance bonding:** Tailored for secure attachment of solar panel roof mounting systems.
- **Superior bond strength:** Compatible with stainless steel, aluminium, galvanised metals, and composite substrates.
- **Weather & UV resistant:** Performs reliably in extreme weather and prolonged sun exposure without degradation.
- **Fast curing:** Accelerates assembly, reducing installation time.
- **Durable under stress:** Maintains structural integrity under dynamic loads and wide temperature variations.



- **Minimal surface preparation:** Saves labour by requiring little to no substrate treatment before application.
- **Vibration & impact resistance:** Absorbs mechanical shocks, enhancing the overall durability of the mounting system.

SME

For details, contact Parson Adhesives India, Gujarat, on
Tel: +91-9428511765, +91-9428504143 or
Email: sales@parsonadhesives.in, or visit www.parsonadhesives.in

(Communication provided by the management of the company)

Property	Partite 7535	Conventional Epoxy
Bond Strength	High	Medium
Weather Resistance	Excellent	Moderate
Application Time	Fast	Slow
Surface Preparation	Minimal	Extensive

THREE POLE, NON-DIRECTIONAL 3 O/C OR 2 O/C + 1 E/F RELAY JRC 053P/JRC 053

JVS Electronics Pvt Ltd offers a wide range of three pole, non-directional 3 O/C OR 2 O/C + 1 E/F relay JRC 053P/JRC 053.

Features:

- The relay measures the line current from each of the phases and if exceeds the set operating current, then relay extends a trip signal after the operating time. The relays operating time is determined by selecting one of the four inverse time current characteristics. The relay has facility to active / inhibit the high set protection feature. The relay output contacts are self reset type. Relay operation without any fault current is determined by trip test facility.
- Its features include: Software based design; Programmable time current characteristics; Choice of four IDMT curves; Draw out case; Wide range auxiliary supply; Low burden.

About the Company: JVS Electronics Pvt Ltd is an exporter, manufacturer and supplier of audio indicating instruments, visual indicating instruments, etc.

Contact:

JVS Electronics Pvt Ltd, Bangalore
Mobile: 09448288863
Email: bangalore@jvselectronics.in



CENTRIFUGAL BLOWERS

Delco Fans Pvt Ltd offers Single Phase Capacitor Run and Three Phase FHP Centrifugal Blowers, as per customer specific requirements.

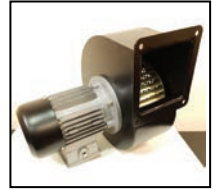
Features:

- Wide variety and range to meet trouble free application for original equipment manufacturers; Both side shaft rotation available; Sealed Ball Bearing on both sides 'F' class insulation; Airflow 50 to 1600 CFM; Blowers available from 1/20 Hp to 1 Hp; Impellers in Aluminium and M.S.; M.S. Powder Coated housing.
- Its application areas: Panel Coolers; Refrigeration equipment's; Plastic moulding machines; Industrial microwave heating systems; Food processing equipment's Popcorn warmers.

About the Company: Delco Fans Pvt Ltd established in 1975. Their manufacturing range consists of FHP Electric Motors, Geared Electric Motors, Centrifugal Blowers and Industrial Fans. Presently they deal with more than 900 clients in India and Abroad.

Contact:

Delco Fans Pvt Ltd, Thane
Mobile: 09769201564
Email: delcofans@gmail.com



Scan the QR Code for instant product enquiry



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WORKSTATION METALLIC & HARDWIRED CONSOLES

Werner Electric introduces the Workstation Metallic & Hardwired Consoles, offering durability and integration for seamless operation in control rooms.

Features:

- Robotic Arm Monitor Support System: Provides flexible, stable monitor positioning, ensuring optimal viewing angles and easy adjustments for user comfort.
- Complete Equipment Integration: Werner Electric supplies the entire console with prewiring and integration, making setup quick and efficient while maintaining a clean and organized workspace.

About the Company: Werner Electric combines expert design and user feedback to create reliable, high-performance products that ensure customer success.

Contact:

Werner Electric Private Limited, Mysore
Mobile: 07353947299
Email: info@wernerelektrik.com



SILENT WIDE RANGE LINEAR SLIDES - QW SERIES

IBK Engineers Pvt Ltd offers a wide range of silent wide range linear slides - QW Series.

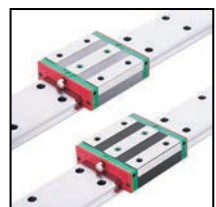
Features:

- Equipped with synchronous coupling, it reduces running noise, improves smoothness, life and lubrication efficiency; increases the width of the slide rail and reduces the combined height to achieve high torsional impedance
- Low noise design; Under space constraints; High torque resistance up to 3.5 times.

About the Company: Established in 2014, IBK Engineers Pvt Ltd, is engaged in the wholesaling, supplying, distributing and trading of deep groove ball bearing, mechanical bearing, roller chain, steel rear sprocket, safety equipment, automotive components, electric equipment, etc.

Contact:

IBK Engineers Pvt Ltd, Bengaluru
Tel: 080-26321112 Mobile: 09880566644
Email: rajukn@ibizkart.com



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Scan the QR Code for instant product enquiry



POLIFLEX GRINDING POINTS

PFERD offers a wide range of poliflex grinding points.

Features:

- Poliflex® fine grinding tools are manufactured with high shape accuracy, outstandingly consistent quality and tight dimensional tolerances. They are ideally suited to fine grinding, structuring and preparations for polishing work, and are very frequently used for tool and mould-making applications.
- Poliflex® finishing points with the rubber bond are manufactured with pink aluminium oxide. The rubber (GR) bond is an elastomer-based soft bond.
- Its advantages are: produces very good surface quality; cost-effective due to durability and high stock removal rate; highly convenient to use due to precise concentricity; produces a fine, shiny surface finish; soft grinding due to soft, elastic bond.

About the Company: PFERD engages in development, production and support and distribution of tool solutions on jobs for surfaces and material cutting.

Contact:

PFERD, Bengaluru

Tel: 080-42187117

Mobile: 09880665415, 09741481117

Email: sales@swit.in



Scan the QR Code for instant product enquiry



PARALLEL GRIPPER - PGL-PLUS-P

Schunk Intec India Pvt Ltd offers a wide range of parallel gripper - PGL-PLUS-P.

Features:

- These standard parallel grippers include small parts, universal, long-stroke, and sealed grippers for safe and precise handling of work pieces.
- The ability to equip the grippers with inductive sensor systems, magnetic switches or work piece-specific gripper fingers improves their functionality, process reliability, and productivity.
- Universal 2-finger parallel gripper with a large jaw stroke, integrated sensor system and high payload due to use of a multi-tooth guidance.

About the Company: Schunk Intec India is engaged in products distribution and supply of industrial automation systems, automation work holding, etc.

Contact:

Schunk Intec India Pvt Ltd, Bangalore

Tel: 080-40538999

Email: rakhi.singh@in.schunk.com,

info@in.schunk.com



Scan the QR Code for instant product enquiry



TOGAWA PAINT HOSES

Pneumec Kontrolls offers a wide range of Togawa paint hoses.

Features:

- Togawa paint hoses are known for their high quality and performance, especially in professional painting and coating applications. Here are some advantages of using Togawa paint hoses:
- Chemical Resistance: They are typically made with materials that resist solvents and paints, ensuring long-lasting durability even with aggressive chemicals.
- Flexibility: Togawa hoses are lightweight and flexible, making them easy to maneuver during painting tasks, which reduces user fatigue and improves accuracy.
- High Pressure Tolerance: They can handle high pressures, which is crucial for spray painting applications that require consistent flow and fine atomization.
- Smooth Inner Surface: This helps maintain a consistent paint flow and prevents clogging, which improves spray quality and reduces maintenance.

About the Company: Pneumec Kontrolls Private Limited is primarily a client centered industrial solutions provider

which is backed by a team of highly qualified and experienced technical personnel.

Contact:

Pneumec Kontrolls, Bangalore

Mobile: 09845122462

Email: nagendra@pneumec.in,

customer.support@pneumec.in



Scan the QR Code for instant product enquiry



HOSE REELS - AIR/WATER/OIL

Vijay Air Control offers a wide range of hose reels - air/water/oil.

Features:

- An included spring works to retract a hose into the device automatically.
- A contained hose solves the short of air consumption for air tool owing to a large inner diameter.
- A ratchet system applied for the device can keep a tool suspended at any position on the hose travel where your want. Available in both closed body construction as well as open today.

About the Company: Vijay Air Control is a one large workplace where work is done and then put on the market in the form of products and services.

Contact:

Vijay Air Control, Bengaluru

Tel: 080-23148871 Mobile: 08951101436

Email: saivacblr@vacpneumatic.co.in



Scan the QR Code for instant product enquiry



DELVO SCREWDRIVERS

Pneumec Kontrolls offers a wide range of Delvo screwdrivers.

Features:

- Delvo screwdrivers, made by Nitto Kohki, are well-regarded electric screwdrivers used in industrial and assembly line settings.
- High Precision and Consistency: Delvo screwdrivers are designed for precision torque control, which ensures consistent fastening and reduces the risk of over-tightening or under-tightening screws.
- Durability and Reliability: Built for long-term industrial use, Delvo tools are durable and reliable even under continuous operation.
- Low Noise and Vibration: Compared to pneumatic screwdrivers, Delvo electric models operate more quietly and with less vibration.
- Easy Maintenance: Designed for easy maintenance and minimal downtime, helping keep production lines running smoothly.



About the Company: Pneumec Kontrolls Private Limited is primarily a client centered industrial solutions provider which is backed by a team of highly qualified and experienced technical personnel.

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Contact:

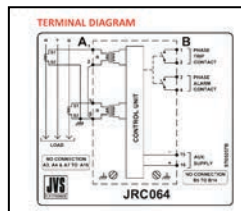
Pneumec Kontrolls, Bangalore
Mobile: 09845122462
Email: nagendra@pneumec.in, customer.support@pneumec.in

NON-DIRECTIONAL, INVERSE TIME, 2 POLE O/C RELAY WITH INSTANTANEOUS HIGHEST ELEMENTS

JVS Electronics Pvt Ltd offers non-directional, inverse time, 2 pole O/C relay with instantaneous highest elements-JRC 064.

Features:

- The relay measures the line current from each of the phases and if it exceeds the set threshold, then relay extends a trip signal after an operating time.
- The relay provides time graded phase protection of Generators, Transformers, Feeder, capacitors etc..



About the Company: JVS Electronics Pvt Ltd is an exporter, manufacturer and supplier of audio indicating instruments, visual indicating instruments, etc.

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Contact:

JVS Electronics Pvt Ltd, Bangalore
Mobile: 09448288863
Email: bangalore@jvselectronics.in

FEATURED PRODUCT

REPAIRING OF TIME MAKES DIGITAL PORTABLE METAL HARDNESS TESTER

Heat Treatment Sales & Services, Ahmedabad offers complete repairing, servicing and calibration of all kinds of digital portable metal hardness testers. The company has factory trained engineers who can handle repairing, servicing and calibration of all portable metal hardness testers. The company offers the services of refurbished and reconditioned metal hardness tester with 6 months warranty, which includes parts and labour charges also. However, the dispatching/transportation cost and related expenses such as packing charges



are not included in the warranty. One can dispatch their fault hardness tester properly packed/crated and they will provide a free written estimate upon thorough examination of their portable hardness tester. The company also maintains a complete stock of spares and accessories like impact devices, impact bodies, standard test blocks, support rings, batteries, etc. According to them, when a complete service with spares is conveniently available why do users think of buying a new LEEB hardness tester? It is much more economical to get the existing hardness tester repaired, reconditioned, and refurbished or rebuilt at a fraction of the cost.

Contact:

Heat Treatment Sales & Services
Contact Person: Mr. Bharat Shah
L/119 GIDC Industrial Estate, Odhav
Ahmedabad 382 415
Tel: 079-22870144/Mobile: 08980718181
Email: info@enmatest.com
URL: www.enmatest.com, www.enmatest.co.in

DC CHOKE

Miracle Electronic Devices Pvt Ltd offers a wide range of D C choke.

Features:

- A DC choke, also known as a DC reactor or DC inductor, is an electrical component used to limit or control the flow of direct current (DC) in an electrical circuit. They are primarily used in various applications to achieve specific purposes, including: Filtering and Smoothing: DC chokes are commonly used in power supply circuits to filter out high-frequency noise and ripple voltage.
- Current Limitation: DC chokes can be used to limit the amount of current flowing through a circuit.
- Harmonic Mitigation: In AC/DC conversion systems, such as variable frequency drives (VFDs), DC chokes are used to reduce harmonics in the current waveform.
- Inrush Current Limiting: When electrical equipment is turned on, there can be a surge of current called inrush current.
- DC Motor Control: DC chokes are used in DC motor control systems to smooth out the current supplied to the motor, reduce electromagnetic interference (EMI), and improve overall performance.
- Power Factor Correction: DC chokes can be used in power factor correction circuits to improve the power factor of electrical systems.
- Energy Storage Systems: In some energy storage systems like super capacitors, DC chokes are used to control the charging and discharging processes, preventing rapid current surges and ensuring safe and controlled energy storage.
- Power Electronics: In power electronic applications, DC chokes can be used in inverters, converters, and other devices to control and stabilize the flow of DC power, reducing electrical noise and improving the efficiency of these systems.
- Solar and Wind Power Systems: DC chokes are used in renewable energy systems to filter and stabilize the DC power generated by solar panels or wind turbines before it is fed into the grid or used in battery storage systems.

About the Company: Miracle Electronics is a renowned Transformer manufacturer in India, engaged in manufacturing Power transformers, Toroidal transformers, EI transformers, SMPS transformers, Medical Isolation Transformers.

Contact:

Miracle Electronic Devices Pvt Ltd,
Bangalore
Tel: 080-28362750
Email: sales@miracle.net.in



CABLE DRAG CHAINS

Elektromag offers a wide range of metallic/plastic cable drag chains.

Features:

- This Elektromag drag chains enable the conveyance of flexible cables/hoses, etc to movable units with maximum reliability.
- Its advantages of Elektromag cable drag chains is avoidance of mechanical strain on the cables/hoses.
- No tensile stress or compression, no frictional wear as there is no relative movement between the cables/hoses and the cable drag chain, no bending below an established radius, no crushing, buckling or forming of loops or torsion strain.

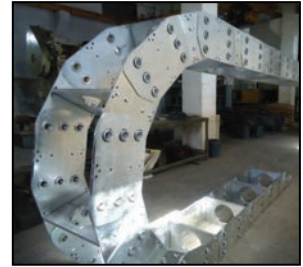
About the Company: Established in the year 1958, Elektromag is engaged in manufacturing of metallic/plastic cable drag chains and supplying to various steel plant, machine tools, cement, foundries, etc.

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Contact:

Elektromag Methods, Mumbai
Mobile: 09820192772
Email: cablereels@elektromag.com



VIBRATORY FURNACE CHARGER

Elektromag-Joest Vibration Pvt Ltd offers a wide range of vibratory furnace charger.

Features:

- This vibratory furnace chargers are a cost effective method of increasing productivity and quality of melt.
- With constant improvement in technology, furnaces require rapid and uniform charging to keep pace with the melting power of the system for which the Furnace chargers are the optimum solution. .
- Due to controlled feed, the hot metal splashing is avoided and the charger can be operated from a framed plate by the operator without actually being near to the furnace.

About the Company: Elektromag-Joest Vibration Pvt. Ltd., is a leading manufacture of Vibrating equipments for foundry, steel, mining, quarrying, chemical, food, recycling, etc.

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Contact:

Elektromag-Joest Vibration Pvt Ltd,
Mumbai
Tel: 022-66624444
Email: vibration@elektromag.com



Scan the QR Code for instant product enquiry



SURFACE GRINDING MACHINE (MANUAL)

Universal Machine Tools Corporation offers surface grinding machine.

Features:

- The machine is built of heavy cast iron hand scrapped to fine tolerance, easy movement of table slide by providing V – ways & flat ways.
- The grinding wheel spindle is hardened and round and runs in precision contact angular bearing and driven by flange, vertical grinding wheel slide movement down at right side in the body.
- The vertical wheel dial least count in 0.01mm and micro feed least count in 0.001 mm. These machines are available in various sizes: 450 X 225 mm , 600 X 300 mm. And also available in hydraulic version.

About the Company: Universal Machine Tools Corporation, established in 1981, is one of the leading companies in the machine tool industry.

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Contact:

Universal Machine Tools Corporation,
Bangalore
Tel: 080-23356231 Mobile: 09845006959
Email: universalblr@gmail.com,
info@universalblr.com



POWER HYDRAULIC MACHINE VICE

B R Precisions offers a wide range of power hydraulic machine vice.

Features:

- This type of Power Hydraulic vice Is suitable for Horizontal and vertical combined heavy cutting for CNC machining center VMC and HMC angle fixed type spherical segment ball can produce the force for angle locking which can make the vice plate floating upward and avoid slanting of the workpiece.
- Powerful material cast iron with high absorption and has strong anti-tension which can keep long durability for absorption and has strong rigidity with high precision tenon slot grounded, Made out of high tensile casting machined and surface ground to ensure maximum accuracy jaw plates are made out of tool steel hardened.

About the Company: B R Precisions is dedicated to the manufacturing of clamping solutions; their main products are high pressure and precision vices.

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Contact:

B R Precisions, Bangalore
Mobile: 09845208854, 09449648171
Email: brvices@rediffmail.com,
brprecisions@gmail.com



SHAFT & AXLE MEASURING MACHINES

Blum-Novotest Measuring & Testing Technology Pvt Ltd offers a wide range of shaft & axle measuring machines.

Features:

- The multipoint measuring machines for rotationally symmetric work pieces offer quick acquisition of component geometry during dynamic measurement.
- Loading is possible manually as well as automatically. Its loading position is easy accessible from above right on top of the final measuring position.
- Its features include: Post-process multipoint measuring system with independent PLC. Easy integration into existing automation system. Short, optimised feed motions.

About the Company: Blum Novotest Measuring & Testing Technology Pvt Ltd has made a name for itself in the list of top suppliers of bore gauge, radio receiver in India.

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Contact:

Blum-Novotest Measuring & Testing Technology Pvt Ltd, Bangalore
Tel: 080-23185468 Mobile: 09075004435
Email: info@blumnovotestindia.in



FREQUENCY INVERTOR - SJ200 SERIES

Pro-Med Instruments (P) Ltd offers frequency inverter - SJ200 series.

Features:

- The SJ200 is a true muscle-man, featuring enhanced ISPM-technology with vector control. Outstanding performance and design characteristics, such as superior torque for demanding applications and exceptionally compact size, for SJ200 inverter in a class of their own.
- They are suited for various applications in textile, paper and printing industries as well as for all areas of the metalworking industry, cranes and elevators.

About the Company: Pro-Med Instruments (P) Ltd, was incorporated in 1994 by a team of highly skilled professionals having experience for the past 15 years in process control instrumentation field with an objective to cater to the growing need for superior products having latest technology.

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Contact:

Pro-Med Instruments (P) Ltd, Chennai
Tel: 044-42132295, 42142295
Mobile: 09840832296
Email: sales@promedindia.com



33kV VACUUM CIRCUIT BREAKER

Excel Power Switchgear Pvt Ltd offers a wide range of 33kV vacuum circuit breaker.



Features:

- The Medium Voltage Switchgear are manufactured in accordance with the relevant standard and widely used in various utilities and industries.
- The cubicle is made of high grade sheet steel and with the aid of numerically controlled machines precision punching, cutting, bending and welding techniques ensures all cubicles to be identical in every dimension; rigid and distortion resistant under short circuit conditions and during transport.

About the Company: Excel Power Switchgear, a high tech manufacturing unit established in 1998, is engaged in R&D, production, and manufacturing of low & medium voltage switchgear. Since then, Our company has displayed a rapid growth in the switchgear industry by attaching primary importance to customer oriented approach and by producing quality products. Our present turnover being 20 million INR, is expected to raise to the amount of 50 million INR just within the next two years.

Scan the QR Code for instant product enquiry



Contact:

Excel Power Switchgear Pvt Ltd, Chennai
Tel: 044-22254870
Email: sales@excelpower.co.in

EDGE PROTECTION TAPE

Mexim Adhesive Tapes Pvt Ltd offers a wide range of edge protection tape.



Features:

- Used in protective packaging and sealing voids in packaging, generally used on fragile / expensive products during packaging.
- EPT also finds applications in Home and Play-School environments; this tape is wound on and around sharp glass and furniture edges, to protect children from injury.

About the Company: Mexim was incorporated in 1987, as a trading firm authorized to distribute Tapes for Sanghi Polyester in the West-Zone markets of India. Over the years, as Mexim grew in market share and with the availability of new technology, we set up our manufacturing in 1995 in Daman, India.

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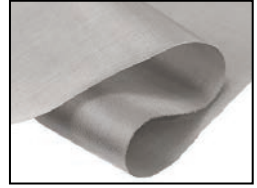


Contact:

Mexim Adhesive Tapes Pvt Ltd, Mumbai
Tel: 022-6691 0120 Mobile: 09377705962
Email: sales@mexim.in

NICKEL WIRE MESH

Raj Filters & Wiremesh Pvt Ltd offers a wide range of nickel wire mesh.



Features:

- Nickel wire mesh is woven using high-purity nickel wire. This wire mesh is mostly preferred in corrosive environments such as filtration of liquids, gas, etc.
- The usage of nickel wire mesh is endless and has high stability and consistent filtration properties.
- Its can supply all types and specifications of wire mesh as per customer requirements.

About the Company: Raj Filters is spread into multiple units, well equipped with the latest innovative machinery, ready to accept any specific filtration challenges. Our strength is our outstanding range of manufacturing knowledge and a team of well-groomed professionals where there is a zero compromise on the quality. We offer a wide array of product ranges supplied across the globe.

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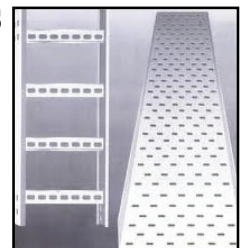


Contact:

Raj Filters & Wiremesh Pvt Ltd,
Vadodara
Mobile: 09724190931
Email: support2@rajfilters.com

MS PAINTED CABLE TRAYS

Rama Enterprises offers a wide range of MS painted cable trays.



Features:

- Catering to the requirement of their clients, they are offering a wide range of M S Painted Cable Trays like cable trays & other storage systems.
- These are dimensionally accurate and known for corrosion resistance as well as well. Keeping in mind the industry requirements, we have m s painted products in different sizes and shapes.

About the Company: Rama Enterprises an ISO 9001-2000 certified company. Take this opportunity to introduce as a manufacturing organization, that the production based in Ghaziabad, Uttar Pradesh in Year 2000 having manufacturing facilities for cable tray, slotted angle, raceways & earthing material.

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Contact:

Rama Enterprises, Ghaziabad
Tel: 0120-6531212 Mobile: 08800566900
Email: info@ramaenterprises.co.in

FLANGED END BUTTERFLY VALVE

Flowjet Valves Pvt Ltd offers a wide range of flanged end butterfly valve.

Features:

- The flanged end butterfly valve is one of the few valves with a small and lightweight construction.
- Thanks to upgrades over the years, the valve can now accommodate a wide range of seats, linings, and discs, making it applicable in a number of contexts.



About the Company: Flowjet Valves vision is to achieve a leadership position in our industry vertical, to supply high quality products and solutions in an environmentally sustainable manner so as to fulfill our customer needs.

Contact:

Flowjet Valves Pvt Ltd, Ahmedabad
Mobile: 09978608334
Email: info@flowjetvalve.com

Scan the QR Code for instant product enquiry



HOT WATER BOILER - HWB SERIES

Maxima Boilers Private Limited offers a wide range of hot water boiler - HWB Series.

Features:

- The HWB series is a range of coil type, hot water boilers suitable for temperatures upto 140 degrees. This series has been designed for applications which require instant water supply at moderate temperatures.
- Its features include: Applicable for indirect heating applications; no fire hazard, due to water being the medium of heat exchange; lower cost of operations as compared to thermal heaters; easy maintenance; no condensate losses; no blowdown requirements; factory assembled for simple installation on site; compact and simple design for easy operations.



About the Company: Since 1986, Maxima Boilers has been a recognized boiler manufacturer in India, with an established reputation & presence in the industry. They have one of the most extensive range of heating products in the market which includes steam boilers, coil type boilers, thermal heaters, small industrial boilers, waste heat recovery boilers, hot water boilers, fluidised bed boilers, combination boilers steam generators and steam accessories.

Contact:

Maxima Boilers Private Limited, Mumbai
Tel: 022-25646815, 25612759
Email: sales@maximaboiler.com

Scan the QR Code for instant product enquiry



BELT DRIVE SPINDLES - MV0910

Secon Technological Solutions Inc offers a wide range of belt drive spindles - MV0910.

Features:

- Offered two types of high precision spindles for CNC machining centers; belt drive spindles and direct drive spindles for a versatile range of machining options.
- The five series of CNC machining center spindles are all very rigid and feature very low run out tolerances, with speeds up to 12,000rpm.
- These high precision, high speed spindles are available in a range of sizes and are guaranteed to offer smooth operations and a long service life.



About the Company: Secon Technological Solutions Inc. is engaged as a manufacturer, trader, service provider, distributor of CNC machines tools, preventive maintenance and consultancy services.

Contact:

Secon Technological Solutions Inc,
Bangalore
Telefax: 080-23575752
Email: secontech2000@gmail.com,
secontech@hotmail.com

Scan the QR Code for instant product enquiry



BREATHING VALVE

Caliber Valves Pvt Ltd offers a wide range of breather valve.

Features:

- Caliber - carbon steel/ stainless steel body and housing stand alone and all internals are AISI 304/316, Co-axial type Breather valve with bias spring settings for pressure relief device with integral Flame arrester construction and with manual testing provision and relieving provision and external sand and dust protection suitable for outdoor installations. End connection - Flanged and drilled to ANSI 16.5, Class 150.



About the Company: Caliber Valves Private Limited is a Company to reckon with and has a vision to its products with a cost effective one and at an affordable price with fullest satisfaction in terms of products and quality to its esteemed Customers. These can be presented with our new ultra modern reverie factory constructed with International Std. and inbuilt with all the facilities.

Contact:

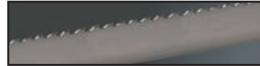
Caliber Valves Pvt Ltd, Chennai
Tel: 044-43500192, 43500193
Mobile: 08939734853
Email: info@calibervalves.com,
mktg@calibervalves.com

Scan the QR Code for instant product enquiry



TOOTH DESIGN

Unique Saws And Machinery offers XN tooth design. It has shock absorbing tooth design, rationalised tooth spacing for better life, extremely good on manual machines, good surface finish and quicker operations.



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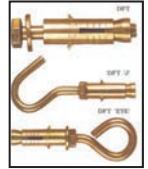


Contact:

*Unique Saws And Machinery Pvt Ltd,
Indore
Tel: 0731-4002281, 4073815
Mobile: 09755599683/686
Email: info@uniquesaws.com*

UNIF B/O/EYE UNIQUE FISHER

Unique Industries (India) offers unique fisher type Unif B/O/Eye. The product is used for false ceilings, partions, electrical fittings, ducting etc. The side lugs prevent it from rotating during expansion.



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Contact:

*Unique Industries (India), Jalandhar
Tel: 0181-2610726
Mobile: 09463711124
Email: support@uniquefastners.com*

NEW THREAD MILLING

Tungaloy India offers a wide range of thread milling. A vast range of diameters are available in the new thread milling line of economical head-changeable and indexable tools. SolidThread solid threading tool series is for machining small diameters, such as M1x0.25 and 0-80UNF.



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Contact:

*Tungaloy India Pvt Ltd, Mumbai
Tel: 022-61248804
Email: info@tungaloyindia.com*

PRECISION AUTOMATIC LATHE

Tsugami Precision Engineering India offers CNC precision automatic lathe. This is high precision automated machine for bar working components. Basic three axis machine provides maximum benefits with minimum investment.



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Contact:

*Tsugami Precision Engineering India Pvt Ltd, Kanchipuram
Tel: 044-6717 6717*

COOLING PROCESS CHILLER

Tropicool eNovations And Cooling Systems offers cooling process chiller. Air-cooled industrial process chillers treat each process cooling application as unique and Motivair has the ability to design its air-cooled chillers to meet each client's needs.



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Contact:

*Tropicool eNovations And Cooling Systems, Pune
Mobile: 08411004467, 09881230707
Email: sandip@rautgroupindia.com*

MIXING BLENDING UNITS

Toshiba Machine (Chennai) Pvt Ltd offers mixing blending units. These blending units help in mixing precise percentages of additives or masterbatch at the feed-throat of the machine in an injection molding.



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Contact:

*Toshiba Machine (Chennai) Pvt Ltd, Chennai
Tel: 044-26812000
Email: sales@toshiba-machine.co.in*

LATHES RIGID CLAMP

Unity Gauge And Tool Co offers a wide range of lathes rigid clamps. These products are suitable to use on milling, planning, shaping, lathes, etc. They are very useful in fixture building for fast clamping and unclamping, especially for job heights more than 60 mm.



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Contact:

*Unity Gauge And Tool Co Pvt Ltd, Pune
Tel: 020-27120345, 27120455
Mobile: 09881995099
Email: marketix@unitygroup.co.in*

CIRCULAR SAW MACHINE

V V Engineering Works supplies circular saw machines. The highly advanced ACS-80 CNC high-speed metal cutting circular saw machine can cut large diameters from 10 to 80 mm with the possibility to cut any alloy steel materials with fast cycle time and high accuracy.



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Contact:

*V V Engineering Works, Junagadh
Mobile: 07573880883
Email: inquiry@exacut.in*

ADDITIVE MANUFACTURING

Voestalpine High Performance Metals India Pvt Ltd offers additive manufacturing services. Additive manufacturing adds to the range of products and services Voestalpine offers its customers and underscores the research capabilities.



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Contact:

*Voestalpine High Performance Metals India Pvt Ltd, Navi Mumbai
Tel: 022-27577441
Email: office.india@voestalpine.com*

CROSS CUTTING PLATE SAWS

Viswa Engineering Traders offers cross cutting plate saws. Full stroke hydraulic front and rear vises enable clamping and unclamping from the control station with the touch of a button. Both front and rear vises are shuttle vises.



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Contact:

*Viswa Engineering Traders, Coimbatore
Tel: 0422-2303580, 6544597
Mobile: 09842270777
Email: viswatools@rediffmail.com*

DIAMOND ROTARY TOOLS

Vollmer Technologies India offers a wide range of diamond rotary tools. These manufacturing rotary tools are used where these are diamond-tipped or solid carbide. The grinding process plays the lead role



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Contact:

*Vollmer Technologies India Pvt Ltd, Bengaluru
Tel: 080-41711155
Mobile: 09008844977
Email: info-india@vollmer-group.com*

3D PRINT

Altem Technologies offers a wide range of uPrint SE Plus 3D print. This product relies on FDM Technology to build in real ABSplus thermoplastic, creating models and functional prototypes that are durable, stable and pinpoint accurate.



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Contact:

*Altem Technologies (P) Ltd, Bengaluru
Tel: 080-41539734, 41506070
Mobile: 09986048669
Email: enquiry@altem.com*

3-AXIS HOBBING MACHINES

ARK Mach Tek offers a wide range of shaping machine. Conventional and 3-axis hobbing machines are converted into 5-axis machines; all original strokes of various axes are maintained as it is; and all the linear axes movements are through ball screws of higher accuracy grade.



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Contact:

*ARK Mach Tek Pvt Ltd, Pune
Mobile: 09011016774, 09011016772
Email: office@arkmpl.com*

COIL NAILER

Apt Tools And Machinery India offers a wide range of pneumatic coil nailer. High performing and superior in quality, these tools are extensively used in the packaging sector for closing wooden crates. Moreover, these nailers are utilised for marking straight lines.



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Contact:

*Apt Tools And Machinery India Pvt Ltd, Coimbatore
Mobile: 09600912132, 09790016774
Email: apttoolsindia@gmail.com*

INDUSTRIAL DEVICES

Ascent Intellimation offers Plant Connect Insights – an Internet of Things (IoT) platform for industrial devices. PlantConnect Insights is a real time data management and reporting solution for process plants. It provides aggregation platform for reporting along with historian and thus can be deployed as MIS System for process plants.



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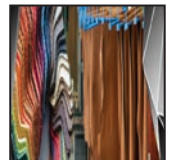


Contact:

*Ascent Intellimation Pvt Ltd, Pune
Tel: 020-25465217
Email: careers@aiplindia.com*

PROFIT ERP VERTICAL

ACE Software Solutions offers a wide range of Ace Profit ERP vertical. ACE Profit ERP for the tannery industry is targeted at vertically integrated units that manage (in tanneries) raw, wet blue, tanning, finished tannery, shoe uppers, full shoe, leather garments and tannery gloves etc.



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Contact:

*ACE Software Solutions Pvt Ltd, Chennai
Tel: 044-24795144
Email: sales@acesoft.in*

TORQUE WRENCHES

ASI DatamYTE India offers a wide range of torque wrenches. Whether the mission is assessing residual torque on previously tightened fasteners, measuring real time dynamic torque on production power tools or precision torque on hand tightened joints.



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Contact:

ASI DatamYTE India Pvt Ltd, Ghaziabad
Tel: 0120-4300147
Email: india@asidatamYTE.com

VIDEO MEASURING MACHINE

ATQ Metro offers a wide range of video measuring machine. This product offers powerful 3 axis measurement solution with high precision and high accuracy. It provides fast and accurate measurement of complex precision parts.



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Contact:

ATQ Metro, Pune
Tel: 020-27112477
Mobile: 07875444909
Email: info@atqmetro.com

PIN GRINDER FIXTURE

Bestek Engineering offers a wide range of Pin Grinder Fixture. Indigenously developed crankshaft pin grinder with auto indexing fixture in hydraulically clamped conditions; machine offers higher flexibility in pin grinding operation for multi-cylinder crankshafts.



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Contact:

Bestek Engineering Pvt Ltd, Ghaziabad
Mobile: 09711155184, 09711155190
Email: info@bestekmachines.com

DOT PEEN

Stamp IT Robotai And Solutions offers Dot Peen, pneumatic. The firm aims to provide solutions to the needs of wide marking application areas and desktop hybrid machine is one of the most popular solutions for such usage.



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Contact:

Stamp IT Robotai And Solutions Pvt Ltd, Thane
Tel: 022-65131554, 65300580-95
Email: enquiry@stampitcnc.com

CENTER-LOCK CLOSURE - PLASTIC TUBE

Rose Plastic India offers a wide range of plastic tube. It is simple handling due to 'center-lock closure' technology. It ensures efficient packaging with fast and easy loading and unpacking.



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Contact:

Rose Plastic India Pvt Ltd, Pune
Tel: 020-26741000
Email: info@rose-plastic.in

RESHARPENING BROACH RESHARPENING

Suntech Landriani Machine Tools offers broach sharpening. This machine is used for sharpening services and the sharpening process is a precision grinding operation. Removing too much material reduces the tool life.



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Contact:

Suntech Landriani Machine Tools Pvt Ltd, Pune
Tel: 020-67920500
Email: broaches@suntechlandriani.com

SKODA MACHINE TOOL

Swastik Overseas offers wide range of Skoda Machine Tool. Skoda Machine Tool has upgraded its key products. In horizontal boring machines, Skoda represents a new line of heavy pinolových horizontal milling type of HCW, which represent the company's core business.



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Contact:

Swastik Overseas, New Delhi
Tel: 011-26197739
Email: mail@swastikoverseas.in

ER COLLET SPINDLES

Tecnicafts Industries offers a wide range of ER collet spindles. This range of cylindrical ER Collet shanks is made from high quality special steels under controlled process. The Shank is made to h6 standards for providing higher accuracy and tool life. The run-out is maintained within 0.005mm from shank diameter to ER cavity taper.



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Contact:

Tecnicafts Industries, Coimbatore
Tel: 0422-4278039, 4278040
Email: info@tecnicafts.com

CLAMPING SYSTEM

The New Ball Bearing Co offers Modular Clamping System. This product is modular vice systems as standard and dedicated solutions for the highest performance. The modular system is used in application from conventional machines.



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Contact:

*The New Ball Bearing Co, Pune
Tel: 020-25533101, 25534590
Email: pune@nbbc.co.in*

TURNING CENTRE

Tekcel Automation offers a wide range of turning centre. CNC turning centre combines high capacity metal removal with high level of accuracy, rigidity and stability. Generally conceived and executed to match any imported machines.



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Contact:

*Tekcel Automation Pvt Ltd, Bengaluru
Tel: 080-23113807/08/09
Mobile: 08095558500
Email: harish@texcel.in*

TUBE HEAT EXCHANGER

Simon Coil And Heat Exchanger manufacturers of a broad collection of tube heat exchangers. These offered products can be used in industries for cooling or heating of air or other gases, which flow in a duct or cooling of water and other liquids.



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Contact:

*Simon Coil And Heat Exchanger,
Ahmedabad
Mobile: 09904341600
Email: info@simoncoil.com,*

PORTABLE SMOKE GENERATORS

Measuretest Instruments offers portable smoke generators. The MiniColt 4SP has been designed for air flow testing, visualization tests, and particle recovery work..



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Contact:

*Measuretest Instruments, Mumbai
Tel: 022-49701393
Email: info@measuretest.com*

ROTAMETER

Process Control Devices offers a series of rotameter. It is designed to measures the flow rate of a fluid flowing through vertical pipelines. glass tube rotameters are using for general in line metering applications for varied liquids & gasses.



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Contact:

*Process Control Devices, Navi Mumbai
Mobile: 08655587403
Email: sales@pcd-flowmeter.com,
sales.pcdpl@gmail.com*

PIPE NIPPLE

Fit Wel Industries manufacturers pipe nipple. These fittings are designed to withstand high temperature and pressure. Forged threaded fittings swage nipple are designed for wide use in different industries like oil refineries, chemical processing, petrochemical and many other industries.



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Contact:

*Fit Wel Industries, Mumbai
Tel: 022-23829256, 23829257, 23829258
Email: info@fitwelindia.com*

FILTER CARTRIDGE

Pure Aqua Engineers offers a wide range of filter cartridge. These cartridge is a kind of deep filter cartridge, which is made of the textile fabric string (polypropylene, absorbent cotton and so on) preciously winding onto the multi hole axles according to the specific technology.



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Contact:

*Pure Aqua Engineers, Ahmedabad
Tel: 079-22971320
Mobile: 09586023661
Email: viral@pureaquaengineers.com*

ROBOAGGREGATES

Robo Silicon Pvt Ltd offers a wide range of Roboaggregates. These roboaggregates are obtained by crushing of parent rock and exhibit better bonding at the interface of aggregates with cement paste. Its crushed by a three-stage configuration consisting of a jaw crusher followed by a cone crusher and finally a vertical shaft impactor (VSI).



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Contact:

*Robo Silicon Private Limited, Hyderabad
Tel: 040-45467210
Email: robosand@robo.co.in*

VARIABLE DISPLACEMENT VANE PUMPS

Shuban Hydrotech offers a wide range of vane pumps produced by Berarma. Berarma has launched a new family of variable displacement vane pumps with



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high working pressure [250 bar], known as O1 PHP.

Contact:

Shuban Hydrotech, Bangalore
Mobile: 09964315671, 09844031093
Email: sales@shubanhidrotech.com

ALLOY STAINLESS STEEL

Shalco Industries Pvt Ltd offers alloy stainless steel. Stainless steel re-discovered in early 19th century is an alloy of iron having the main characteristic of corrosion resistance. This alloy is corrosion resistance due to presence of minimum 10.5% chromium.



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Contact:

Shalco Industries Private Limited, Mumbai
Tel: 022-62498200, 62498214
Email: info@shalco.in, ramesh@shalco.in

QUALITY ALLOYS

Shalco Industries Pvt Ltd offers a wide range of quality alloys. It has maintained its goodwill with unmatched quality and unsurpassed commitment towards the needs and requirements of its clients and Shalco is looking to maintain the same.



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Contact:

Shalco Industries Private Limited, Mumbai
Tel: 022-62498200, 62498214
Email: info@shalco.in

DUPLEX STAINLESS STEEL & NICKEL ALLOYS

Suraj Metal Corporation offers duplex stainless steel & nickel alloys. This duplex stainless steel was developed as a product which could improve upon some of the technical weaknesses.



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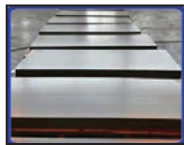


Contact:

Suraj Metal Corporation, Mumbai
Mobile: 09619624188, 08369410192
Email: mishal@surajmetal.com

STAINLESS STEEL SHEETS PLATES AND COILS

Ratnamik Metal (India) offers stainless steel sheets plates and coils. These plates and sheets are available in stainless steel, nickel alloy, carbon steel, alloy steel and duplex steel.



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Contact:

Ratnamik Metal (India), Mumbai
Tel: 022-23864009
Mobile: 09833864009
Email: ratnamikmetal@yahoo.com

HIGH QUALITY THREAD TURNING

Vardex Tooling Private Limited offers a wide range of high quality thread turning. The Vardex indexable laydown thread turning insert technology was developed long years ago.



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Contact:

Vardex Tooling Private Limited, Pune
Mobile: 09011553000
Email: info@vargusindia.com, ashok@vargusindia.com

PRECISION TURNING TOOLS

Duracarb Cutting Tools offers Turning Tools. As a full-line supplier of metalworking tools, Duracarb naturally provides the full ISO range of quality tools. All standard geometries are supplied. Its offers a variety of unique chipformer and grade combinations for ISO standard turning inserts that provide solutions.



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Contact:

Duracarb Cutting Tools, Chennai
Tel: 044-24313371, 24313381
Email: sales@duracarb-india.com

PTFE TAPE

Sanghvi Products offers a wide range of PTFE tape. These expanded soft packing made from a special grade PTFE resin with one side adhesive strip. This expanded soft packing fills all the voids in uneven or damaged surfaces thereby giving perfect sealing. It is chemically inert and can be used with almost all chemicals.



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Contact:

Sanghvi Products, Ahmedabad
Mobile: 09913063634
Email: sales@sanghviproducts.com

Event	Date & Venue	Contact
INDIA MACHINE TOOLS SHOW - NEW DELHI	May 15-18, 2025 Yashobhoomi Convention Centre New Delhi	K AND D Communication Ltd. (KDCL) Ahmedabad Mobile: 099090-41613 Email: info@kdclglobal.com
INDOMACH - HYDERABAD	May 23-25, 2025 Hitex Exhibition Center Hyderabad	Indomach Business Solutions Nagpur Email: info.indomach@gmail.com
INDIA WAREHOUSING SHOW - NEW DELHI	June 26-28, 2025 IICC India international Convention and Expo Center New Delhi	RX India, Gurugram Tel: 0124-4774444 Email: Chandan.Kumar@rxglobal.com
INDIA FASTENER SHOW - CHENNAI	July 11-13, 2025, Chennai Trade Center Chennai	FME (Future Market Events) Media Pvt Ltd Noida Email: eisha@futuremarketevents.com futuremarketevents.com
AUTOROBOT - COIMBATORE	August 01-03, 2025 Codissia Trade Fair Complex Coimbatore	Midaas Touch Events & Trade Fairs LLP Chennai Mobile: 09600047460 Email: vivek@midaastouch.in
AUTOMATION EXPO - MUMBAI	August 11- 14, 2025 Bombay Exhibition Centre (BEC) NESCO Mumbai	IED Communications Ltd, Mumbai Tel: 022-22079567 Email: jyothi@iedcommunications.com
IPEC INDIA PROCESS EXPO & CONFERENCE – HYDERABAD	August 22 -24, 2025, Hitex Exhibition Center Hyderabad	Hyderabad International Trade Expositions Lt. Hyderabad Email: js@hitex.co.in
7TH IMS 2025 INDIA MANUFACTURING SHOW	November 06-08, 2025 BIEC, Bangalore	India Exposition Mart Ltd Mobile: 09743784166 Email: exhibition21@indiaexpocentre.com
17TH ENGIMACH – GANDHI NAGAR	December 03-07, 2025, Helipad Exhibition Centre Gandhi Nagar, Gujarat	K AND D Communication Ltd Ahmedabad Mobile: 09909041613/18 Email: info@kdclglobal.com
INTERNATIONAL		
SHEETMETAL -CHINA SHANGHAI	June 17-20, 2025 NECC National Exhibition and Convention Center Shanghai, China	Confederation of Chinese Metalforming Industry (CCMI) 102206 Beijing, China Tel: +86 10 53056669 Email: metalform@chinaforge.org.cn
CWIEME – SHANGHAI	June 25-27, 2025, Shanghai World Expo Exhibition & Convention Center, Shanghai, China	Hyve Group PLC 2 Kingdom Street Paddington W26JG London Email: mosbuild@hyve.group
AIREXPO SHANGHAI - CHINA SHANGHAI	August 07-09, 2025 Shanghai Convention & Exhibition Center of International Sourcing Shanghai, China	Shanghai Golden Commercial Exhibition Co. Ltd Shanghai, China Tel: +86 (0)21 31276864 Email: goldenexpo@yahoo.com.cn
ALL ABOUT AUTOMATION - WETZLAR	September 10-11, 2025, Buderus Arena Wolfgang-Kühle-Str. 1, 35576 Wetzlar Hesse, Germany	Easyfairs GmbH 33719 Bielefeld, Germany Email: bielefeld-office@easyfairs.com

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e-mail : domestic@soniofficemate.com
website : www.soniofficemate.com

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Vedanta Limited - Aluminium Business



We have delivered our first-ever Aluminium Stewardship Initiative (ASI) Chain of Custody (CoC)-certified aluminium shipment to Capral Aluminium, Australia's largest extruder and distributor of aluminium products.

ASI CoC certification supports traceability of materials through a supply chain, helping businesses ensure that every stage of aluminium production adheres to the highest environmental, social, and governance standards, from responsible sourcing of raw materials to responsible manufacturing.

The certification aligns with our broader commitment to fostering sustainable manufacturing practices within the industry.



Ministry of Electronics & IT



MoUs to boost education, skilling, research, and innovation in Electronics and IT! NIELIT signed MoUs with 8 leading organisations in presence of S Krishnan, Secretary, MeitY on April 25, 2025 in New Delhi.



Ministry of MSME



Memorandum of Understanding was signed today between Ministry of MSME and AYUSHXECIL at Udyog Bhawan, New Delhi. AYUSHXECIL has been added as one of the implementing agencies for Capacity Building of First Time Exporters' component under the International Cooperation Scheme of the Ministry of MSME.



Pralhad Joshi

Inaugurated the PV Module Testing & Calibration Lab at @Nise_Gurgaon, Haryana. This pioneering facility empowers NISE to provide comprehensive testing, calibration, and certification services for photovoltaic modules and technologies.



Mahindra Group



A strategic step to strengthen our leadership in commercial vehicles. Mahindra is set to acquire a 58.96% stake in SML Isuzu, accelerating growth in the >3.5T Truck and Bus segment.

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