

TAGMA TIMES

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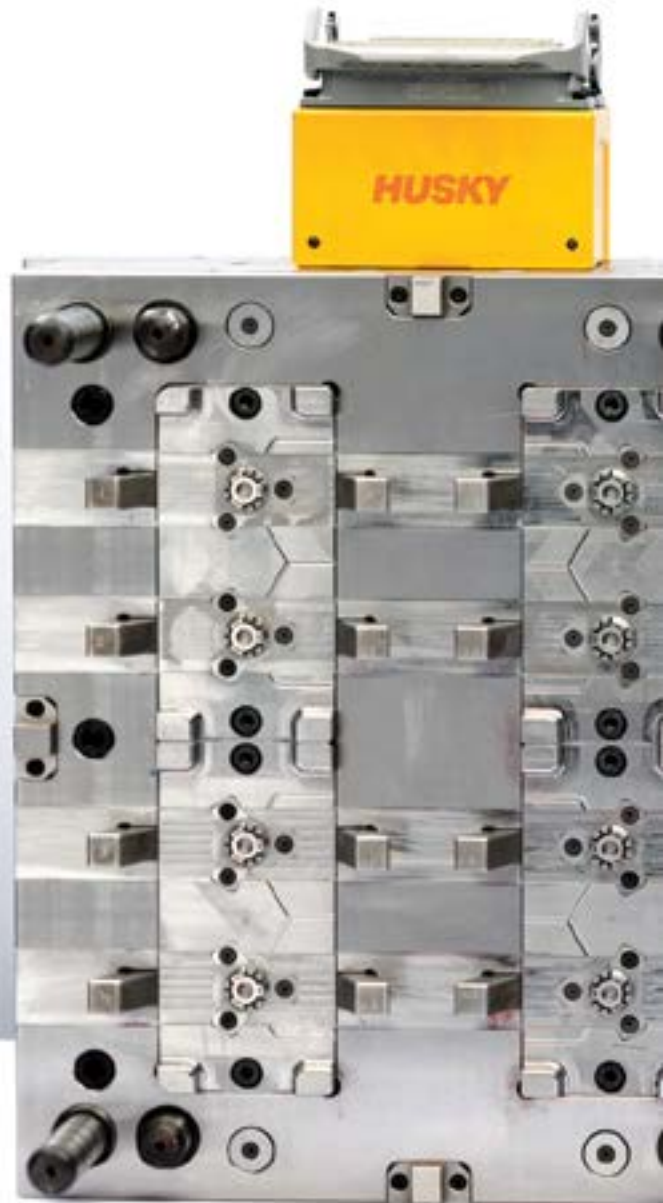
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ORGANISERS' VIEWS



▲
D. Shanmugasundaram
Vice President,
TAGMA India

Dear TAGMA Members and Industry Colleagues,

As we step into 2024, I extend my heartfelt greetings to each one of you. May the coming months be filled with prosperity, success, and fulfillment.

Reflecting on the year gone by, 2023 has proven to be a triumphant period for the Indian tooling industry. We have witnessed remarkable growth, innovation, and a collective surge in business sentiment. The enthusiasm resonating within the industry is palpable, and, as Indian toolmakers, we have every reason to be excited about the opportunities that 2024 holds for us.

The recently released 'Indian Tool Room Industry Analysis' report sheds light on the industry's landscape. With an estimated market size of approximately INR 23,600 crore, the tool room industry in India stands as a robust force. However, challenges persist, especially in the form of imports, constituting around 34% of the tooling demand, with a significant 80% coming from China, South Korea, Japan, and Taiwan.

It is imperative for us to strategise and work towards reducing this dependency on imports. The report also highlights that tooling imports into India are approximately four times the tooling exports. This calls for a collective effort from Indian toolmakers to compete with and eventually replace these imports. To accomplish this, we need to enhance our capabilities, improve quality, and increase our share in the domestic tooling industry.

However, the vision should not be limited to the Indian market alone. I encourage our esteemed members to explore opportunities beyond our borders and tap into the vast potential of overseas markets. As global players, it's time for Indian toolmakers to shine on the international stage.

As we look forward, 2024 seems to be a year brimming with opportunities. It's our collective responsibility to capitalise on these prospects, foster innovation, and strengthen the Indian tooling ecosystem. Let us set ambitious goals, push boundaries, and propel our industry to new heights.

On a related note, I'd like to draw your attention to the upcoming Die & Mould India (DMI) Exhibition. This platform is not just an exhibition; it's a convergence of ideas, innovations, and networking opportunities. I extend a warm invitation to all members, companies, and stakeholders to actively participate in DMI 2024. Your presence will not only contribute to the success of the event but also provide a platform for meaningful collaborations and business growth.

See you all at DMI 2024!



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Dear Readers,

The 13th edition of the Die & Mould India (DMI) Exhibition – a cornerstone event in the die and mould sector of our country – is around the corner. And, like most of you, as Editor at TAGMA Times, I find myself eagerly awaiting the upcoming exhibition.

The DMI Exhibition, which serves as the go-to platform for every professional associated with the tooling industry, will be held at the Bombay Exhibition Centre from February 14-17, 2024. With a whopping 300 exhibitors set to occupy over 25,000 square meters of the fairground, the DMI Exhibition is on track to break all records, solidifying its position as the largest edition to date. The scale of this event underscores its importance as the primary meeting point for the tooling community in India.

Reflecting on the growth of the Indian tooling industry brings a sense of optimism. Toolmakers are radiating positivity after a successful 2023, and the outlook for 2024 appears even more promising. This positive momentum speaks volumes about the resilience and adaptability of our tooling professionals, who consistently drive innovation and excellence in their craft.

The DMI Exhibition, which is strategically positioned at the start of the year, holds the promise of steering companies towards unprecedented success. The opportunity to connect with industry leaders, explore cutting-edge technologies, and forge valuable partnerships makes DMI an indispensable event for companies aiming to secure substantial leads in the competitive market.

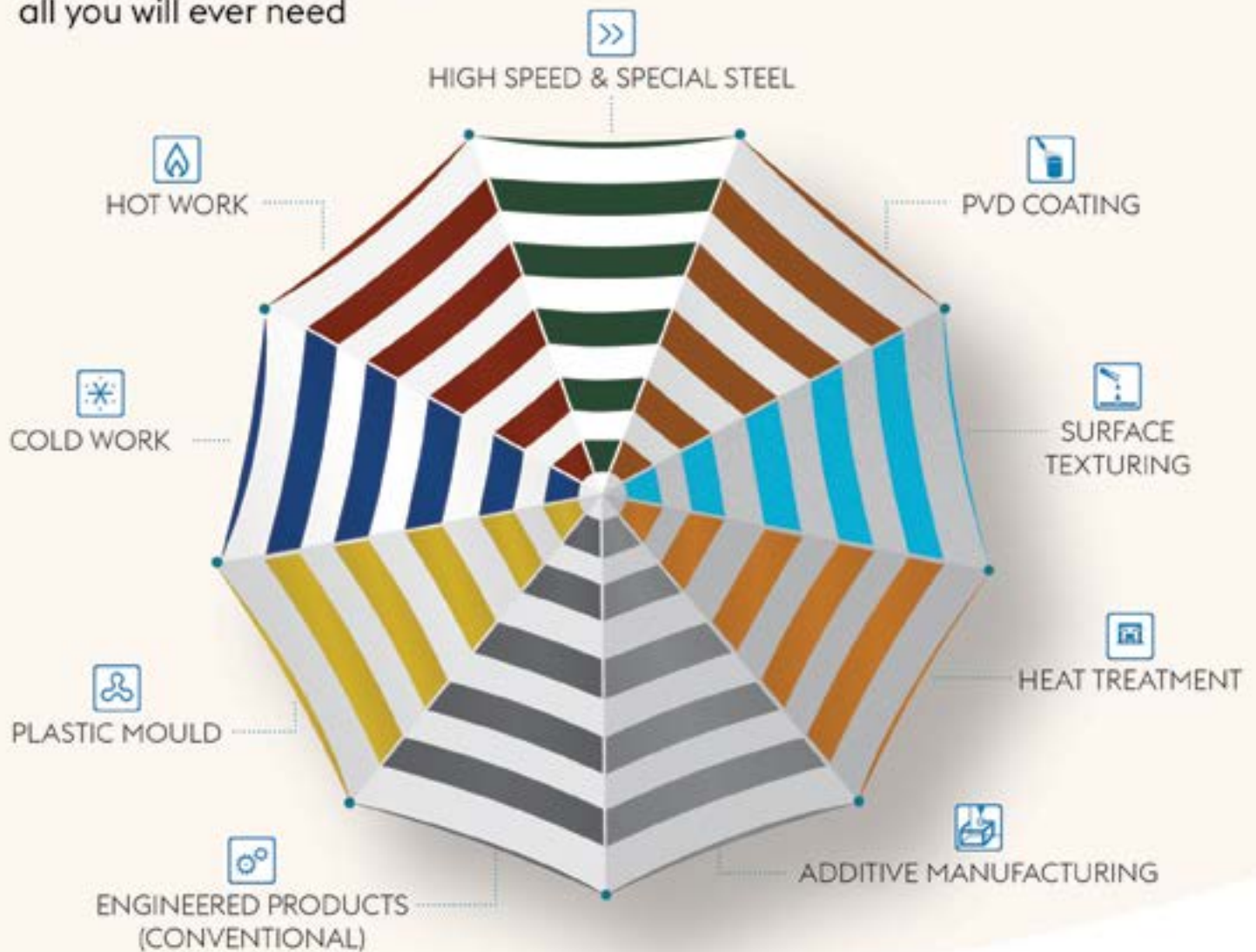
In the dynamic tooling landscape, events like DMI play a crucial role in fostering collaboration, showcasing advancements, and facilitating knowledge exchange. I anticipate that the exhibition will not only spotlight the current prowess of the industry but also act as a catalyst for its future growth.

As we gear up for DMI 2024, let us collectively embrace the spirit of innovation and exploration. This exhibition is more than just a trade show; it is a celebration of the tooling industry's achievements and a testament to its limitless potential. I look forward to witnessing the industry's continued success and growth, driven by the energy and enthusiasm that events like the DMI Exhibition inspire.

Best Regards,

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Die & Mould India 2024: Shaping Endless Possibilities

As the manufacturing sector undergoes rapid changes, the indispensability of dies and moulds becomes increasingly evident. With India swiftly adopting the latest technological solutions, the manufacturing landscape is on the brink of a significant transformation. The Die & Mould India International Exhibition (DMI) 2024 emerges as a crucial platform, poised to connect prospective buyers and enhance industry knowledge, ushering in a new era for the manufacturing sector.

Nishant Kashyap

Mark your calendars! The 13th Biennial Die & Mould India International Exhibition is gearing up to host incredible cutting-edge technologies. This eagerly anticipated event promises to showcase the latest developments in the global die & mould space, creating an invaluable resource for the industry. Scheduled to be held from February 14 to 17, 2024, at the Bombay Exhibition Centre, Goregaon, Mumbai, this four-day exhibition is a must-attend for those at the forefront of the industry.

The thriving Indian economy has attracted substantial investments to meet the escalating consumer demand and build essential infrastructure. Industries such as automotive, construction, electronics, white goods, home appliances, railways, aerospace and defence, have reaped the benefits of this positive trend. Fuelled by this robust momentum, India's die & mould industry is gearing up to address the surging demand.

Recent years have seen the industry expanding its customer base to include sectors like plastic products, energy, medical, auto ancillaries, and consumer durables, among others. Against this backdrop, the 13th Die & Mould India International Exhibition presents an ideal opportunity for companies



File Photo

to elevate their expertise and stay abreast of the latest developments in the die & mould industry. Join us in this exciting journey, as we collectively shape this industry's future.

Success Story

Organised by the Tool & Gauge Manufacturers Association of India (TAGMA), the inaugural edition of the exhibition took place in Mumbai in 1998. Since then, this event has steadily evolved into the country's premier die and mould exhibition. TAGMA India, a non-profit organisation established in 1990,

has been a driving force actively promoting the tooling industry.

The success of the 2022 edition underscored the exhibition's growth, boasting a remarkable increase in the number of exhibitors, a 35% rise in exhibitor participation from toolmakers, delegations from various companies representing 15+ sectors, and a substantial 19% expansion in the exhibition area. Drawing attendees from over 19 countries, the event was a testament to its international significance. Buoyed by this positive response and burgeoning demand, the upcoming 13th Die & Mould India International

Exhibition is poised to shatter all previous records, promising to be the largest-ever Die & Mould India Exhibition.

Positioned as the quintessential platform for die & mould manufacturers, this event serves as a meeting ground to connect with potential customers and showcase the latest technologies. As the most significant die and mould-focused gathering, the exhibition consistently exceeds expectations, catering to the needs of both exhibitors and visitors, solidifying its reputation as an unparalleled industry event.

Indian Die & Mould Industry

The Indian tooling industry is experiencing a high-growth phase — a phase that's likely to continue in the coming days as well. The global tooling industry and the Indian tooling industry have been growing steadily post the pandemic. While the global tool room industry stood at USD 80 billion in 2021 post COVID-19, the total market size of the tool room industry in India is estimated to be ~INR 23,600 crore. Interestingly, ~34% of the tooling demand is met through imports with ~80% of the imports from China, South Korea, Japan, and Taiwan. ~15% of tooling production in India

is exported - USA, Spain, Mexico, and Germany are major export destinations. The share of Commercial Tool Rooms (CTRs) in total demand grew at ~8.1% & Captive Tool Rooms grew at ~1.5%, while imports have been almost stagnant with minor changes.

With an increase in the variety of products and shortening product life cycles across the globe, the worldwide demand for tooling is well poised to grow significantly in future. Countries with superior capabilities and capacities in tooling will be at an advantage. Hence, it becomes even more important to facilitate the growth of Indian toolmakers and enable access to new customers beyond national borders. Tooling localisation would also result in many economic benefits such as employment creation, development of indigenous machine makers, better R&D landscape and more efficient supply chains. Therefore, the time is ripe to deep dive into the hurdles to the growth of Indian toolmakers and the measures required to tackle these hurdles.

Role of Die & Mould India 2024

Die & Mould India 2024 plays a pivotal role in benefiting manufacturers and end users across

EXHIBITION SCOPE

- ▶ Additive Manufacturing - 3D Printing
- ▶ CNC Milling/ Machining Center, EDM, etc.,
- ▶ Cutting Tools
- ▶ Heat Treatment
- ▶ Hot Runner System
- ▶ Injection Moulding Machine
- ▶ Inspection and Quality Systems, CMM
- ▶ Software
 - CAD, CAM, CAE Simulation
- ▶ Tool Room
 - Die Casting Dies & Rubber Moulds
 - Jigs, Fixtures and Gauges
 - Plastic Injections Moulds/ Moulded Components
 - Sheet Metal Dies/Sheet Metal Components
- ▶ Machine Tools & Accessories for Dies and Moulds
- ▶ Machines for Plastics & Accessories
- ▶ Machine Presses for Sheet Metal Components
- ▶ Precision Machining/ Aerospace Components
- ▶ Raw Material Suppliers (Steel)
- ▶ Surface Treatment
- ▶ Miscellaneous: Association, Partners
- ▶ Suppliers
 - Standard Parts of Dies and Moulds
 - Consumables
 - Electrode
 - Graphite
 - Grinding, Polishing
 - Welding
 - Mould base



File Photo

the die and mould industry. As India's largest and most esteemed exhibition dedicated to the die and mould fraternity, this biennial event has become a cornerstone for industry professionals, exhibitors, and enthusiasts. By offering a dynamic platform, it facilitates the exchange of knowledge and insights, allowing participants to stay abreast of the latest happenings and cutting-edge technologies in the realm of tooling.

For exhibitors, Die & Mould India provides a unique opportunity to connect with potential customers, forge significant contacts, and gather valuable information.

What's in it for you?

- Opportunities to explore business potential
- A single location to reconnect with the familiar and form new connections during interactions with the tooling fraternity
- Offer insights to formulate strategies that could meet the tooling industry's challenges
- Explore a wide choice of state-of-the-art technologies and processes, which can help scale up your production, seize growth opportunities and diversify
- Witness live demos that give you the experience of an actual working environment; get on-the-spot feedback from potential customers
- Stay updated with the latest innovations in the global tooling industry
- Highlight your capabilities and presence in the Indian die and mould industry
- Expose the industry workforce to the latest innovations across all tooling applications
- Attract new talent to the tooling industry.

The event serves as a nexus for industry players to showcase their innovations, products, and capabilities, enhancing visibility and fostering collaboration.

On the other hand, for end users in the industry, the exhibition proves to be an invaluable resource. It brings together a diverse array of potential vendors under one roof, offering a comprehensive overview of the latest advancements in toolmaking. This concentrated access to a multitude of suppliers facilitates informed decision-making, enabling end users to stay at the forefront of industry trends and advancements.

In essence, Die & Mould India 2024 acts as a catalyst for knowledge exchange, collaboration, and business growth, benefiting both manufacturers and end users by creating a vibrant ecosystem that propels the die & mould industry forward.



File Photo

New Initiatives

B2B Pavilion: The organisers acknowledge the importance of focused interactions, particularly for toolmakers. To elevate this experience, a dedicated B2B Pavilion has been arranged. This pavilion functions as a platform for matchmaking activities, providing toolmakers with the chance to directly engage with professionals from user industries. Through the facilitation of these one-on-one meetings, the objective is to establish meaningful connections that can foster collaborative partnerships, business alliances, and a comprehensive understanding of the industry's requirements.

Korea Pavilion: The event features a distinctive Korea Pavilion, featuring the active participation of approximately 10 Korean companies. This dedicated pavilion serves as a showcase for the technical prowess of the Korean die & mould industry, aiming to spotlight their advancements and innovations. The presence of these Korean companies underscores their keen interest in not only exhibiting their technical expertise but also in exploring business opportunities within the Indian market.

DMI 2024: The place to be

This event has consistently been

a highly focused B2B gathering, and this year is no exception. Both Indian and global companies will present their latest technologies and solutions, providing a platform for industry professionals to connect, network, enhance their knowledge, and explore business opportunities. Building on the success of its previous editions, DMI 2024 possesses all the essential elements – dedicated participants and visitors, excellent infrastructure, and a reputable organiser – ensuring its resounding success. The exhibition is the premier destination to witness the best and the latest developments in the industry.

In an exciting development this year, participation extends to 15 countries, showcasing a diverse array of technological advancements from around the globe.

As the Indian die & mould industry continues to gain prominence in the global market, DMI 2024 comes at a pivotal moment, serving as a common platform for Indian and global companies to forge partnerships and collectively propel towards new heights. Join us in this dynamic convergence of industry leaders and innovations. ♦

The stage is set for the consortium to begin...

13th DIE & MOULD INDIA INTERNATIONAL EXHIBITION

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Current trends

A lot of die and mould work is coming to India, especially post the China+1 strategy. Some of the articles indicate that the order books of big die and mould names in India are fully booked for the next 3 years. This means that there will be a lot more outsourcing and sub-contracting, which is good news for all the MTBs, us and for the nation. This growth only means added focus on quality output and cost effectiveness, so that we are competitive at the global level.

Business outlook

With the increased demand of orders for dies and moulds, the biggest challenge will be retaining the quality of output in a cost-optimal way, especially with the shortage of skilled labour. To

sustain this growth trajectory, the way forward has to be automation and precision technology adoption. Upskilling resources at grassroots can be a game changer.

Participating in DMI 2024

TAGMA's exhibition as well as being a TAGMA member has played a pivotal role in our growth, and in gaining visibility. The credibility of being associated with such a prestigious organisation as well as event is immense for Manleo, especially as the die and mould sector accounts for a significant portion of our customer portfolio. Our solutions being tailor-made for die and mould customers is a big reason for our popularity in the industry.

Products/ solutions on display

Our Datum Finder is already well accepted within the die and mould industry, especially as a tool that helps them do in-machine inspection. With 400+ installations of our Z setter among die and mould customers, we are focusing on it at DMI 2024, as it is a game changer in the area of accurate blue matching in die and mould. We are launching a wireless version of this product as well.

Staying competitive

The best way for Manleo to remain competitive is to be as close to customer problems as possible because these are our drivers

for innovation, research and development. We are not making products from our perspective because the core of our product development is the end user and the issues he faces. Our solutions focus on how we can enhance productivity and quality for the industry, which will then help India move to the next level of manufacturing.

Message to attendees/ visitors

DMI 2024 is a must visit for anyone who is associated with tooling, dies and moulds. It is one of the best platforms to get an insight into emerging technologies – be it machines, automation or probing solutions, like ours. You will find vendors, customers and OEMs all under one roof here; a highly focused interaction is possible at this exhibition.

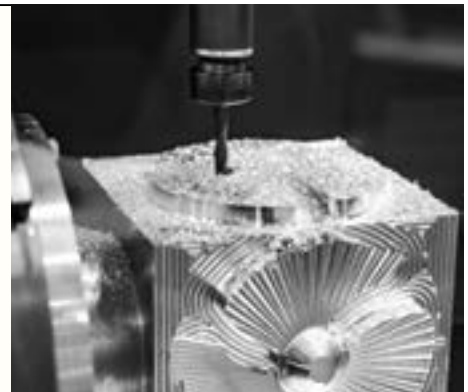
Expectations from DMI 2024

The die and mould industry is going to put India on the world map. If all of us in the industry work collectively, we can ensure that through automation, and reliable technologies that bring high precision and cost reduction, we can help the world see that India is not just for scale of manufacturing but the go-to destination for high-precision work. Exhibitions like DMI 2024 help the Indian die and mould industry get that visibility. ♦



EXHIBIT RANGE

- Additive Manufacturing - 3D Printing
- CNC Milling/ Machining Center, EDM, etc.,
- Cutting Tools
- Heat Treatment
- Hot Runner System
- Injection Moulding Machine
- Inspection and Quality Systems, CMM



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Sridevi Tool Engineers

Current trends

Additive manufacturing and localisation are the major trends currently observed in the Indian die and mould industry. Aided by the 'Make in India' initiative and the global supply chain disruptions, localisation is on every OEM's mind. However, due to the increased load on local toolmakers, the lead times for manufacturing these tools have gone up while the development time for a vehicle has gone down. We need to increase capacity at a rapid pace to help service the growing demand.

Business outlook

The automotive industry is a significant consumer of dies and moulds. With the push towards electric vehicles (EVs) and advancements in vehicle

technologies, there could be increased demand for moulds catering to the production of components for EVs and lightweight materials. I believe the aerospace, electronics and consumer goods industries will see growth as well. The challenge would be to grab the opportunity or we could lose it to another country.

Participating in DMI 2024

We have been regularly participating in DMI since its inception. The exhibition is a great platform to collectively show the strength of the tooling industry in India to any prospective domestic or overseas customer visiting the exhibition. It's a great platform to let the customers and suppliers know how well our company is thriving while also listening to their feedback and insights. Participating in DMI has been an invaluable part of our journey.

Products/ solutions on display

We have been working on localising large-sized tools for our OEMs. We will be announcing some exciting news very soon, which will address some of the capacity concerns that our OEMs are currently facing.

Staying competitive

Tool rooms are market-driven. Customer feedback drives the strategies and investments of most tool rooms. When the constraints of the market are addressed properly, it can help

companies stay competitive. With a shortened life cycle of motorcycles and cars due to various reasons, our customers are faced with the challenge of introducing new models or facelifts within a reduced timeline. We have increased our capacity and efficiency to deliver tools faster.

Message to attendees/ visitors

India still imports around 30% of its moulds from overseas. We would like to assure the buyers in India that we have the capacity and capability to design, manufacture and commission these moulds locally. With an annual capacity of more than 400 moulds, we can cater to startups in the electric two-wheeler segment, passenger vehicles and even large commercial vehicles.

Expectations from DMI 2024

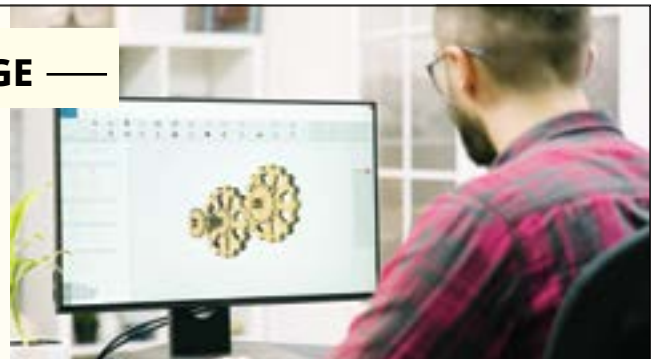
TAGMA's Die & Mould India Exhibition is the perfect platform for the entire ecosystem to showcase its products and services. The collective participation of machine tool manufacturers, technology providers, raw material suppliers, standard parts suppliers and die and mould manufacturers is the best time for networking, collaborating and learning. The exhibitors are exposed to buyers from new fields, which helps them to diversify and explore new markets. I expect the show to be busy and generate great footfall. ♦



EXHIBIT RANGE

SOFTWARE

- CAD
- CAM
- CAE Simulation



JD
SERIES



Feb 14-17, 2024

Bombay Exhibition Centre,
Mumbai, India



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Tool Change Time : 1.2 Sec.



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*Information provided is subject to change



K. Ravi
Partner,
Pre Mould Engineers

Current trends

In the die and mould industry, there is a constant increase in demand for high-end critical parts. This reflects a growing need for advanced components in manufacturing processes,

emphasising the sector's pursuit of excellence and innovation.

Business outlook

The die and mould industry faces challenges on a daily basis. I believe the 'EV Revolution' is going to be one of the biggest opportunities for the industry in the coming years.

Participating in DMI 2024

Over the years, DMI has become a well-known exhibition. Participants are always excited to be a part of this exhibition because it is the perfect platform to not only meet new industry leaders but also to explore emerging opportunities.

Products/ solutions on display

This year, we will be showcasing our mould bases for large die-casting and plastic injection moulded components.

Staying competitive

We believe that adopting the latest technologies as soon as they are available and understanding the customer requirements are the two critical factors that have helped us stay competitive in this dynamic market.

Message to attendees/ visitors

We are looking forward to meeting customers at the exhibition this year. We are keen to hear their critical requirements and are willing to go the extra mile to meet their expectations.

Expectations from DMI 2024

DMI is the only platform, which encompasses all the categories of the tooling industry. At DMI 2024, we are looking forward to seeing the latest global technologies on display and learning about the latest global trends. ♦



Soham Agrawal
Sales Technical Head,
Hallmark Advanced
Technology Pvt. Ltd.

Current trends

The Indian die and mould industry is currently experiencing a fascinating and steep evolution as a global manufacturing hub. There is a need for Indian manufacturers to increasingly develop automation, and focus on quality & precision while embracing cutting-edge technologies.

Business outlook

The Indian die and mould industry is on an exciting growth trajectory, driven by automation, focus on quality, diversification, sustainability, and technological advancements. However, we need to seriously address the skill gap and build training platforms for untapped talent. This will be critical for utilising this potential and achieving global competitiveness.

Participating in DMI 2024

We are participating in DMI for the first time. And so, we will be able to share our experience later.

Products/solutions on display

We will be showcasing our HALLMARK CONTROLLER 3D CAD/CAM CNC Controller. It is the future of 6-axis, G-Code CNC Motion CONTROLLER with CAD-CAM with Advanced Graphic Simulation. It is for the first time that India will

be manufacturing such higher-end controllers.

Staying competitive

We stay competitive through a conscious focus on technological upgradation, ensuring precision through the use of laser technologies and systems approach. Innovation and continual improvement is our basic premise.

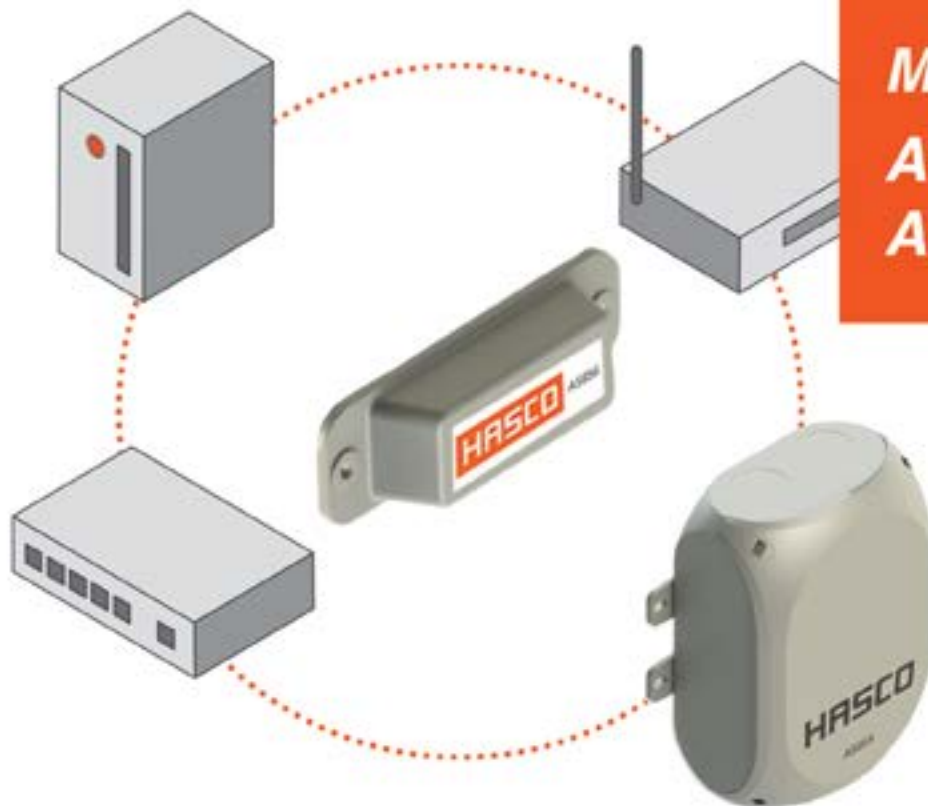
Message to attendees/ visitors

Please check out our products and share your feedback. We may be able to offer you solutions to redress many of your problems and bottlenecks.

Expectations from DMI 2024

DMI offers a platform for intermingling, viewing, studying, offering, exchanging new ideas, creating awareness about the latest innovative technologies, and forming new connections and partnerships. ♦

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- Higher flexibility

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Milind B. Kore
Associate General Manager
& Head Sourcing,
Godrej & Boyce Mfg. Co. Ltd.

Current trends

There is a huge demand for dies and moulds, especially from the growing automotive industry. Also, the China+1 strategy for global customers and the 'Make in India' campaign for Indian customers are boosting demand for dies and moulds, which is a positive trend for toolmakers.

Business outlook

Considering factors like the government's focus on building infrastructure and growing consumer demand, the industry is likely to witness positive growth. There are a few challenges though, like the BIS restrictions on imported tool steel. In India, tool steel is yet to develop to be at par with international standards. Hence, many are dependent on imported tool steel. However, imported tool steel prices are unfavourable due

to rupee depreciation and conflict between some countries.

Participating in DMI 2024

DMI is a platform to meet the tooling fraternity and understand their capabilities. At this exhibition, OEMs can not only directly interact with the toolmakers they are currently working with but can also reach out to those toolmakers whom they would like to work with in future. Both buyers and sellers are eagerly waiting for DMI 2024.

Products/ solutions on display

Godrej Tooling will be showcasing its new products and services. We specialise in manufacturing large die casting dies (up to 3000 ton) that are suitable for 4W engines and 'A' class, high-tensile parts in sheet metal dies. Nowadays, the demand for high-tensile parts is on the rise, primarily due to the government's safety regulations such as BS6. The Indian automobile industry is gradually shifting from small cars to SUV segments, and people are becoming increasingly safety-conscious. This shift is also reflected in the tooling expectations. Also, with the EV segment growing, lightweight components are becoming more critical than ever, leading to a change in customer demand.

Staying competitive

The tooling business is very challenging. On the one hand, there is pressure from OEMs to reduce costs and on the other, RM prices

are increasing. At Godrej, we are implementing various innovative ideas to improve productivity and reduce manufacturing costs. We are sustaining by offering precision and innovative products. We have offered for the first time, a smart die concept in tooling. In die casting dies, we offer big and complex dies, as having complete solutions under one roof till 2500 ton machines. Also, new product development is our strength and USP. In sheet metal or press tools, we are migrating to high-tensile parts & in the coming days, will offer hot stamping dies.

Message to attendees/ visitors

Since DMI 2024 is held in Mumbai, it is very convenient for everyone across the country to visit. Godrej participates in every edition of DMI and offers new concepts that will benefit the Indian tooling industry. DMI is a great place for toolmakers to showcase their innovative products and services to OEMs and Tier-1 customers.

Expectations from DMI 2024

TAGMA is doing a good job by organising DMI, which brings together the entire tooling fraternity under one roof. At DMI 2024, we are excited to share our capabilities. We are looking forward to interacting with our existing suppliers/ partners at the exhibition, as well as hoping to find new partners offering innovative products. ♦



EXHIBIT RANGE

TOOL ROOM

- Die Casting Dies & Rubber Moulds
- Jigs, Fixtures and Gauges
- Plastic Injections Moulds/
- Moulded Components
- Sheet Metal Dies/Sheet Metal Components





Navin Kumar
Director,
Radiant Design

Current trends

The die and mould sector is utilising advanced and smart technologies to increase productivity and reduce manufacturing costs. Fuelled by machine learning and data analytics, automation and industry 4.0 integration is one of the ongoing transitions that is augmenting smart and autonomous production.

Business outlook

The die and mould industry is looking

forward to welcoming EV platforms from all over the world. Nevertheless, the die and mould industry needs to ask the Government of India to formulate a better policy and invite global EV companies to build a concrete supply chain domestically, which will significantly increase business opportunities for SMEs.

Participating in DMI 2024

This platform helps SMEs to establish their business in the tooling market. It provides us with an opportunity to interact with multiple delegates across the tooling businesses, project our portfolio to the market and analyse the demands/ trends while addressing our gaps.

Products/ solutions on display

Radiant Design will showcase its expertise in mould tool design, injection mould tool development, and plastic production. We are incredibly proud of their work in injection moulding for the EV sector, which is a growing area of interest. Our team is looking forward to DMI 2024 because it's the best chance

for us to display our best work in mould making and plastic moulding.

Staying competitive

Having a systemic approach to business by referring to the global successful leading companies and implementing some of the appropriate strategies helps us to be competitive. Continuous improvement in overall operations and supply chain, as well as simultaneously increasing the overall efficiency by bringing in the latest technologies ensures good results for our business topline.

Message to attendees/ visitors

We welcome the attendees to visit us at the event, where we look forward to understanding and meeting their demands.

Expectations from DMI 2024

DMI, undoubtedly, plays a significant role by continuously contributing to the growth of SMEs. It builds a secure bridge between customers and suppliers, which in turn generates opportunities for localising business. ♦



Raju Tolani
Managing Director,
Swiss Steel India

Current trends

The Indian die and mould industry is witnessing potential growth; most importantly, it looks sustainable.

Business outlook

The die and mould industry in India is expected to continue showing strong growth in the coming years. The

automobile sector, especially EVs, will most likely provide opportunities for the Indian tooling industry in time to come.

Participating in DMI 2024

DMI offers excellent opportunities to network and interact with customers from various sectors be it from the plastic mould industry, hot work tool steel segment or the cold work tool steel segment.

Products/ solutions on display

We would be pleased to showcase the complete range of high-end plastic mould tool steel solutions from our Group Mills Finkl Steel, Canada and Deutsche Edelstahlwerke (DEW), Germany. These products are used for making superior-quality moulds for the automobile and white goods industries.

Staying competitive

Understanding the needs of the

customers and offering them the most appropriate products to satisfy them is one of the most important factors to retain business.

Message to attendees/ visitors

We are committed to supplying quality tool steel solutions for the plastic mould and hot work tool steel industry from our Group Mills based out of Germany and Canada.

Expectations from DMI 2024

DMI is one of the best platforms for the tooling industry to meet and interact with customers from various industries. DMI provides excellent opportunities to network, exchange knowledge about ongoing developments and meet global players from the tool steel industry. We, at Swiss Steel India, are excited to be a part of the upcoming 2024 edition of DMI and are looking forward to showcasing our tool steel solutions. ♦



Ravi Sane

**Business Head – India,
Dijet Industrial Company Limited**

Current trends

There was always a demand for quality and precision in the die and mould industry. But now, this requirement is compared with high-quality products produced in developed countries like the US, Europe, and Japan, among others. Customers across the world expect us to produce the same quality products, even though they are very cost-conscious.

Business outlook

India has sufficient skilled labour, good infrastructure, and good supply chain management for raw materials. However, there are challenges like maintaining environmental norms, cost competitiveness, high investments for good infrastructures within a company, restricting employee turnover, etc.

Participating in DMI 2024

At DMI, one will find potential customers, including those from the management. The exhibition not only facilitates fruitful interactions between companies and customers but also offers the perfect platform to introduce new technologies and products.

Products/ solutions on display

We will be showcasing tools for productivity improvement, tools for generating precision finish profiles, and tools for high-speed and highly efficient machining, which will help the die and mould machining customers boost their productivity.

Staying competitive

At Dijet, we are always working on new and innovative concepts in tool designs, basic substrate material, and new coating technology. Continuous improvement in existing products is our daily target.

Message to attendees/ visitors

At Dijet, we have developed many new strategies and tools, which will add value to the end users' products and help them achieve huge cost reduction and improved productivity. Please come and visit stall F22 to see the new technology products.

Expectations from DMI 2024

DMI is a unique platform for the die and mould industry. Earlier, the die and mould industry was always sidelined, but thanks to TAGMA's efforts, the government has realised the potential that this industry has to help the nation grow. This year, we expect the number of visitors to be higher compared to the previous editions. Please visit our stall. ♦



Satoshi Morishima

**Managing Director,
Misumi India Pvt. Ltd.**

Current trends

The Indian die and mould industry has tremendous potential and is growing thanks to high demand from the automotive industry, which has been launching new car models.

Business outlook

India is a growing market. The automotive sector is robust and demand is continuously increasing, especially for EVs in India. Other

sectors like electrical & electronics, semiconductor, and mobile phone manufacturing are emerging and have huge potential to grow. We expect the die and mould industry to have a bright future in India.

Participating in DMI 2024

We have been participating in DMI since 2010 and would like to thank TAGMA for organising this exhibition. DMI is a great opportunity for us to meet our existing customers in person and also interact with potential new customers there. DMI provides a great platform for us to create awareness about 'Brand Misumi'.

Products/ solutions on display

Misumi will be showcasing die and mould components like punches and button dies, CAM units, gas springs, coil springs, guiding elements, wear plates, ejector pins, etc. We will also be showcasing factory automation components like aluminium frames, linear guides, linear shafts and

bushes, ball screws, etc., to meet tooling and machine-making requirements.

Staying competitive

Misumi India's Economy Series for die and mould and factory automation components is the best option for customers. As the lifespan of a product gets shorter, customers want to save on costs, and get quality products within shorter lead times. Our Economy Series serves this requirement.

Message to attendees/ visitors

Misumi values its customers' time. That's our core strength. Misumi India is a one-stop solution for your standard component needs.

Expectations from DMI 2024

DMI is a great platform for large, medium and small enterprises to come together. This year, Misumi expects to connect with both existing as well as new customers at this exhibition. ♦

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Hall 01, Stall D06



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Vishal Purohit
Director,
Purohit Steel India Pvt. Ltd.

Current trends

Post-COVID, the markets are gradually recovering at a cautious pace; the trajectory is set to become more dynamic and innovative. Anticipated growth signals a promising decade ahead, characterised by increased innovation and potential expansion in various sectors.

Business outlook

The die and mould industry in India has seen steady growth due to increased demand from sectors like automotive, electronics, and manufacturing. With technological advancements, especially in automation and 3D printing, there's potential for further growth. However, challenges like skilled labour availability, technological upgrades, and global competition

might require attention for sustained development. Overall, the outlook appears promising but requires addressing these factors for robust growth.

Participating in DMI 2024

DMI is crucial for networking, showcasing innovations, and exploring potential collaborations. It often leads to increased visibility, partnerships, and market insights, which can significantly impact business growth and opportunities.

Products/ solutions on display

We are excited to showcase some of the latest developments in the tool steel industry at DMI 2024. Purohit Steel imports steel from around the world from the most reputed organisations. Today, the group comprises five well established units recording an overwhelming stock with a wide range of materials from hot work and cold work tool steels to special purpose materials.

Staying competitive

Staying competitive in a dynamic market requires a multi-faceted approach. We, at Purohit Steel, focus on continuous innovation and invest in R&D to develop cutting-edge solutions that address the industry's evolving needs. Embracing emerging technologies like AI, automation, and additive manufacturing helps us streamline

processes and improve efficiency. Additionally, fostering a culture of adaptability and agility allows us to swiftly respond to market changes. Our commitment to quality, customer-centricity, and strategic partnerships also plays a pivotal role in maintaining our position in the industry.

Message to attendees/ visitors

Purohit Steel is committed to offering quality, reliability, and customer-centric solutions. Our offerings align with the industry's needs and can significantly impact business outcomes. We are dedicated to fostering partnerships and collaboration for mutual growth within the die and mould industry.

Expectations from DMI 2024

DMI plays a pivotal role in fostering growth and development within the industry by serving as a platform for knowledge sharing, networking, and showcasing cutting-edge technologies. The exhibition facilitates collaborations, introduces innovations, and provides insights into market trends, thereby driving the industry forward. My expectations from the exhibition this year would include increased participation from diverse stakeholders, a focus on emerging technologies, and discussions on addressing industry challenges for sustained growth and innovation. ♦



EXHIBIT RANGE

SUPPLIERS

- Standard Parts of Dies and Moulds
- Consumables
- Electrode
- Graphite
- Grinding, Polishing
- Welding
- Mould base



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Mould making

Single nozzle easyFILL EH 4010

Meusburger has extended its product range with the single nozzle easyFILL as an approx. 30% more cost-effective alternative to the single nozzle smartFILL EH 4000.

Characteristics:

- › Compatible with the fitting dimensions of the smartFILL series
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sales@meusburger.in | www.meusburger.in



Indraneel Bhattacharya
Vice-President,
Sales and Marketing,
Lakshmi Machine Works Limited

Current trends

The die and mould market is witnessing a significant trend with the rising demand for high-speed and high-precision machines that can produce various types of dies like casting patterns, forging dies, die casting dies, press tools, rubber moulds, blow moulds, injection moulds, etc. Another significant development in this market involves the integration of technology to enhance the quality and efficiency of products.

Business outlook

The die and mould industry in India is poised to grow at a CAGR of 9%. The industry has abundant opportunities, particularly with the expanding presence of industries such as automotive, electronics, medical, and aerospace within the country. Besides, government initiatives, like the 'Make in India' campaign, have further contributed towards creating substantial prospects for the industry.

Participating in DMI 2024

Lakshmi Machine Works has participated in 5 editions of DMI. It

has always been a great opportunity to connect with customers through this exhibition organised by TAGMA.

Products/ solutions on display

In this edition of DMI, we have planned to fulfil our customers' expectations with our state-of-the-art machines and solutions. We will be displaying 4 machines including:

J5 – Vertical Machining Center: J Series machines have high demand in the market for their exceptional reliability, performance and precision. This versatile series has stroke capabilities of X-axis from 600 mm to 1 metre, Y-axis up to 600 mm and Z-axis from 500 mm to 600 mm and boasts spindle power ranging from 7.5 to 22 kW, with direct drive spindle speed of up to 12,000 rpm.

JG 50 – High-speed moving column VMC: JG50 is a compact yet highly productive high-speed moving column VMC, purpose-built to meet the rigorous demands of modern industries. The machine has a very high acceleration of greater than 1G and spindle speeds of up to 16,000 rpm. The tool change takes only 1 second and saves enormous time. The machine is also ultra-compact, which saves shop floor space.

JD 1 – Compact VMC: JD1 has a stroke capabilities of 500 mm on the X-axis, 400 mm on the Y-axis and 320 mm on the Z-axis. It also boasts a spacious table size of 650 mm X 400 mm. With a direct drive BBT 30 high-speed spindle up to 24,000 rpm, this machine is capable of delivering unparalleled performance and accuracy.

S Turn I – Horizontal Turning Center: S Turn I – Next Generation Turning Center comes with an 8-inch chuck, maximum diameter of 320

mm and maximum length of 300 mm. It has 8-station hydraulic turret, a spindle speed of 4500 rpm and a spindle power of 5.5/7.5 kW.

Staying competitive

We remain agile in response to the dynamic market, always prepared to promptly offer solutions to our customers. In meeting industry demands, we offer machines characterised by both high speed and precision. Our machines showcased at DMI highlight our extensive range of high-speed machines.

Message to attendees/ visitors

Apart from our solutions for the die and mould industry, we have 55 products and 88 variants of CNC machines. Our machines address the industry's demands like high quality and precision for accurate machining results, and products that can consistently meet tight tolerance, ensuring the production of high-precision components. The machines also precisely cater to the market needs by delivering optimal efficiency and productivity, achieving maximum output, minimising cycle times and significantly reducing downtime. We have a strong service team across India. Lakshmi Machine Works is the first machine tool manufacturer to offer online (e-commerce) sales of spares.

Expectations from DMI 2024

DMI plays a pivotal role for industry players to showcase their innovations, exchange knowledge and gain market insights. Our expectations from this year's exhibition include providing the right solutions to our customers and expanding the portfolio in this segment. ♦



EXHIBIT RANGE

**Machine Tools & Accessories
for Dies and Moulds**





Urs Birri
Area Sales Manager (Asia),
REGO-FIX

Current trends

Many companies have come to recognise that the surface quality of their dies plays a crucial role in the lifespan and overall quality of the products they deliver to customers. Consequently, the need for high-quality tools and exceptional tool holders has become paramount.

Business outlook

I observe multiple factors that will contribute to sustainable growth in the

market, particularly as industries transition manufacturing processes and incorporate advanced materials, as seen in sectors like automotive, aerospace, and others. The growth in India is inevitable.

Participating in DMI 2024

It will be the first time that we are participating in TAGMA's DMI exhibition with our subsidiary REGO-FIX India Pvt. Ltd.

Products/ solutions on display

At DMI 2024, we will display the REGO-FIX superior award-winning clamping system powRgrip, which is a press-fit clamping system for tools that uses almost no energy, reaches the highest clamping forces and transmissible torque values and is the fastest tool clamping in the world. We will also exhibit our new ForceMaster, a test equipment for measuring the pulling force of the tool changer of your CNC machine.

Staying competitive

REGO-FIX is well known as an innovative company that finds solutions and possibilities for its customers to

improve existing systems and processes. In the same way, we continuously improve our own manufacturing processes and automated workflows to give our customers the best experience.

Message to attendees/ visitors

Often, the most obvious money-saving solutions turn out to be more expensive in the long run compared to the ones of a higher quality standard and cost. It is not the price that gives something value, but it's the quality and performance of the product that gives you a return on investment.

Expectations from DMI 2024

Visitors at DMI 2024 will have the opportunity to touch, feel, experience and watch new solutions in action. These solutions have the ability to improve processes, which will not only aid in the development of the industry but also ensure that it grows. We expect our products to get a good response and are looking forward to maintaining our existing partner network and having fruitful conversations. ♦



Ronak Shah
Asia Sales Manager,
Orotig S.p.A

Current trends

A notable trend in the die and mould market is the growing integration of technology to enhance both product quality and efficiency. The business outlook for the die and mould market appears optimistic, with sustained growth anticipated in the coming years.

Participating in DMI 2024

We are participating in DMI for the first time. We are looking forward to connecting with a highly targeted audience, including potential clients, decision-makers, and industry experts. We will leverage this platform to gain new customers, dealers, agents and new business opportunities.

Products/ solutions on display

We will be showcasing Antares, an industrial laser welder designed to repair large dies and moulds made of steel, aluminium and copper. Its intuitive software is equipped with semi-automatic functionalities and can be programmed to memorise inclined planes, set circumferences or straight lines, etc., making it easy for even less experienced operators to use.

Staying competitive

We believe in quality of the products

and after-sales service. We have been appointing dealers/agents all over India to take care of every need of our valuable customers. To stay competitive, we have specially designed our Antares & Aries models for repairing dies and moulds, and joining metal parts or cylindrical metal products.

Message to attendees/ visitors

We would like to invite all the exhibitors and visitors to visit Booth No. I10, Hall 2, where Orotig S.p.A will showcase a laser welding machine for repairing dies and moulds, and joining cylindrical parts.

Expectations from DMI 2024

As we are participating for the first time, we are hopeful of getting more and more end-users, who believe in Italian quality machines and would like to try our laser welding machines for their high-end quality products. ♦



Vishal Chawla
Managing Director,
Karl Schüssler GmbH & Co. KG.

Current trends

Companies are transforming their manufacturing landscape with a shift towards automation and technology integration, employing more machines to enhance efficiency and reduce manual work. The digitalisation of design processes through computers and specialised programs is optimising product development, ensuring faster production and higher quality outcomes. In the quest for improved products, firms are exploring new materials and testing their viability to enhance strength and performance while managing costs effectively. Rapid prototyping and customisation have become paramount, allowing companies to swiftly create unique products by experimenting with ideas before final production.

Business outlook

In strategically navigating the outlook for dies and moulds, key growth niches are anticipated, fueled by heightened demand in critical sectors such as automotive, aerospace, electronics, and consumer goods driven by escalating production requisites. Addressing potential challenges, particular attention is given to workforce skill dynamics, recognising the scarcity

of skilled labour and uncertainties in the global economic landscape. Opportunities for strategic progress involve the integration of advanced technologies like 3D printing and automation to enhance operational efficiency and unveil innovative prospects, alongside the exploration of international markets for business expansion. Market dynamics reveal a notable shift towards customisation paradigms, indicating potential success for enterprises adept at personalised product offerings.

Participating in DMI 2024

For newcomers participating in DMI, expectations revolve around gaining substantial market exposure to augment visibility within the Indian market. Additionally, attendees anticipate seizing valuable business opportunities by generating leads and exploring potential sales avenues. The exhibition serves as a platform for effective networking, facilitating the formation of connections and potential partnerships crucial for business growth.

Products/ solutions on display

We will be showcasing HPC – Precision ER-collet Chuck – HAWK EYE and ER Collet System TITANIUM – secuGRIP from the Tool Holding System. We will also display the Tool-Manic – intelligent shrinking technology from a single source. The tool shrinking technology has proven itself for years in high-precision machining. Schüssler offers you a complete solution for all types of shrink fit chucks. The heart of the inductive shrink fit technology is the induction coil. The patented induction coil of the toolmanic is equipped with two separate windings, this allows them to be controlled independently of each other, resulting in an optimised heating temperature and heat distribution at the clamping area of the chuck. Therefore, shorter cycle times and a longer tool life of your

chucks can be achieved. We will also be showcasing the highest manufacturing accuracy by balancing our tool holders with our balancing technology, the highest precision by special measuring technology with a repeatability and measurement accuracy of < 0,4 gmm, power operated, secured clamping by high precision and unique constructed SCHÜSSLER balancing adapter, ergonomic design and balancing in one (static) as well as in two levels (dynamic).

Staying competitive

In our dynamic industry, ensuring competitiveness revolves around strategic adaptability and seamless technology integration. Our continuous commitment to innovation is evident through ongoing investments in R&D for product improvement. We prioritise agile adaptation, staying informed with market intelligence for swift responses, maintaining operational flexibility, and fostering strategic partnerships with industry leaders and strong supplier relationships.

Message to attendees/ visitors

The automotive, aerospace, electrical industry, as well as medical technology and tool and mould construction, or other industries where machining plays an important role, if maximum precision and machining quality are required with high productivity and economy, SCHÜSSLER is the first choice. You can rely on our decades of experience, well-developed know-how, top quality and fast availability.

Expectations from DMI 2024

DMI plays a pivotal role in fostering industry growth through its multifaceted contributions. Serving as a technology showcase, it highlights innovations and product developments, while acting as a networking hub facilitates knowledge exchange and strategic alliances. ♦

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Other Products

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Devjeet Mandal
Founder & CEO,
Mechmatrix

Current trends

An interesting trend developing significantly focusses on deskilling & automation. There's a growing demand for advanced tools to boost productivity & OEE, like the products under our Easymech brand, to enhance the efficiency and accuracy of CNC machining operations. The industry is also embracing digitalisation, aligning with global technological advancements & improvements in shop floor standards towards achieving world-class standards.

Business outlook

The Indian die and mould industry is poised for substantial growth, driven by the automotive and electronics sectors. I anticipate increased investment in advanced CNC technologies and automation to meet the rising quality demands. However, the industry must navigate challenges like skilled labour shortage and global competition. Emphasising innovation and training

will be crucial for sustaining growth and maintaining a competitive edge in the global market.

Participating in DMI 2024

Participating in DMI 2024 has been pivotal for Mechmatrix. It's a prime platform that has significantly broadened our network, connecting us with industry leaders and potential clients. Exposure to the latest trends and innovations has been invaluable, guiding our strategic decisions and product development. This exhibition has not only elevated our brand visibility but also underscored our commitment to being at the forefront of technological advancements in the die and mould industry.

Products/ solutions on display

At DMI 2024, Mechmatrix will showcase the latest Easymech tools propelling deskilling in tool resharpener, multimetal tapping, edge finishing of machined and ground components and QC50: Quick CNC machine cleaning concentrate, designed to improve TPM implementation, boost Kaizen culture, increase 5S scores and enable CNC shop floors to speed up their journey to world-class standards. These products address the industry's need for faster production times, reduced operational costs, and improved quality, catering to the evolving demands of modern manufacturing environments.

Staying competitive

Mechmatrix stays competitive by exploring the latest innovations, showcasing and launching solutions,

which will enable Indian toolmakers to boost their productivity substantially, solve specific pain areas in CNC machining and drive significant improvements in shop floor productivity levels. Additionally, our commitment to customer-centric solutions and regular workforce training ensures we not only maintain but also strengthen our position in the dynamic market.

Message to attendees/ visitors

As an exhibitor at DMI 2024, Mechmatrix aims to convey our commitment to driving innovation in CNC productivity improvement. Our Easymech range exemplifies this, offering advanced, efficient solutions that enhance productivity and precision. We want attendees to recognise our role as a catalyst for technological advancement in the industry, and the significant benefits our products bring in terms of quality, cost-effectiveness, and operational excellence.

Expectations from DMI 2024

DMI plays a crucial role in advancing the die and mould industry by facilitating knowledge exchange, showcasing innovations, and fostering connections. It's a hub where industry leaders and emerging players converge, sparking collaborations and driving technological advancements. This year, I expect the show to spotlight cutting-edge solutions and trends, setting the stage for future growth and development in the Indian die and mould sector while aligning it with global standards. ♦



EXHIBIT RANGE

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Sunil Desai
Director,
Designcell CAD CAM
Solutions Pvt. Ltd.,
Brand TopSolid India

Current trends

The Indian die and mould industry has stepped up to meet the global requirements necessitated by the changing global scenario. However, it still needs to catch up with their fast-changing expectations. The die and mould industry needs to scale up or scale down within a short period of time to address global volumes at competitive prices. It needs to adopt the latest technological advancements to ensure customer success. There's a need to increasingly adopt digital technology to meet the changing requirements and reduce human intervention in decision-making and customer interaction.

Business outlook

The Indian manufacturing sector is poised to grow and the tooling industry, which is the backbone of the manufacturing sector, is no exception.

The growth opportunities will come from sectors including automotive, ICT, and aerospace, among others. There are also demands for ultra-high precision tool rooms. The demand for these machines is going to increase in the years to come.

Participating in DMI 2024

TAGMA's DMI provides opportunities to interact with suppliers and customers. It is a prominent exhibition that attracts global customers who are on the lookout for suppliers. DMI also provides a platform for the exchange of ideas and exposure to the latest technologies. This exhibition has provided us with a platform to interact with our existing customers as well as with decision-makers. Thanks to DMI, we also get the opportunity to understand our competitors' products.

Products/ solutions on display

This year, we are offering complete 360° solutions for the die and mould industry. Our products are fully integrated CAD-CAM-CAE solutions with high data security and are easily retrievable. They are very user-friendly. Considering the gains of using the software, the cost of ownership is very reasonable.

Staying competitive

We are part of a global team that has multi-national presence spanning four decades. We strongly believe in post-sales customer service, which is a key factor that's responsible for our success. Our

satisfied customers of more than two-and-a-half decades are the testimony to that. Our products are continuously being upgraded to meet the changing requirements of our key customers. We always stand by to meet the customers' needs and offer solutions online in most cases. Our strong and expert support team is always available for customers. We work closely with our customers to standardise and customise as per their specific requirements in the tool and die segment.

Message to attendees/ visitors

I would like to impress upon our existing customers and prospects that we are not here to merely sell our products. We want to partner with them in their success using our well-established products globally. We strongly feel that we understand the die and mould segment better, as we have our die-mould shop where we thoroughly test all the products we represent before we offer them to our prospects. We offer our services for more complex applications for die and mould in the defence, aerospace and aviation sectors too. Our state-of-the-art digital solutions are preferred globally.

Expectations from DMI 2024

TAGMA is a premium show organiser and its DMI 2024 focuses on providing a common platform for the tooling fraternity to gather. The takeaways from DMI include enhancing deliverables like productivity and efficiency and staying competitive. ♦



EXHIBIT RANGE

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Rajnikant Patel
Director,
HASCO India Pvt. Ltd.

Current trends

The Indian die and mould industry is leveraging 3D printing technology innovatively, particularly in the development of quick-changeable mould systems for prototypes and small series production. This approach aims to reduce costs and accelerate the realisation time of products from conceptualisation to production. Noteworthy trends in the industry include the adoption of technology that provides solutions such as reliable guiding and demoulding systems for high-performance moulds.

Business outlook

Adopting new technologies, materials, know-how, and ease of communication are the key ingredients that will help the Indian die and mould industry grow its global share and meet the global tooling needs. India has already become a manufacturing hub for many global players in all the industrial sectors due to its high domestic consumption of products. I strongly believe that the domestic and export future of our Indian tooling industry is bright. We all will have stronger growth over the next decades.

Participating in DMI 2024

DMI exhibition is the best platform for the stakeholders of this industry to showcase new technologies & trends to the market. Ever since DMI was established, HASCO has been participating in this exhibition and showcasing the innovations developed for the toolmaking industry through this platform.

Products/ solutions on display

Adopting our high-end technological products has helped the designers, toolmakers and injection moulders improve their know-how, quality, and standard of their processes and products. This year, at DMI 2024, we will be showcasing 'Mould Track', which enables accurate tracking of moulds to a level of a few centimetres in real-time at the shop floor as well as 'Loc Check', which ensures GSM tracking of moulds world-wide; it can find the physical location of a mould anywhere in the world. We will also be showcasing our high-quality 'Metal Powder' grade 1.2709, 1.4404 for 3D metal printing and 'Multi-coupling' cooling system that offers a reduction in set-up time of moulds on injection moulding machines. Our 'Streamrunner', the world's first 3D-printed hot runner manifold for gentle melt flow, will also be displayed. Streamrunner enables maximum freedom in hot runner design and overcomes previous limits in hot runner technology. Hot runner controller 'Prime Zone', which offers identification of potential assembly errors before starting the mould as part of mould diagnostics, will be displayed at the show.

Staying competitive

Productivity is the key to success and can be optimised with the help of standardisation. The consistent use of high-quality

standardised components permits considerable time and cost savings. Standardisation throughout the mould-making process has been proven to boost productivity and thus decisively increase competitiveness. In the subsequent production of plastic parts, any downtimes can be kept to a minimum through the rapid exchangeability of standard components from the parting plane, thus boosting productivity still further. With numerous innovations and extensions to its range, as well as user-friendly tools and new CAD services, HASCO supports and simplifies processes from the idea through to the production of the injection moulded part.

Message to attendees/ visitors

HASCO, the inventor of the standard mould unit and pioneer of mould-making for 100 years, strongly believes in being the customers' partner by supplying high-quality product innovations. Modular standard mould system, shut-off coupling, latch locking device, non-height-adjustable date stamps, and conical cartridge heaters are a few of the patented creations from 100 ideas given by HASCO to the industry in the past. HASCO aims to continue to support the industry with many more ideas in future.

Expectations from DMI 2024

The Die & Mould India platform opens doors to new business alliances and grants exposure to a wider target audience. This show helps stakeholders of the industry understand the current trends and technologies available in the market that can help the tool-making industry upgrade the quality of its processes and products. Not only should those from the management, but even the key users from the tool-making fraternity should visit this biennial event. ♦



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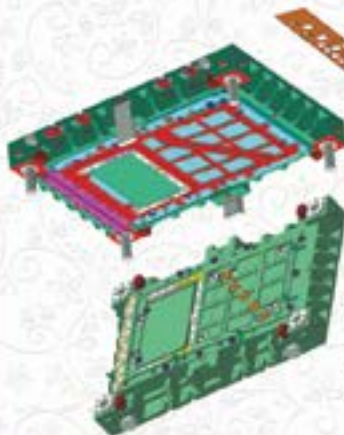
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Unit - 4 - No. 7/8-D, CTH Road, Ambattur Industrial Estate, Chennai - 600 058

Unit - 5 - No. 212, 213, 214, 215, SIDCO Womens Industrial Park, Kattur, Thirumullaivoyal, Chennai - 62

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Sanjib Chakraborty
Managing Director,
Hurco India Private Limited

Current trends

The Indian die and mould industry contributes significantly to the country's GDP and is one of the few industrial segments, which has shown steady growth over the last 10 years. It has experienced phenomenal growth, especially in high-precision die and mould components. Consequently, we are experiencing distinct changes in customers' expectations, with higher demand for 5-axis and large-sized machines that can produce large moulds. Customers today want high-speed machining capabilities with a high-cutting feed rate, superfine finishing, and more complex components with close tolerances.

Business outlook

India is on the verge of becoming the third-largest economy in the world and will become a global manufacturing hub soon. Hence, only sky is the limit for the Indian die and mould Industry. Campaigns like 'Aatmanirbhar Bharat' and policy boosters like the PLI schemes have accelerated the growth of industries significantly. The dies and moulds market in India is estimated to maintain a CAGR of 9.65% between 2023 and 2027. Indian companies are becoming globally recognised suppliers and the number of such exporters is increasing every year. Domestic demand is also increasing by leaps and bounds. In my opinion, one of the most critical

challenges in the coming days will be the availability of skilled manpower. Most of our customers face manpower shortages, which makes it difficult for them to take full advantage of all the current business opportunities.

Participating in DMI 2024

Die and Mould India is one of our favourite exhibitions because machine tool suppliers as well as users participate in this show. Such B2B and B2C platforms are rare in India. Hurco India has always experienced tangible benefits from this exhibition. Every time we participate, we launch new products and technologies, which receive appreciation from customers and in turn boost business.

Products/ solutions on display

We have decided to demonstrate large-sized high-speed VMC with bridge-type construction. Our Takumi H16 will be demonstrated in the show with a 24K spindle and Intelligent Thermal Growth Management software. We will also demonstrate the 5-axis VMC model VMX42SRTi, which is the largest possible 5-axis capacity within a minimum footprint. The design incorporates torque motor direct drives on both the B and C axis. These machines will be the center of attraction in this exhibition.

Staying competitive

We are a Nasdaq-listed technology company and believe that technological innovation will make our customers profitable. This in turn enables us to have a distinct edge over our competitors. During the past few years, our research has worked on areas such as anomaly detection for chatter suppression, feature recognition, analysing work volume using camera systems and much more. Incorporating AI solutions to enhance the autonomy of CNC machines and to reduce the dependency on the operator's skill is also a key focus for us. Through ongoing research, we

aim to develop practical solutions that will empower our customers to run their businesses and achieve sustainable growth. We are committed to developing technologies that will be adaptable and affordable for small-scale customers.

Message to attendees/ visitors

Currently, the market is very dynamic and the most desired activities become irrelevant within a short time. We are also experiencing rapid changes globally. Therefore, we suggest that customers explore various technological innovations, which will help them enhance their market value and increase the demand for their products. Hurco can be the right technology partner because it offers customers a taste of the newest and most useful technological innovations in machine tools. These inventions are also mostly upgradable on all our old machines at any given time. Hurco technology centers in Pune and Chennai are playing a very important role in upgrading old machines, providing training to operators, and also supporting customers promptly. Hurco believes in long-term partnerships and investing the time and money to strengthen partnerships with its customers across the globe.

Expectations from DMI 2024

TAGMA India has been a forum for the Indian tool room & die and mould industry since 1990. They serve the industry through various regional chapters. They have a mission of improving the tool room industries for greater efficiency through various seminars, magazines, workshops and exhibitions. We are well aware of the expectations of the Indian tool room and die & mould industry and strive to promote the most suitable machine models that have the latest technology. We are very confident that the awareness of Hurco technology will improve substantially across the country through this exhibition. ♦

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PDC Dies - upto - 1400T (1500X1000X675)
Sheet Metal Dies - upto 400T (2500X1000X550)



Paul Weaver
Director – Sales and Marketing,
India, Renishaw Metrology
Systems Limited

Current trends

India's die and mould industry has developed over the years and now holds a prominent position in manufacturing. The sector is growing year on year since it can meet a variety of demands from growing industries including automotive, plastics, electronics and electrical, healthcare and machine tools.

There is a growing demand for dies and moulds capable of handling advanced materials, such as high-strength alloys, composites, and plastics with specific properties. Additionally, the integration of automation, data exchange and smart technologies (like Industry4.0) into manufacturing has been a significant trend. This includes the use of IoT, sensors and data analytics to enhance efficiency and quality.

There's also a growing emphasis on sustainable manufacturing practices, including the use of eco-friendly materials, energy-efficient processes, and waste reduction in the industry.

Business outlook

As per recent reports, the Indian die and mould industry is estimated to grow at a CAGR of ~9%. The market growth depends on the opportunities with aluminium metal injection moulding, automation in the die-casting process and demand for dies and moulds from construction activities.

The die and mould industry often correlates with the growth of the automotive and aerospace industries. As these industries are growing in India, there may be increased demand for precision dies and moulds. With the rise of electronics manufacturing, there will be opportunities for the die & mould industry. Many companies are now investing in automation and industry 4.0 technologies to enhance efficiency and reduce costs, which might drive demand for advanced dies and moulds capable of supporting these processes.

While the Indian die & mould industry has massive potential and so much to look forward to, there are some clear challenges in meeting the increased production demands and quality standards without losing its cost competitiveness. The industry needs to adopt technologies and partner with incumbent technology providers to capitalise on growth opportunities, be able to meet future market needs and enhance its capabilities & competitiveness.

Participating in DMI 2024

Die & Mould India is the only platform for the die & mould industry, where manufacturers, suppliers and end-users come together to witness the latest innovations in the industry. Renishaw has participated in several editions of this exhibition and is doing so this year as well. This exhibition offers not only the perfect platform to showcase our innovative solutions for the die & mould industry but also gives us the exposure we need to enhance our brand recognition and industry leadership.

Products/ solutions on display

At Die & Mould India 2024, we will be showcasing our innovative solutions for the die and mould industry. Visitors will be able to witness live demonstrations of on-machine verification (OMV) using Renishaw technologies and learn how it is beneficial compared to the conventional methods of die and

mould inspection.

Staying competitive

We work closely with a range of players in this sector with a focus on the development and adoption of automation technologies and help manufacturers achieve even more demanding performance and production targets.

Our metrology products help manufacturers maximise production output, significantly reduce the time taken to produce and inspect components and keep their machines running reliably. Manufacturers can provide more economical, fast, reliable, and quality dies to customers so that their customers will produce the final components at the earliest and within the shortest lead time.

Accuracy and on-time delivery of projects are key requirements for the die and mould industry. Renishaw solutions help toolmakers save on time, money, reduce scrap and achieve a high level of accuracy.

Message to attendees/ visitors

Renishaw's expertise, technology and products span across all levels of manufacturing process control — from products which calibrate and measure machine positioning and motion performance, through systems for machine tool automation and versatile gauging to co-ordinate measuring systems, which give traceable verification of component and feature dimensions.

Expectations from DMI 2024

Die and Mould India provides a platform for industries to share knowledge as well as the latest technological advancements. It also provides networking opportunities to facilitate collaborations & partnerships. Thereby contributing to the overall growth of the industry. We are looking forward to connecting with toolmakers and helping them with flexible solutions to manufacture first-time-right parts in the best quality and within the shortest lead time. ♦

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Andrea Sanzani
Sales Engineering Manager,
Breton S.p.A.

Current trends

The Indian die and mould industry, like other industrial sectors, has evolved over the years and is now competing in the global arena. And, with the growing demand in industries such as automotive, auto components, packaging, plastics, electronics, power, healthcare and machine tools, the die and mould industry in India has huge opportunities.

Business outlook

We believe that the mould industry in India will be a great opportunity. We expect to see increasing demand in all sectors. We believe that the real challenge for the Indian market is that as demand increases, so must the quality. To support this challenge, Indian customers need high-quality machines.

Participating in DMI 2024

Breton already has a strong presence in the Indian machine tool market. We are well known in the aerospace industry. So, now is the time to move into the die & mould industry, as we have done in other world markets. Over the

last 5 years, we have developed a complete range of products that we would like to show to all potential Indian customers. So, we decided to participate in Die & Mould India 2024, and expect good feedback from this event.

Products/ solutions on display

Over the last 5 years, we have completely redesigned the Matrix family (5-axis machining centres) and added Matrix E1, the 'Monobloc' newly developed into the family. Matrix machines can cover a complete range of steel/ aluminium die and mould applications, from the most compact to the largest working area. All models can be equipped with different heads and spindles. Head and spindle cartridge changers are available on all models. The customer can customise his model by choosing from a wide range of accessories, and, of course, we are also available to customise the layout to suit the customer's plant requirements. Besides the Matrix family, Hawx is a completely new line of machines designed to meet the needs of light material for die and mould applications such as pattern making, etc. Hawx machines have been designed to keep a level of quality and milling performance over the standard of its reference segment, but at a very attractive price. Last, but not the least, the Genesi family, the largest thermoplastic 3D printing machine in the world, from 60 to 200 kg/hr of deposition capacity. A new way of producing moulds and tools in a few hours instead of a few weeks. As you can see, we have many new products, so don't miss the chance to meet the Indian team at booth 25 Hall 1.

Staying competitive

A dynamic market calls for a dynamic company and that is

what we are. Since we were born in 1963, our focus has always been on new technologies, new solutions, new dedicated applications, and customisations based on customer needs; we are not a standard machine tool builder. Breton has several patents, and this means it is a company that is always looking for new ideas to meet new customer requirements. Selling the right machine at the right price is just the first part of the business. The second part is the service. This is the key point! Many manufacturing companies are now looking towards additive manufacturing solutions, Breton is already there with the Genesi, the large-sized 3D printing machine. Service is really important to us: availability in India, with support and spares, free teleservice 24 hours a day and a team in Italy ready to leave with all major critical components at short notice. This is what makes us different from the others.

Message to attendees/ visitors

This message from Benjamin Franklin, slightly modified, represents us aptly: 'The bitterness of poor quality and service remains long after the sweetness of low price is forgotten'.

Expectations from DMI 2024

Exhibitions are always a moment for market growth, and we understood the importance during the pandemic, where we have missed out. Meeting people, suppliers, seeing customers and even competitors, is certainly a positive situation, especially, in India, where the figures are growing at a very high pace. Our expectations for the exhibition are very high. We want to approach the die and mould market in a strong way. We know we have the capability to do so. I look forward to welcoming our customers at our stand. ♦



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T. Gopalakrishnan
Director – Marketing,
Multiple Special Steel Pvt. Ltd.

Current trends

In the Indian die and mould industry, the current trends and demands prominently revolve around diversification, technology adoption, localisation, and the exploration of newer manufacturing methodologies. Companies are actively seeking ways to broaden their scope, integrate advanced technologies, localise production, and embrace innovative manufacturing approaches to stay ahead in the competitive landscape.

Business outlook

Looking forward, the business outlook for the die and mould industry in India appears highly promising. The industry is on an upward trajectory, witnessing increased demand for domestic

tools not only from the automotive sector but also from emerging industries such as aerospace, defence, electrical & electronics, and toy making. This diversification points towards sustained growth, presenting both opportunities and challenges for industry players.

Participating in DMI 2024

Die & Mould India plays a central role as the backbone of the Indian tooling industry. It stands out as the premier platform for the entire tooling ecosystem, providing critical space for companies to connect with potential customers, stay abreast of technology trends, and showcase their capabilities. The impact of participating in this show is profound, offering unparalleled networking and business development opportunities.

Products/ solutions on display

At the upcoming Die & Mould India exhibition, our focus will be on showcasing our latest offerings in tool steel, die steel, and tooling aluminium. Recognising the evolving demands of toolmakers, we have curated a diverse range of grades to cater to specific material requirements. These innovative solutions directly address industry needs, providing toolmakers with materials that enhance performance and durability.

Staying competitive

In the dynamic market, our company remains competitive by consistently delivering best-in-class solutions, providing excellent after-sales support, and actively engaging in customer education regarding the latest developments in tool steel solutions. Staying ahead in the industry requires a commitment to excellence and a proactive approach to customer satisfaction.

Message to attendees/ visitors

As exhibitors at Die & Mould India 2024, our message to attendees and visitors would be that they should actively participate in the exhibition, observe emerging trends, and integrate them into manufacturing practices. Die & Mould India serves as the gateway to tooling success, offering a wealth of insights and opportunities. We would like to encourage everyone to make the most of this platform to stay ahead in the rapidly evolving die and mould industry.

Expectations from DMI 2024

Multiple Special Steel Pvt. Ltd. is very pleased with TAGMA's DMI. We have been participating in every exhibition that has been organised by TAGMA since 2006. Our growth is the perfect example of being part and parcel of this champion for tool rooms and their service providers. ♦



EXHIBIT RANGE

- ▶ PRECISION MACHINING/ AEROSPACE COMPONENTS
- ▶ RAW MATERIAL SUPPLIERS (STEEL)





Vivek Nanivadekar
Executive Director,
FIBRO India Precision Products
Pvt. Ltd.

Current trends

On a very good note, most tool rooms are expanding and, as of now, they are booked for the next 12-24 months. India is on the path to becoming a global manufacturing hub and the share of manufacturing in GDP is set to rise to 25% from the current 16-17%. So, there is every reason for tool rooms to grow. Currently, the Indian die & mould industry is acquiring knowledge of hot-forming technology. As safety norms for vehicles become stringent and keeping the vehicles' weight on the lower side becomes a requirement, hot-forming technology is gaining prominence, as hot-forming components offer both these advantages. Besides, tooling for battery compartments for two and four-wheelers is high in demand. The most important issue, however, is lead time. Now, we have observed that small toolmakers are also buying standard parts to help them reduce the lead time.

Business outlook

The imports' quantum of dies is decreasing, while the exports are increasing. This presents a positive outlook for the die & mould industry. Most automakers

are expanding their capacities and launching new models every year. The time-to-market is reducing, which means that the demand for dies & moulds is increasing but with a shorter lead time. The hot forming tools and skin panels tooling would be the growth areas apart from tooling for batteries. In fact, these areas offer opportunities as well as challenges. Since our defence sector export volume has started increasing, there is a need for tooling. We need to closely watch the developments in the defence, railways, and aerospace industries.

Participating in DMI 2024

Die & Mould India International Exhibition is certainly a prominent show specifically for the die & mould industry. So, most of the visitors visit the show with a specific purpose in mind, which could be to understand the industry trends, get acquainted with new technologies, shop for specific equipment or machines, or even network with players in the industry. This exhibition offers the opportunity to interact with customers face-to-face to understand their pain areas, which helps us know what kind of suitable solutions we can offer them in time to come. We have been growing with more than a CAGR of 24% since our inception. Participating in this exhibition over the years has played a prominent role in our growth journey.

Products/ solutions on display

We make it a point to showcase or launch our new products in every show. This time, we will be launching the Wireless Pressure Monitoring (WPM) system for Nitrogen Gas Springs fitted in the die. This avoids the rejection of the components due to pressure drop in the gas spring. This is very commonly used in

developed countries. We will also be launching a range of compact CAM units in various sizes. Besides these, we will also be showing the indexing tables for metal-cutting applications with unique specifications.

Staying competitive

We do not compete with the price, but offer a 'Price-to-Performance Ratio'. We offer FIBRO KPIs i.e. Knowhow, Precision, Innovations. FIBRO India was the first to offer 'Made in India' CAM units 5 years ago. Until then, they were imported. Now, we manufacture a simple-to-complex wide range of CAM units for the Indian as well as global markets. We have undertaken several initiatives to implement the latest technologies, including Industry 4.0, ERP, CRM, Robotics, Power BI, etc., in our plant to ensure the shortest lead time. FIBRO India is the single source for the whole range of standard parts.

Message to attendees/ visitors

FIBRO India has completed 15 years of operations in India. We have become an established manufacturer in India over a period. Our tagline is 'German Precision, Crafted in India'. We deliver 'High Precision, High Performance' parts, thus the cost of ownership is low for the end user. We listen to the customers to offer them the most appropriate and innovative solutions.

Expectations from DMI 2024

We wish to ascertain the response/ feedback on our new developments in this edition of Die and Mould India. We also wish to explore the new areas of application of our products while interacting with the visitors. Needless to say, we also wish to understand the trends and preferences in this field. ♦

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Sujith Kumar
Director,
Meusburger India Pvt. Ltd.

Current trends

The mould making industry in India is undergoing substantial expansion, particularly in response to heightened demand and advancements in electronics, electric vehicles (EVs), and the automotive sector. The dynamics in this industry are very evident: we see a noticeable surge in demand for high precision, high-quality standards, utilisation of advanced materials, incorporation of Industry 4.0 technologies, swift delivery processes, and optimisation of tool life.

Business outlook

The Indian mould making industry is experiencing significant growth, possibly driven by factors such as the China+1 sourcing strategy, the government's 'Make in India' initiative, the development of EVs, etc.

However, certain challenges persist, including the need for improved infrastructure, availability of skilled resources, and access to essential steels and materials. Despite these challenges, the mould making industry in India holds immense growth potential, presenting opportunities for expansion and development.

Participating in DMI 2024

TAGMA's Die & Mould India exhibition is one of the most important exhibitions for our industry in India. It gives us one of the best networking opportunities with the decision-makers and allows us to showcase our new products and innovations. Die & Mould India has helped us in our brand visibility, and we achieved recognition as a top high-quality standard parts supplier for the die and mould making industry.

Products/ solutions on display

Meusburger hot-runner systems and Industry 4.0-ready control systems will be our highlight at the exhibition. Of course, we will also be showcasing our tried and tested high-quality standard parts.

Staying competitive

Our headquarters in Austria boasts an extensive standard parts warehouse and a high degree of in-house production in state-of-the-art facilities; thus, our customers

benefit from the constant availability of our high-quality products. To keep it that way, we have invested in many areas for our customers. In 2021, we initiated the establishment of a warehouse in India, steadily expanding our inventory every year. We are also actively investing in employing a first-class team that is dedicated to being the top reliable partner in mould and die making.

Message to attendees/ visitors

Continuous availability and our perfectly coordinated product range make us a powerful and reliable partner in moulds, dies, and jigs and fixtures construction. An optimal online service and the best possible personal support round off our service package.

Expectations from DMI 2024

TAGMA's Die & Mould India has always been the pioneer in providing a platform for professionals, experts, and industry leaders to come together, fostering knowledge exchange and networking. The exhibition serves as a place for showcasing innovation and creating business opportunities. We are looking forward to networking and relationship building, allowing us to strengthen connections with existing clients, establish new partnerships, and interact with industry stakeholders. The exhibition will also increase the visibility of our brand. ♦



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Balancing Technology

Manic 55 – a revolutionary intelligent balancing technology designed to redefine precision in tool holder performance. With a focus on achieving unparalleled manufacturing accuracy, Manic 55 employs advanced balancing technology to ensure the highest level of precision. Its specialized measuring technology takes precision to new heights, boasting an impressive repeatability and measurement accuracy of < 0.4 gmm. The power-operated, secured clamping feature, facilitated by the high-precision SCHÜSSLER balancing adapter, guarantees a level of security and stability that enhances overall operational efficiency.

The ergonomic design of Manic 55 ensures a user-friendly experience, prioritizing comfort and ease of use. Beyond its static balancing capabilities, this intelligent technology offers dynamic balancing in one versatile tool, providing unmatched flexibility in various machining scenarios. The robust construction, crafted from stiff and vibration-dampened UHPC material, supports weights up to 500 kg, ensuring durability and reliability in every application.

The seamlessly integrated control panel features active ventilation and optimal accessibility for maintenance and service work. Manic 55 also boasts a user-friendly touch screen interface, a 17" monitor with adjustable tilt, and networkability, enhancing overall usability. The large working area, facilitated by a 180° pivotable protective door, accommodates tools up to 500 mm in length and 480 mm in diameter, allowing for a diverse range of machining possibilities. Upgrade your machining precision with Manic 55 – setting new standards in intelligent balancing technology.

For More details, contact:

Company: Karl Schüssler GmbH & Co. KG

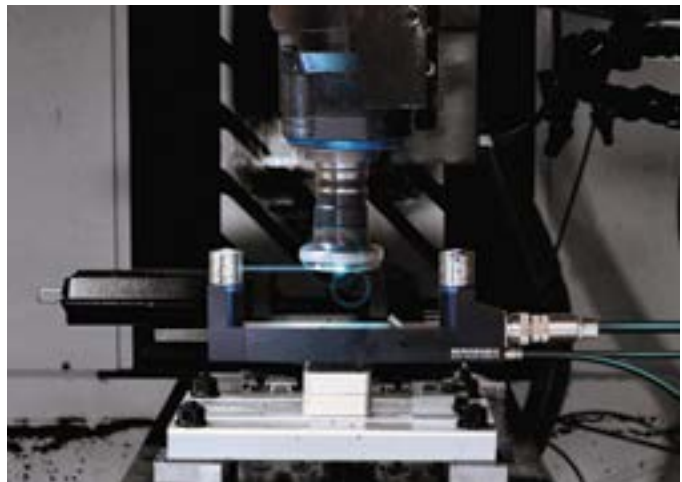
Phone: +91 9730028248

Email: vishal.chawla@k-schuessler.de

Non-contact tool setter

Featuring industry-first, blue laser technology (patent pending) and improved optics, Renishaw's NC4+ Blue non-contact tool setting systems deliver significant improvements in tool measurement accuracy, ensuring components can be machined more accurately and efficiently on CNC machine.

Compared to red laser sources found in conventional non-contact tool setters, blue laser technology has a shorter wavelength resulting in optimised laser beam geometry. This enables the measurement of very small tools, whilst minimising tool-to-tool measurement errors – a critical consideration when machining with a wide range of cutting tools. NC4+ Blue systems use Renishaw's non-contact tool setting software package, which continues to evolve to ensure rapid, robust, and reliable measurement even in wet conditions.



For More details, contact:

Company: Renishaw Metrology Systems Ltd.

Phone: +91 20 6674 6200

Email: india@renishaw.com



Machining Centre

The UB3222 (Table-3200mm x 2100mm) and UB2222 (Table -2400mm x 2100 mm), is a high-speed, high precision sturdy machine for machining very large and heavy workpieces (Table load capacity 8500 Kg). The machining center is characterized by its highly rigid design with a large table clamping surface which ensures precise milling performance with better tool life and cheaper cost per Mould.

It is a true 5 axis simultaneous machining center precisely suitable for complex workpieces. These machines are designed with high torque 2-axis direct drive swivelling head (Spindle rpm 12k/18K/14k) on a robust double column frame. UB Series guarantees to enhance the accuracy of large size part, to achieve super fine surface finish, to optimize the lead time by minimizing EDM burning time. All these optimise the production cost and improve the profitability.

For More details, contact:

Company: HURCO India Pvt Limited

Phone: +91- 9789052470, 73587 76159

Email: sanjibc@hurco.in; harshald@hurco.in

Compact VMC

J D1 from LMW has a stroke capabilities of 500 mm on the X-axis, 400 mm on the Y-axis and 320 mm on the Z-axis. It also boasts a spacious table size of 650 mm X 400 mm, allowing for efficient handling of the materials, this machine is designed to deliver superior performance and precision. This machine features a rigid structure that provides a wider working area, allowing for greater flexibility and precision.

With a direct drive BBT 30 high speed spindle upto 24,000 rpm, this machine is capable of delivering unparalleled performance and accuracy. The high speed pocket tilting automatic tool changer ensures smooth and seamless tool changes, while the high rapid transverse rates of 48 m/min enable efficient and speedy movements of the machine. Its advanced design ensures exceptional precision and efficiency in the production of high-quality components for Automobile, Electric Vehicle, Die & Mould and Electronic segments.

For More details, contact:

Company: Lakshmi Machine Works

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Proactive maintenance can prolong the lifespan of your dies & moulds

Keeping dies and moulds in top shape is crucial for efficient production and cost savings. Implementing proactive maintenance practices can significantly extend their lifespan, minimise downtime, and ensure consistent quality output. This article outlines a comprehensive set of proactive maintenance tips essential for extending the lifespan and optimising the performance of dies and moulds in manufacturing processes.



Image used for representation only. Courtesy Envato Elements.

Sudhanshu Nayak

Proactive maintenance plays a pivotal role in significantly extending the lifespan of dies and moulds — crucial components in manufacturing processes. By implementing regular inspections, cleaning, lubrication, and adherence to preventive maintenance schedules, manufacturers can identify and address potential issues before they escalate. This proactive approach minimises wear and tear,

reduces the risk of corrosion, and prevents thermal fatigue.

The ability to monitor and control operating conditions, such as temperature and material quality, further enhances the durability of dies and moulds. Moreover, investing in employee training ensures that personnel possess the skills necessary to recognise early signs of deterioration and promptly implement corrective measures.

The adoption of advanced technologies, collaboration with suppliers, and continuous improvement practices contribute to a comprehensive proactive maintenance strategy, resulting in prolonged die and mould lifespan, minimised downtime, and ultimately, cost savings for manufacturers.

Factors impacting dies & moulds

The lifespan of dies and moulds in

manufacturing is often impacted by a range of common challenges and issues that manufacturers need to address proactively. Three primary factors that significantly affect the durability of dies and moulds are:

- ▶ **Wear and tear:** This refers to the gradual deterioration of dies and moulds over time due to repeated use, friction, and mechanical stress during the manufacturing processes. Continuous use without proper maintenance can lead to abrasion, surface damage, and dimensional changes, compromising the precision of the components produced.
- ▶ **Corrosion:** Corrosion is the chemical reaction between the surface of the dies and moulds and the surrounding environment, often accelerated by exposure to moisture, chemicals, or contaminants. Corrosion can result in pitting, surface irregularities, and degradation of material properties, leading to reduced functionality and structural integrity.
- ▶ **Thermal fatigue:** This occurs when dies and moulds undergo cyclic temperature variations, causing expansion and contraction that lead to material fatigue over time. This phenomenon can result in cracking, warping, or premature failure, particularly in areas subjected to rapid heating and cooling cycles during manufacturing processes.

Some maintenance tips

Addressing these challenges requires a combination of proactive measures, including regular inspections, preventive maintenance, proper cleaning, and the use of high-quality materials. Implementing temperature control measures, selecting corrosion-resistant materials, and employing effective lubrication and cooling strategies

can further mitigate the impact of wear, corrosion, and thermal fatigue, ultimately extending the lifespan of dies and moulds and ensuring the production of high-quality components. Here are some key points, which will help in extending the lifespan of dies and moulds:

- ▶ **Proactive inspection and monitoring:** Regular inspections are paramount in maintaining the optimal performance and longevity of dies and moulds in manufacturing processes. The importance of these inspections lies in their ability to identify early signs of wear or damage, allowing for timely intervention and preventive measures. By conducting thorough visual examinations and measurements, manufacturers can detect any abnormalities in the components, such as surface irregularities, dimensional changes, or signs of corrosion. In addition to conventional inspection methods, the use of advanced techniques like non-destructive testing (NDT) plays a crucial role in assessing the condition of dies and moulds. Non-destructive testing methods, such as ultrasonic testing, magnetic particle testing, and radiographic testing, enable manufacturers to delve deeper into the internal structure of these components without causing any harm. These sophisticated techniques can detect subsurface defects, cracks, or material inconsistencies that may not be visible when using traditional inspection methods.
- ▶ **Cleaning and lubrication:** Proper cleaning and lubrication are pivotal elements in the proactive

maintenance of dies and moulds. Thorough cleaning plays a vital role in preventing contamination and corrosion, safeguarding these components from irregularities and structural compromise. Residual materials and contaminants from previous runs are removed through meticulous cleaning, ensuring the integrity of the manufacturing process. Additionally, the selection and application of suitable lubricants are critical in reducing friction and wear, mitigating mechanical stress during operations. Lubricants create a protective layer between moving parts, preserving surface finish and dimensional accuracy. Carefully chosen lubrication practices not only enhance manufacturing efficiency but also contribute significantly to extending the overall lifespan of dies and moulds. This comprehensive approach to cleaning and lubrication aligns with proactive maintenance strategies, promoting reliability, reducing downtime, and optimising the performance of dies and moulds in the manufacturing environment.

- ▶ **Temperature control:** This is a pivotal factor influencing the performance and durability of dies and moulds in manufacturing. The impact of temperature variations on these critical components is substantial, with rapid changes potentially leading to thermal stresses, warping, and premature failure. To counteract these effects, maintaining consistent temperature control during operations is imperative. Implementing precise temperature regulation through cooling systems, insulation, and heaters helps prevent thermal fatigue and ensures the stability of dies and moulds. This approach, coupled with the selection of materials with thermal stability properties



Image used for representation only. Courtesy Envato Elements.

and the integration of advanced temperature control technologies, contributes to a controlled and uniform thermal environment. In essence, understanding and managing temperature variations is a fundamental aspect of proactive maintenance, playing a crucial role in preserving the structural integrity and extending the lifespan of dies and moulds in the intricate processes of manufacturing.

► **Material selection:** Choosing high-quality materials for die and mould construction is paramount, exerting a profound influence on their performance and longevity in manufacturing processes. Opting for materials with superior strength, durability, and resistance to wear is fundamental to mitigating the impact of repetitive use and mechanical stresses, ensuring the reliability of these components. The significance of thermal conductivity and stability cannot be overlooked, as they contribute to managing temperature variations and preventing thermal fatigue. Additionally, exploring advanced materials, including high-performance tool steels, powder metallurgy steels, ceramics, and composites, provides manufacturers with innovative options to enhance durability and wear resistance. These materials, characterised by increased hardness, toughness, and corrosion resistance, not only optimise the performance of dies and moulds but also contribute to reduced downtime and heightened efficiency in manufacturing operations. In essence, meticulous material selection is a cornerstone of proactive maintenance, shaping the resilience and efficiency of dies and moulds in the intricate landscape of manufacturing.

Essential strategies to keep in mind

The following proactive maintenance strategies collectively form a robust foundation for ensuring the reliability and longevity of dies and moulds in the intricate landscape of manufacturing:

- Regular inspections are emphasised to detect early signs of wear, damage, or potential issues. The integration of advanced techniques like non-destructive testing enhances the precision of these assessments.
- Cleaning and lubrication practices are highlighted for preventing contamination, corrosion, and reducing friction and wear.
- Consistent temperature control measures are crucial to mitigate the impact of thermal variations, preventing thermal fatigue.
- Material selection, favouring high-quality and advanced materials, significantly influences durability and wear resistance.
- Training and skill development for maintenance personnel are underscored, enabling the workforce to identify issues early and implement proactive measures, ultimately contributing to reduced downtime and increased operational efficiency.

► Training and skill development:

Emphasising the pivotal role of training for personnel engaged in die and mould maintenance is essential for cultivating a proactive and efficient maintenance strategy within manufacturing. Through comprehensive training programs covering preventive maintenance techniques, inspection procedures, and the use of advanced tools, the workforce gains the knowledge and skills necessary to conduct thorough assessments and make informed decisions during maintenance activities. A skilled workforce holds numerous benefits for manufacturing operations, as it becomes adept at identifying early signs of wear, corrosion, or potential issues in dies and moulds. The ability to

implement proactive measures, including timely repairs and adjustments, proves instrumental in preventing unexpected failures and minimising downtime. Furthermore, a skilled workforce is better positioned to leverage advanced technologies, such as non-destructive testing and condition monitoring systems, thereby enhancing the precision and effectiveness of maintenance practices. In essence, investing in training and skill development establishes a proactive maintenance culture, empowering the workforce to play a central role in ensuring the longevity and optimal performance of these critical components in manufacturing processes.

By incorporating these proactive maintenance tips into your workflow, you can significantly extend the lifespan of your dies and moulds, leading to higher productivity, reduced costs, and consistent quality output in your manufacturing process. Remember, it's always better to prevent problems than to fix them later. By taking a proactive approach to maintenance, you can ensure your dies and moulds remain your reliable partners in production for years to come. ♦

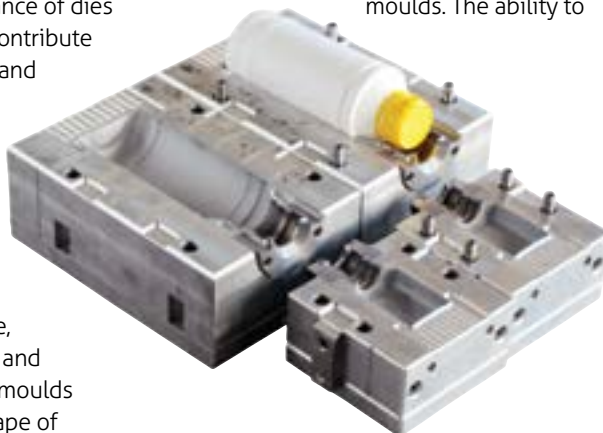
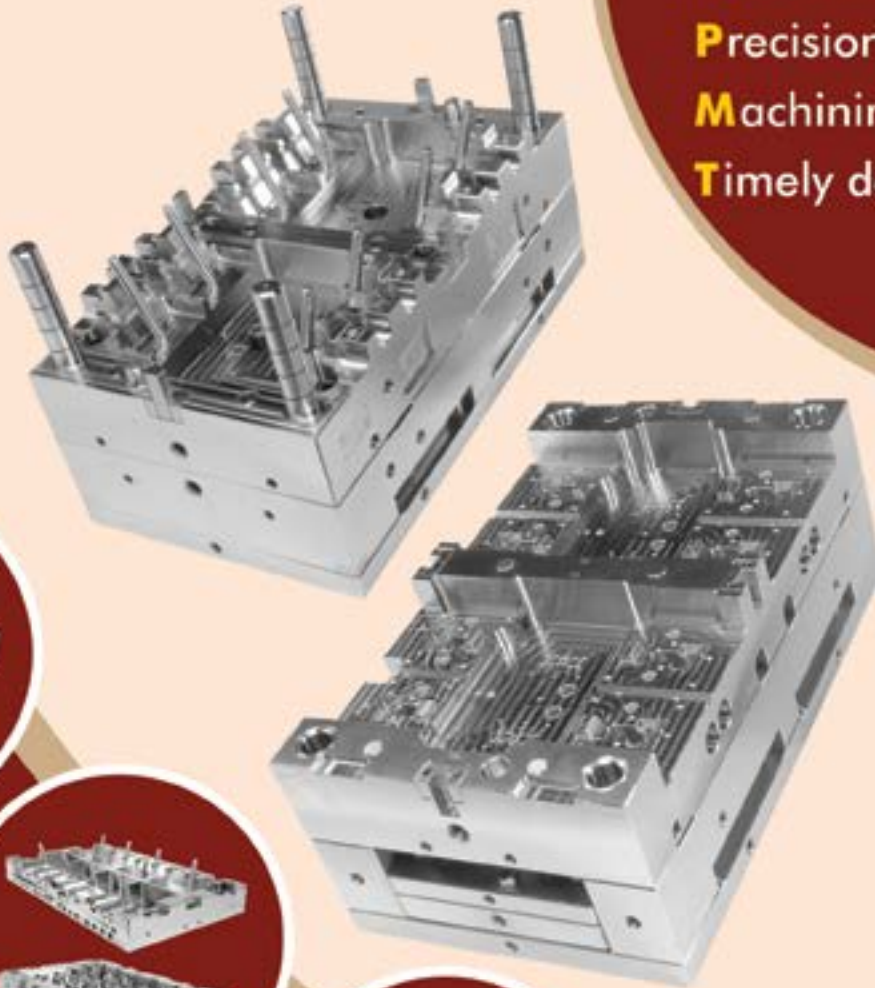


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Navigating Tooling Challenges: A Technical Perspective on Rising to the Occasion

In the dynamic realm of tooling for the mould making industry, the challenges faced by mould makers persist, necessitating a keen focus on continuous improvement and collaboration. As a seasoned professional with substantial experience in the field, Kripal Bedi, DGM – Business Development at Sridevi Tool Engineers Pvt. Ltd. addresses these challenges and proposes strategies to overcome them.



Stagnation in progress

A prevalent challenge in our industry is the slow pace of improvement. Despite advancements in technology, materials, and processes, we find ourselves grappling with many of the same issues that plagued mould makers decades ago. The key to surmounting these challenges lies in a simple yet profound solution: knowledge acquisition.

Harnessing customer collaboration

Customers play a pivotal role in

smoothing our operational challenges. Timely delivery of matured CAD data with well-defined milestones and minimal engineering changes empowers us to plan and execute our work more efficiently. Furthermore, improved payment terms not only facilitate investment in critical machinery but also contribute to a thriving mould-making ecosystem.

Customers can also assist in troubleshooting injection moulding processes, leveraging their expertise to save time on intricate materials or

processes, ultimately reducing the time required to prove a mould.

Strategic alliances with vendors and technology suppliers

Collaborating with vendors, machine suppliers, and technology providers is essential. Partnerships with Moldflow, NX CAD, CAM, CNC, and moulding machine manufacturers can significantly enhance our efficiency, productivity, and overall output.

Seeking insights from raw material suppliers and hot runner



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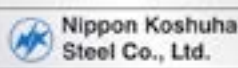
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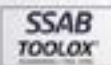
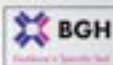
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experts, who possess a wealth of data from global case studies, is crucial when dealing with unknown materials or processes.

The power of continuous improvement

Mould makers must invest time in establishing robust systems and processes, subjecting them to regular audits for continuous improvement. The synergy of human expertise, machinery, and well-defined systems forms the foundation for remarkable achievements in mould making.

Investing in critical machines and tooling

Critical machines and tooling

are not mere expenses; they are investments in the future success of our businesses. To facilitate the growth of smaller tool rooms, customers should identify and support them, mirroring the approach of early Japanese OEMs with Sridevi.

Prioritising skilled workforce and embracing technology

While technology and machinery are indispensable, a skilled workforce is equally vital. Mould makers should invest in training and upskilling to align with the latest advancements. Subscribing to technical magazines and newsletters enables access to

cutting-edge research, technologies, and global developments.

Embracing 3D printing proactively and adopting innovative technologies will break barriers and position mould makers as forward-thinking entities ready to meet evolving customer demands.

Building a strong brand

Differentiation is key in a competitive landscape. Mould makers should focus on building a strong brand through a unique value proposition, a compelling visual identity, and effective communication of strengths and capabilities to customers.

Conclusion

Innovation is the lifeblood of mould making, demanding a perpetual quest for new and improved methodologies. Let us commit to investing in critical machines, fostering a skilled workforce, and embracing technological advancements to surmount the challenges and propel the mould-making industry to greater heights. ♦

Images Courtesy: Sridevi Tool Eng. Pvt. Ltd.



'Accelerated growth momentum in Q-2 likely to continue in the sector'

According to the FICCI Manufacturing Survey, 79% of respondents reported higher production in Q-2, as compared to 57% in Q-1. The survey reveals a stable investment outlook to propel growth.

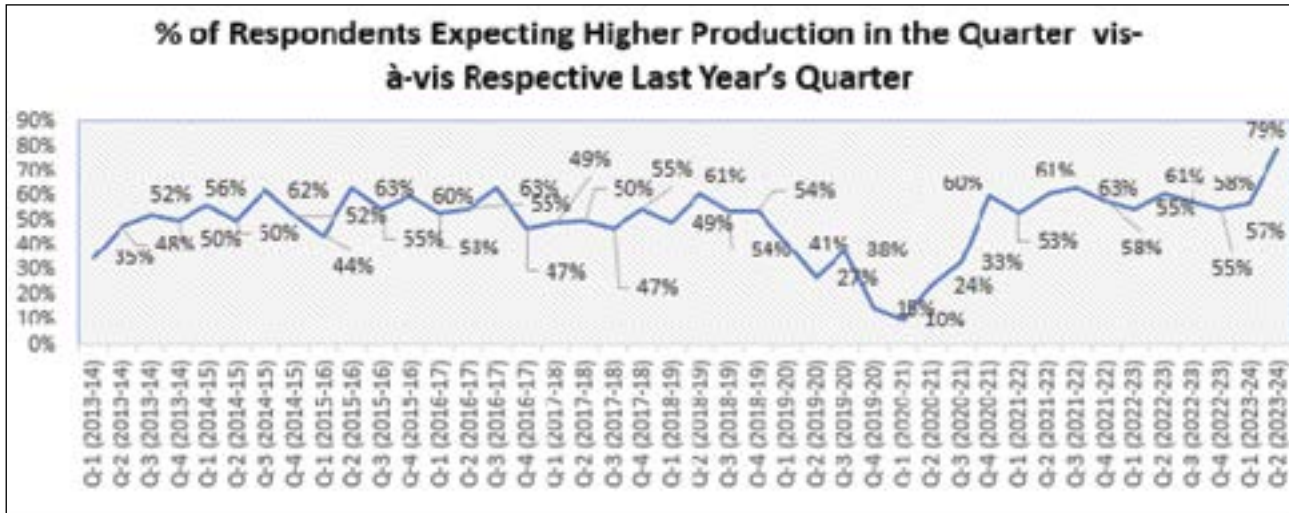


Figure: 1

Source: FICCI Survey

FICCI's latest quarterly survey on manufacturing reveals that the momentum of growth has accelerated in Quarter-2 of 2023-24, which is likely to continue for the subsequent quarters of FY 2023-24 as well, notwithstanding slowdown in developed nations. In Q-1 April-June 2023-24, 57% of the respondents reported higher production levels. Further, over 79% of the respondents shared a higher level of production in Q-2 July-September 2023-24. This assessment is also reflective in the order books, as 80% of the respondents in Q-2 July-September 2023-24 have had a higher number of orders, and demand conditions continue to be optimistic in Q-2 July-September 2023-24 as well.

FICCI's latest quarterly survey assessed the performance and sentiments of manufacturers for Q-2

July-September 2023-24 for ten major sectors namely: automotive & auto components, capital goods & construction equipment, cement, chemicals, fertilizers and pharmaceuticals, electronics & white goods, machine tools, metal & metal products, textiles, apparels & technical textiles, paper, and miscellaneous. Responses have been drawn from over 380 manufacturing units from both the large and SME segments with a combined annual turnover of over INR 4.88 lakh crores.

Capacity Addition & Utilization

The existing average capacity utilization in manufacturing is around 74%, which reflects a sustained economic activity in the sector. This is slightly higher than the 73% capacity utilization reported for the previous quarters.

- ▶ The future investment outlook has also improved as compared to the previous quarter, as over 57% of respondents reported plans for investments and expansions in the coming six months. This is also a slight improvement over the previous survey.
- ▶ In terms of major constraints, demand comes out to be the major constraint and limiting factor to realise the true potential of the manufacturing sector in India, with over 40% respondents highlighting inadequate demand as a significant constraint. Whether it is domestic demand or exports, this remains a major limiting factor. Some other constraints, though not major ones, are high raw material prices, increased cost of finance, logistics; and other supply chain disruptions are some of

Table 1: Current Average Capacity Utilization Levels as Reported in Survey (%)

Sectors	Average Capacity Utilization
Automotive & Auto Components	74
Capital Goods & Construction Equipment	77
Cement	80
Chemicals, Fertilizers & Petrochemicals	68
Electronics & White Goods	74
Machine Tools	73
Metal & Metal Products	78
Miscellaneous	68
Paper & Paper Products	90
Textiles, Apparels & Technical Textiles	76
Grand Total	74

the major constraints which are affecting expansion plans of the respondents. Table 1 gives the average capacity utilization for various sub-sectors of manufacturing.

Inventories

- ▶ 85% of the respondents had either more or the same level of inventory in Q-2 July-September 2023-24, which is almost equivalent to that of the previous quarter.

Exports

- ▶ On the export front, performance seems to be better than the previous quarters, as over 48% of the respondents reported higher exports in Q-2 July-September 2023-24, as compared to the 33% in Q-1 2023-24. However, further improvement in export demand is required in the light of the country’s growth aspiration.

Hiring

- ▶ The hiring outlook looks stable with around 38% of the respondents looking at hiring additional workforce in the next three months.

Interest Rate

- ▶ 59% of the respondents

reported that they have witnessed some marginal increase in the interest rates over the previous quarter.

Sectoral Growth

- ▶ Based on the responses, electronics & white goods, cement, automotive and machine tools have displayed strong growth and are clear outperformers.
- ▶ Whereas, sectors like capital goods & construction machinery, chemicals, textiles, metals, and paper among other sectors, have

Table 2: Growth Expectations for Q-2 FY 2023-24

Sectors	Growth Expectation
Automotive & Automotive Components	Strong
Capital Goods & Construction Equipment	Moderate
Cement	Moderately Strong
Chemicals, Fertilizers & Pharmaceuticals	Moderate
Electronics & White Goods	Strong
Machine Tools	Strong
Metals & Metal Products	Moderate
Miscellaneous	Moderate
Textiles, Apparels & Technical Textiles	Moderate
Paper & Paper products	Moderate

Note: Very Strong >20%; Strong 10-20%; Moderate 5-10%; Low < 5%
 Source: FICCI Survey

displayed moderate growth.

Production Cost

- ▶ There seems to be some moderation in the cost pressures on manufacturers in Q-2 July-September 2023-24. The cost of production as a percentage of sales for manufacturers in the survey has risen for 58% respondents, as compared to 77% respondents for the previous quarter.
- ▶ Nonetheless, high raw material prices and high energy cost are the two main factors contributing to the high production costs.

Workforce Availability

- ▶ Most sectors have sufficient labour force engaged in their operations and are not facing shortage of labour at factories. While 82% of our respondents mentioned that they do not have any issues with workforce availability, the remaining 18% feel that there is still a lack of skilled workforce available in their sector. ♦

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'Automotive sector to register moderate growth over near to medium term'

According to ICRA, volume growth across segments is expected to remain at moderate levels in FY2024. OEMs focused on the development of ground-up EV platforms as electrification gathers pace.



Image used for representation only. Courtesy Envato Elements.

The domestic automotive industry has been on a comeback trail over the past two years, aided by a recovery in economic activities and increased mobility. The pace of revival across the various automotive segments has, however, been somewhat mixed. Aided by preference for personal mobility and stable semiconductor supplies, the passenger vehicle industry reached all-time high

volumes in FY2023, and the demand sentiments are expected to remain healthy in the segment (6-9% YoY growth in FY2024). The commercial vehicle industry saw a robust growth in volumes in FY2023 (on a curtailed base); even as the growth is expected to remain at modest levels in FY2024 (2-4% YoY) on a healthy base, the overall industry volumes are expected to approach pre-pandemic highs. In contrast to these

two segments, the two-wheeler industry has continued to struggle with industry volumes still below the pre-COVID peak levels, with the material rise in cost of ownership constraining demand. Even as the industry is expected to record a moderate growth in volumes in FY2024 (4-7% YoY), a sustained recovery in demand sentiments remains to be seen, amid concerns regarding the impact of an uneven



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monsoon precipitation on rural demand.

Commenting on the outlook for the automotive industry, Mr. Shamsheer Dewan, Senior Vice President & Group Head - Corporate Ratings, ICRA, said: "We expect growth across the automotive industry segments to remain at moderate levels in FY2024. While the passenger vehicle volumes would continue to trend upwards, aided by favourable demand drivers, the two-wheeler industry is also expected to record moderate growth in volumes aided by a low base. Even as the demand sentiments in the commercial vehicle industry remain steady, the volume growth is expected to remain low on a healthy base. The impact of an uneven monsoon precipitation on rural demand across segments remains monitorable, even as the government's efforts on rural infrastructure development, crop procurements, etc. remain a positive."

ICRA has a forecast of a CAGR of ~6-9% across the automotive segments over the medium to long term. Supporting underlying factors such as rising per capita incomes, demographic profile, low vehicle penetration, favourable policy environment, including infrastructure

Exhibit: Segment-wise growth outlook

Segment	Growth Forecast (YoY) FY2024(P)
Passenger Vehicles	6-9%
Commercial Vehicles	2-4%
Two-wheelers	4-7%

Source: ICRA Research

development, etc. are expected to help grow the industry demand at a steady pace. Spurred by government support in the form of subsidies (under the FAME-II policy), enhanced awareness, and increasing product launches, the electric vehicle (EV) segment has seen a material upturn in prospects over the past two years. Given the healthy subsidies available in the electric two-wheeler (e2w) segment, it accounted for approximately 85-90% of the total EV sales (excluding the e-rickshaw segment) till date. Even as hybrids are viewed as an intermediate step towards acceptance of EVs in the passenger vehicle segment, mitigating range anxiety and offering superior mileage, EV penetration is improving at a healthy pace, aided by enhanced customer acceptance. While a reduction in subsidy benefits under the FAME II policy for e2ws from June 2023 has slowed down the pace of adoption to an extent, the OEMs remain focused on value engineering initiatives to develop

more affordable products, and the same is likely to aid adoption over a medium term.

Amid the ongoing electrification transition, the OEMs are expected to incur significant investments in the development of ground-up EV platforms and enhance manufacturing capacities. The enhanced investment towards product development is expected to moderate the return indicators to an extent for the industry over the near to medium term. Competitive manufacturing capabilities and ongoing efforts by the OEMs to enhance the distribution network bode well for export prospects. Over the near term, the domestic industry volumes are expected to continue to drive growth, with export prospects remaining weak amid a shortage of dollar availability in some key markets and inflationary pressures. ♦

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'Indian auto component industry grows 12.6% to INR 2.98 lakh crore in first half of 2023-24'

According to ACMA, exports grow 2.7% to USD 10.4 billion, while imports grow 3.6% to USD 10.6 billion. The auto components industry continues to make investments for higher value addition, technology upgradation & localisation.

Automotive Component Manufacturers Association of India (ACMA), the apex body representing India's auto component manufacturing industry, recently announced the findings of its Industry Performance Review for the first half of fiscal 2023-24. The turnover of the automotive component industry stood at INR 2.98 lakh crore (USD 36.1 billion) for the period April to September 2023, registering a growth of 12.6 per cent

over the first half of the previous year.

Commenting on the performance of the auto component industry in India, Vinnie Mehta, Director General, ACMA, said, "With vehicle sales and exports displaying steady performance, the auto component industry demonstrated a growth of 12.6 per cent scaling a turnover of INR 2.98 lakh crore (USD 36.1 billion) in the first half of FY 2023-24. Auto component supplies to all segments of the industry, i.e., to OEMs, exports

as also the aftermarket, remained steadfast. Exports grew by 2.7 per cent to USD 10.4 billion (INR 85.87 lakh crore), while imports grew by 3.6 per cent to USD 10.6 billion (INR 87.42 lakh crore). The aftermarket, estimated at INR 45,158 crore, also witnessed a growth of 7.5 per cent. Component sales to OEMs in the domestic market grew by 13.9 per cent to INR 2.54 lakh crore."

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industry, Shradha Suri Marwah, President, ACMA & CMD, Subros, said, "With vehicle sales across all segments reaching pre-pandemic levels and with mitigation of supply-side issues witnessed during the pandemic such as availability of semiconductors, high input raw-material costs and non-availability of containers, the auto components sector witnessed a steady growth in both domestic and the international markets in the first half of FY2023-24."

Elaborating on the mood of the industry and outlook for the near to mid-term future, Shradha mentioned, "Going forward, considering the festive season has gone well with significant sales across most segments of the vehicle industry, I am optimistic that the current fiscal year will witness another good performance from the auto components sector. The components industry continues to make investments for purposes of higher value-addition, technology upgradation and localisation to

stay relevant to both domestic and international customers."

Key findings of the ACMA Industry Performance Review for H1 2023-24:

Sales to OEMs: Auto component sales to OEMs, in the domestic market, at INR 2.54 lakh crores (USD 30.8 billion) grew 13.9% compared to the first half of the previous year. Consumption of increased value-added components and the shift in market preference towards larger and more powerful vehicles continued to contribute to the increased turnover of the auto components sector.

Exports: Exports of auto components grew by 2.7 per cent to USD 10.4 billion (INR 85,870 crore) in H1 2023-24 from USD 10.1 billion (INR 79,033 crore) in H1 2022-23. North America accounting for 33 per cent of exports and Europe for another 33 per cent, saw an increase of 2 per cent and 12 per cent, respectively, while Asia, accounting for 24 per cent, witnessed a decline of 4 per cent.

Imports: Imports of auto components

grew by 3.6 per cent from USD 10.2 billion (INR 79,815 crore) in H1 2022-23 to USD 10.6 billion (INR 87,425 crore) in H1 2023-24. Asia accounted for 63 per cent of imports followed by Europe and North America, with 27 per cent and 9 per cent, respectively. Imports from Asia grew by 2 per cent, from Europe by 8 per cent and from North America by 2.5 per cent.

Aftermarket: The aftermarket in H1 2023-24 witnessed a growth of 7.5 per cent to INR 45,158 crore (USD 5.5 billion) from INR 42,007 crore (USD 5.4 billion) in H1 2022-23. ♦

Article Courtesy: Automotive Component Manufacturers Association of India (ACMA).

Note: 1. The turnover data represents the entire supplies from the auto component industry (ACMA members and non-members) to the on-road and off-road vehicle manufacturers and the aftermarket in India as well as exports. This also includes component supplies captive to the OEMs and by the unorganised and smaller players.
2. The growth percentages for exports and imports are in USD-terms while for the rest, they are in Rupee-terms.

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2024 Manufacturing Trends Focus is on Operational Efficiency

In 2024, manufacturing trends will be centered on strategies that drive operational efficiency. The high level of pandemic-era medical, home, and leisure product demand that fueled a produce-at-all-cost approach to manufacturing operations is ending. With consumption patterns returning to more normal profiles, many manufacturers are now switching to strategies that emphasize efficiency, while maintaining delivery capacity.

Instead, as we head into 2024, manufacturers will turn to four strategies that drive efficiency: automation and workforce enablement, vertical integration and consolidation, artificial intelligence (AI) driven business planning and execution, and recognition of sustainability as an operational benefit.

Automation and Work Force Enablement

There's an old adage that low volume is the enemy of automation. In 2024, this is becoming less true. Automation is being advanced by robotics and vision systems that are less expensive, can be trained remotely, and can be utilized in a greater variety of jobs. With lower barriers to adoption, manufacturers will increasingly embrace automation and workforce enablement as labour availability and cost continue to be industry-wide issues.

AI training systems running in the cloud, less expensive 3D printed end-of-arm tooling, and robotics as a service from companies like Rapid Robotics are pushing the return on investment (ROI) for pick-and-place and



assembly automation to new levels of short-run practicality. It's no longer uncommon for multiple automation projects to be underway at the same time using remote contractors along with sophisticated vision and learning systems to implement automation projects in weeks rather than months.

However, not every task can be automated, and the view that every reliable worker is a jewel will be a dominant mindset among many factories in 2024. To that end, we'll see increased investment in manufacturing execution system (MES) systems that not only track production but enable workers to quickly learn to perform new tasks with work center-based training and guided operations. These MES systems will also enable workers to multi-task by alerting them to exceptions across multiple work centers, freeing them from the

mundane watch-and-wait at each work center that too often has been the norm.

Another good example of workforce enablement is using enterprise resource planning (ERP) for warehousing operations. ERP-driven advanced warehouse management provides paperless, scan-based material identification and tracking, plus directed put-away and pick operations that keep warehouse personnel productively engaged. More investments of these types will be among the major 2024 manufacturing trends.

Vertical Integration and Consolidation

Merger and acquisition (M&A) trends will shift in 2024 to focus less on economically opportunistic transactions and more on advancing strategic goals. Two synergistic strategic factors are driving this. First is the desire of upstream



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2024 Manufacturing Trends Highlight AI-Driven Business Planning and Execution as a Strategic Priority

Accurate planning and execution that create the foundation for operational excellence and efficiencies will be a strategic priority in 2024. AI and machine-intelligence-driven tools generate forward-looking guidance, plans, and actions far faster and with far greater accuracy than can be accomplished manually.

Generative AI tools like ChatGPT offer some tactical benefits to manufacturers, for example, helping to create better training guides or work instructions. Arguably, their greater impact in 2024 will be refocusing manufacturers on the value of the AI and machine learning-driven tools already available.

Today's tools include forecasting, automated scheduling, MES, statistical process control, predictive maintenance, and active alerts and workflows. They accurately solve problems that are informed by large amounts of data with multiple constraints and often require iterative calculations to determine the best answer. Such problems require data processing capabilities and capacities well beyond those of human analysts.

Two factors are accelerating the move to AI and data-driven decision-making. First, a generational knowledge shift is underway as more seasoned analysts and planners retire. Their knowledge, gained over a lifetime of hands-on experience, is difficult to transfer. The existing AI-driven tools in most manufacturing environments are becoming essential to replace these retiring experts. Second, businesses that are vertically integrating and consolidating face new levels of complexity. Here, the ability to execute AI and data-driven planning and control over processes, such as forecasting and scheduling production, is essential for success.

customers to reduce the number of vendors they work with. Second is the ability of consolidators and integrators to eliminate redundant sales, marketing, front office, production, and distribution costs while also building the one-stop-shop supply chain businesses that original equipment and tier-one manufacturers prefer to do business with.

The OEM or ultimate brand producer often works with dozens or hundreds of vendors to produce a final product for the end customer. So, vendor consolidation becomes very enticing for these large companies. If they can deal with one vendor who can deliver an entire sub-assembly more cost-effectively, then so much the better. Similarly, mass merchants that require a full line of consumer pharmaceutical dosing devices will prefer to buy from a vendor that can produce a full line of plastic, glass, and organic devices.

In serving these different supply chains, manufacturers that become turn-key vendors—e.g., producing plastic parts, metal parts, electronic components, and finish and assemble products—will have a distinct competitive advantage. Companies will be vertically integrated through M&A to accomplish this exact goal.

ERP deployment and consolidation is clearly a major enabler of the integration and consolidation trend. Investors and ownership groups need clear visibility and control across larger and more complex operations. ERP not only offers that visibility; it also provides a tool to implement consistent business practices across multiple operating facilities.

Sustainability as an Operational Benefit

Over the last year, we've seen a significant increase in large manufacturers with published goals to be carbon neutral by

2050. Notably, a company's carbon footprint is determined by both its own production and the production and operations of its supply chain. So, to meet their sustainability goals, large manufacturers need to start measuring and claiming reduced emissions from their contracts and supply chain manufacturers. This will make sustainability and carbon footprint tracking and reporting programs supply chain concerns a key manufacturing trend in 2024 and beyond.

Having a formal sustainability and carbon footprint management plan will become a priority for mid-market manufacturers seeking preferred vendor status from larger manufacturers who are increasingly requiring suppliers to have a program in place.

Additionally, reducing carbon footprint will improve the manufacturer's bottom line since the top purchasing spend often includes raw materials and energy consumption, which are also the largest contributors to carbon emissions. Manufacturers can use their ERP systems to calculate their carbon footprint and related costs.

Reducing carbon footprint is a three-way win. It protects the environment, creates preferred vendor status, and increases operational efficiency. ♦

*Article and Image Courtesy:
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SolidWorks Corporation*

ABOUT THE AUTHOR

Steve Bieszczat, DELMIAworks (IQMS) Chief Marketing Officer, is responsible for all aspects of DELMIAworks' (IQMS) brand management, demand generation, and product marketing. Prior to DELMIAworks (IQMS), Steve held senior marketing roles at ERP companies Epicor, Activant and CCI-Triad. Steve holds an engineering degree from the University of Kansas and an MBA from Rockhurst University.



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Bonfiglioli is proud to announce the commencement of operations of its assembling facility in Pune

Bonfiglioli, leader in the manufacturing of gearboxes, gear motors and drive systems, announced the commencement of operations of its assembly facility for gearboxes, located in Pune.

This expansion in India is part of a global investment plan the company is doing concerning production and assembly facilities.

This state-of-the-art plant will help Bonfiglioli address the growing food & beverage, packaging, steel, pharmaceutical, textile, material handling, sugar, power generation, paper and water treatment sectors and underline its commitment to its customers in India and across the



region.

The 45,000 sqft. plant will mainly assemble gearboxes for light-duty applications and will contain 11 assembly centres and 2,000 warehouse locations, all

built to the highest standards of quality and safety, consistent with Bonfiglioli requirements over the world. The expected capacity is 150,000 assembled units per year. ♦

Godrej Aerospace and Paninian partner together for accelerating indigenous small AeroEngine development for aerospace and naval applications

Godrej Aerospace and Paninian India Pvt. Ltd. are happy to announce their Memorandum of Understanding (MoU) at Godrej Aerospace headquarters in Vikhroli, Mumbai. This partnership aims to create value for aerospace customers to help accelerate the design and development of gas turbine engines for aerospace and naval applications.

This MoU brings together Paninian's expertise in design, development and validation of complex systems like AeroEngines, Power Plant Systems and Godrej's expertise in manufacturing, assembly and systems integration for aerospace applications.

Paninian has been working towards the development of 3-12 KN of Turbojet and Turbofan engines for aerospace applications



and has recently validated concepts for 1-4 MW Gas Generators for marine applications.

Godrej Aerospace, on its part, is beefing up its manufacturing capabilities by setting up a new campus dedicated to aerospace manufacturing, assembly and testing facility near Mumbai. Godrej has recently won an order to develop critical modules of Kaveri Engines for GTRE.

This collaboration brings forth state-of-the-art Aero Engine Capabilities powered by Digital Twin solutions of this deep tech startup and Advanced Manufacturing Capabilities of a trusted business house to empower the Indian aerospace sector by saving cost and time for achieving faster turnaround in their mission readiness as well as achieving self-reliance to fulfill the vision of 'Aatmanirbhar Bharat'. ♦



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Hero Motocorp and Ather Energy collaborate to accelerate the EV charging ecosystem

Forging a landmark moment for the EV industry, Hero MotoCorp, the world's largest manufacturer of motorcycles and scooters, and Ather Energy, one of India's leading electric vehicle manufacturers, have entered into a partnership for an interoperable fast-charging network in India. Through this collaboration, EV users will be able to seamlessly use both VIDA and Ather Grids across the country. The combined network will cover 100 cities with over 1900 fast-charging points.

Dr. Swadesh Srivastava, Chief Business Officer – Emerging Mobility BU, Hero MotoCorp, said: "We are happy to extend our association with Ather Energy through this interoperable fast-charging network. VIDA's brand promise is building a 'Worry-free EV ecosystem', and this largest charging network in



the country will go a long way in providing a seamless & convenient ownership experience to customers. This fastest-growing network utilises the government-approved connector-standard, thus ensuring current and future customers will be able to use and charge their vehicles without any hassles in the future too. I congratulate the teams at Ather and VIDA for setting yet another global benchmark in the two-wheeler EV space."

Swapnil Jain, Co-founder and CTO, Ather Energy, said: "We are happy to partner with Hero MotoCorp for setting the stage for an interoperable

fast-charging network. It's a massive win for Indian OEMs to collaborate on scaling up charging infrastructure. This partnership will pave the way for consumers to access an extensive network of charging stations across the country, alleviating range anxiety. Given

the technical superiority of LECCS [Light Electric Combined Charging System] and the fact that it was made in India for India, we believe more OEMs will find it lucrative to adopt this standard. Today, we are also committing that any OEM which adopts the LECCS standard will have access to Ather Grid across India. With this interoperability, we are already demonstrating how it is beneficial for all OEMs to be on one standard. We believe that public charging infrastructure for two-wheelers is now set for collaborative expansion." ♦

Versuni opens state-of-the-art factory in Ahmedabad

Versuni, home to some of the world's most renowned domestic appliances brands, including Philips, Saeco, Gaggia, Preethi, Philips Walita, Senseo and L'OR Barista, has recently announced the opening of its new manufacturing facility in Ahmedabad. The unveiling of the factory marks a significant leap in its commitment to India as a strategic growth market. The inauguration ceremony was attended by global Versuni CEO Henk S. de Jong and Versuni India CEO Gulbahar Taurani.

The cornerstone of the new facility will be the production of widely acclaimed flagship products including the Philips Airfryers and Philips garment steamers, embracing the paradigm shift in



Indian consumer preferences. In response to the soaring demand, Versuni will manufacture the Philips Airfryer for the first time in India with a fully integrated automatic robotic coating line. Versuni is committed to local manufacturing with an initial annual capacity of 500,000 Philips AirFryers in phase 1 and 200,000 Philips garment steamers in phase 2, which can be scaled up to a total of one million pieces per year to keep pace with demand. The facility

also adheres to the highest global standards, including CE certification, ensuring that manufacturing processes meet the stringent quality benchmarks demanded by the international market.

Henk de Jong, CEO, Versuni, said, "The inauguration of our Ahmedabad factory exemplifies Versuni's dedication to India as a strategic growth market, as we continue to deliver exceptional products and services that drive forward our purpose of turning houses into homes. Today, around 70% of the products that we market to consumers in India are produced in this country. We aim to increase this to 90% in the coming years thanks to the strategic decision to open a new factory in Ahmedabad." ♦



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Tata Motors electrifies Bengaluru's urban commuting with 100 Starbus EVs

Tata Motors, India's largest commercial vehicle manufacturer, has accelerated Bengaluru's electrified public transport with the delivery of technologically-advanced Starbus EVs to Bengaluru Metropolitan Transport Corporation (BMTC). This marks a significant milestone as part of a larger order as per the agreement between TML Smart City Mobility Solutions Ltd., a Tata Motors subsidiary, and BMTC, encompassing the commencement of supply, operation and maintenance of 921 state-of-the-art 12-metre low-floor electric buses, over a 12-year period.

Tata Motors' smart electric bus was inaugurated by Hon'ble Chief Minister of Karnataka, Shri Siddaramaiah along with Hon'ble Deputy Chief Minister of Karnataka, Shri D. K. Shivakumar, Shri Ramalinga Reddy, Hon'ble Minister for Transport & Mujarai, Government of Karnataka & Chairman, BMTC, Shri Rizwan



BMTC inducts Tata Motors' state-of-the-art electric buses for comfortable, emission-free mass mobility.

Arshad, Hon'ble MLA, Shivajinagar Assembly Constituency, Ms. Kala Krishnswamy, IPS, Director (S&V), BMTC, and Ms. G Sathyavathi, IAS, Managing Director, BMTC.

Ms. Sathyavathi said: "We are delighted to induct Tata Motors' state-of-the-art buses after the successful completion of prototype trials of Tata's electric buses within the city."

Mr. Asim Kumar Mukhopadhyay, CEO and MD, TML Smart City Mobility Solutions Limited, said: "We are elated to witness our top-

of-the-line Starbus EVs inducted in BMTC's fleet. Our offering to the citizens of Bengaluru is a testament to our commitment to cutting-edge, eco-friendly offerings. We are confident that our buses will further strengthen BMTC's fleet and make public transportation safe, comfortable, tech-driven and energy-efficient. These buses have been developed and manufactured at state-of-the-art facilities and have been rigorously tested and validated across varied conditions." ♦

Vietnam's VinFast to set up \$500-million EV facilities in India

Vietnamese Electric Vehicle (EV) maker VinFast has signed an agreement to set up its first manufacturing facilities in India, as the ambitious company seeks to penetrate the world's third-largest vehicle market.

VinFast and the southern state of Tamil Nadu agreed to work toward an investment of up to \$2 billion, with an intended commitment of \$500 million for the first five years of the project, according to a joint statement.

Construction on the project's EV and battery manufacturing plants is expected to start this year and generate 3,000 to 3,500 jobs locally,



the statement said.

Reuters had earlier reported that VinFast would open its first Indian manufacturing facility in Thoothukudi in Tamil Nadu, where it would make EV batteries.

VinFast said the Tamil Nadu project was expected to evolve into a first-class EV production hub in the region, with an annual capacity of up to 150,000 vehicles, compared with 250,000 at its main plant in Vietnam. The joint statement did not specify

the capacity of the battery facility.

Electric models accounted for just around 2% of India's car sales last year, but the national government is targeting 30% by 2030 and is working on a scheme to attract EV makers.

The Tamil Nadu government committed to providing cleared land for the manufacturing facilities, uninterrupted power supply and other infrastructure support, the statement said.

VinFast said it also plans a nationwide dealership network. ♦

Courtesy: Reuters



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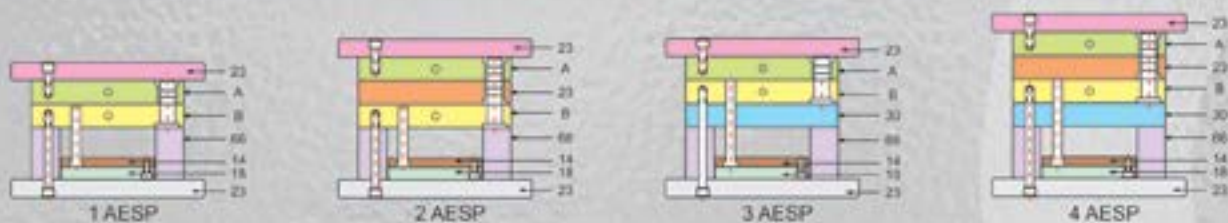
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Hilti opens modern production plant in India

Hilti Group recently said that it has built its new plant in India with a modern production facility that meets the highest standards of technology and efficiency. Sustainability aspects and the wellbeing of around 300 team members working in the plant also play an important role in the new building, said the company.

After two years of construction, the new Hilti plant in Vadodara, India, was put into operation in August 2023 and has now been officially opened. "We offer modern workplaces and produce high-quality products while bringing development and production together under one roof," said Hilti Manufacturing India CEO Giridhar Jambunathan.

The site in India continues to be an integrated competence center for diamond products like saw blades, core bits and cup wheels within Hilti's global production network. Next to production and offices, the 12,600 square meter site also houses development and design departments as well as product testing areas. About 300 team members currently work at the plant, which has been laid out towards further growth to allow

for any future expansion.

In terms of sustainability, Hilti focused on reducing energy consumption and installing a low-energy cooling system. The photovoltaic panels on the roof generate electricity that is used to power one-third of the plant's energy needs. At the same time, they prevent the building from overheating by casting a shadow.

Carl Hoffmann, Head of Global Manufacturing Electric Tools & Accessories, emphasised the long-term orientation of Hilti in Vadodara. He said: "This plant is a perfect example of Hilti's commitment to combining sustainability aspects with a modern working environment. We consider ourselves fortunate to be able to

take this big step after the long-standing presence of Hilti in India. It is a promising location with well-trained specialists who create an excellent basis for innovation with their materials know-how and expertise in manufacturing processes." ♦



Courtesy: BW Businessworld



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Airbus awards landmark contract to Aequs

Leading aerospace components maker Aequs Pvt. Ltd., has secured a contract with the world's largest aircraft maker Airbus for supply of critical components for the A320, A330neo and A350 over an extended period.

This transformative award marks a significant milestone not only for Aequs, but also for the Indian aerospace industry, exemplifying the country's growing significance as a global aerospace manufacturing hub, deepening Airbus's 'Make in India' drive. The contract was signed by Gunnar Hansen, Head of Strategic Procurement, Detail Parts, Airbus Aerostructures, and Nils Witt, Chief Procurement Officer, Airbus Aerostructures, and Mohamed



Bouzidi, President Aerospace, Aequs, at Belagavi recently.

Under the terms of the agreement, Aequs will make detailed parts, and parts with bench assembly for wings, fuselage, and pylons for Airbus's popular single-aisle family of aircraft over a period of ten years.

This landmark contract signifies Aequs's rise to the status of a

strategic partner and highlights the trust and confidence that the world's largest aircraft maker places in its ability to meet the highest industry standards and consistently deliver top-notch aerospace components.

Aravind Melligeri, Chairman & CEO, Aequs, said: "This contract is a significant moment in Aequs's journey with Airbus. We are proud to stand alongside the world's largest aircraft maker as a long-term strategic partner. It is also a testimony to the confidence in Aequs by global OEMs to enter into a deeper and longer relationships, particularly at a time when the global supply chain is passing through a recalibration. This stems from the robustness of the Aequs Aerospace ecosystem and its supply chain robustness." ♦

Ashok Leyland wins order for 552 buses from Tamil Nadu State Transport Corporation

Ashok Leyland, the Indian flagship of the Hinduja Group and the country's leading commercial vehicle manufacturer, recently announced that it has bagged an order from TNSTC (Tamil Nadu State Transport Corporation) for 552 Ultra-Low Entry (ULE) buses for public transport. Ashok Leyland is proud to collaborate with TNSTC in the pursuit of "Mobility for All", the Tamil Nadu state government's commitment to promoting access to public transportation.

Ashok Leyland has been a long-standing supplier of TNSTC with more than 18,477 Ashok Leyland buses operational in its fleet. The new ULE buses boast state-of-the-art features like the powerful H-series 6-cylinder 4-valve 184 kW (246 hp) engine, a step-less entry, rear engine configuration, automatic transmission, front disc brake,



electronically controlled front and rear air suspension, and an intelligent transportation system with CCTV, destination boards reflecting vehicle location, and vehicle tracking.

Mr. Shenu Agarwal, Managing Director & CEO, Ashok Leyland, said, "We are honoured to partner with TNSTC towards the realisation of the 'Mobility for All' initiative. As we strive to meet the rapidly expanding public mobility needs of our country, our in-depth understanding of markets and customers remains the cornerstone that distinguishes us. This order

reinforces our dedication to creating very efficient and technologically advanced products that exceed our customer expectations and contribute to the growth of public transportation."

Mr. Sanjeev Kumar, President-M&HCV, Ashok Leyland, said, "We are thrilled to have received this order from TNSTC with whom we have a long-standing relationship. Our ULE buses represent the epitome of technology and safety in the commercial vehicle segment. We are proud to offer TNSTC and the people of Tamil Nadu a fleet that ensures superior comfort and the highest standards of safety. This order reflects the trust that our customers place on Ashok Leyland."

This project is funded by the German Development Bank (KfW). Ashok Leyland will commence the delivery of these buses within the next few months. ♦



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Hexagon brings fast, cost-effective surface measurement with new laser scanner for CMMs

Hexagon's Manufacturing Intelligence division has announced the release of a new laser scanner for coordinate measuring machines (CMMs) designed for manufacturers looking for a cost-effective option for more efficient surface measurement and higher throughput.

Concentrating on the core laser scanning functions, the new HP-L-10.10 LITE laser scanner makes it easy and affordable for manufacturers to benefit from the measurement speed and coverage of laser scanning. The scanner captures the complete surface data of a part in a fraction of the time compared to measuring many points or lines with tactile measurement methods.

"When launching the standard-setting HP-L-10.10 CMM laser scanner in 2021, we knew many manufacturers wanted to increase their inspection efficiency and throughput but did not necessarily require that scanner's full feature set of capabilities," says Patryk Wroclawski, Non-contact Sensors Product Manager at Hexagon. "The HP-L-10.10 LITE is our answer to this need. And while this might be our entry-level scanner, it's a high-speed and accurate device that delivers big productivity improvements across multiple measurement applications."

The scanner is built upon Hexagon's latest cross-platform laser line scanning technology. It employs the same SHINE (Systematic High-Intelligence Noise



Elimination) technology as the flagship HP-L-10.10, allowing it to quickly and accurately collect clean 3D measurement data from almost any surface material and finish.

Fast point cloud creation at up to 240 000 points per second acquisition rate and a 120 Hz frame rate make the HP-L-10.10 LITE ideal for scanning surfaces quickly, and its probing form

error of just 14 microns is strong performance for laser scanning on a CMM.

The HP-L-10.10 LITE is designed for use with a wide range of applications and measurement surfaces, including shape measurements of sheet-metal parts, moulds, or castings; colour mapping for quick quality insights over a complete surface; and capturing point clouds to create meshes for reverse engineering applications.

Equipped with the HP-L-10.10 LITE, a CMM becomes a multi-sensor machine that can handle most measurement tasks. When combined with tactile probing, it enables manufacturers to balance the requirements for accuracy with the demand for higher throughput in a single part program.

The scanner is ideal for manufacturers looking to economically add rapid point cloud measurement to their metrology toolkit and who don't require the full speed, finer accuracy or the additional collaborative capabilities of the flagship HP-L-10.10. ♦

SH7025 PVD grade inserts improve small part machining performance

Experience Tungaloy's latest development: SH7025 PVD-coated grade inserts designed specifically for small part turning.

Efficiently machine small and miniature parts, achieving superior surface finish and predictable tool life with Tungaloy's new SH7025 PVD-coated grade turning inserts. Its fine-grain columnar TiCN coating provides the grade with an optimised balance of wear and fracture resistance. This benefits all users involved in processes, where insert tool life is determined based on the degradation of part dimensions and surface qualities. Furthermore, increase tool life with a combination of columnar TiCN coating and multilayer TiAlN coating significantly, while reducing wear

progression or fracture. The inserts are all gold-finished, allowing operators to easily identify a used edge or edge wear in dimly lit workshops.

Discover superior chip-breaking performance with the -JP and -JS geometry inserts. The first-choice chipbreaker, the -JP offers excellent chip breaking required in high-precision finishing operations, while the -JS provides consistent and effective chip control in a wide range of cutting parameters thanks to its large inclination angle of the cutting edge and optimised chipbreaker geometry.

A total of 173 new inserts have been launched. ♦





Kennametal Inc. recently announced its new KCU10B turning grade, an innovative update to its KCU10 platform with an enhanced KENGold™ coating technology for edge protection. This universal cutting solution is designed for machinists in aerospace and defence, automotive, energy and general engineering markets requiring maximum output when cutting a broad range of difficult-to-machine materials.

Kennametal introduces new turning grade featuring KENGold technology

“We engineered this new turning solution to excel in finishing applications across industries,” said Scott Etling, Vice President of Marketing, Global Product Management. “Designed with our multilayer, nanostructure PVD coating technology, KCU10B supports machining with higher quality, consistent power on more materials and a longer tool life.”

KCU10B joins the company’s KENGold portfolio, which delivers consistency in multi-material cutting, improved wear resistance and enhanced process security—including when used on steels and stainless steels. ♦



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Vario Shot Xgate – Interchangeable needle-valve pre-chamber

For some years now, the particularly effective Vario Shot nozzle range from HASCO hot runner has been enjoying increase in popularity. With the interchangeable needle valve pre-chamber Vario Shot Xgate, HASCO has extended its proven nozzle portfolio.



Individually geared to applications, the two new variants of the Vario Shot Xgate offer the ideal solution, either for amorphous or for semi-crystalline plastics. The gate area and contact surfaces can be varied for application-specific temperature control.

Vario Shot Xgate simplifies maintenance

This wear-resistant Xgate simplifies the maintenance of the injection moulding tool and significantly reduces the maintenance costs. The life of the gates is considerably extended and guarantees perfect moulding quality over millions of injection cycles.

Precise needle guidance with pre-centring

The easily changed pre-chamber with a compact, easy-to-produce tight fit offers precise needle guidance with pre-centring and is also highly resistant to abrasive and chemically aggressive materials.

Optimum supplement to the Vario Shot nozzle range

The needle valve pre-chamber Xgate perfectly supplements the Vario Shot range, which is noted for its compact dimensions, optimum temperature control, simple servicing, and modular design. More than 1,000 nozzle variants enable countless demanding applications, from gating on lower distributor manifolds up to high-end needle valve solutions. The wide selection of nozzle lengths with runner and individual nozzles offers an elevated level of freedom in mould design.

The HASCO hot runner team will be pleased to support its customers in the optimum coordination of the nozzles, nozzle tips and needle valve pre-chambers to the specific applications. ♦



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Mobile: +91 8028393455
Email: hrkumar@srujana.com
Website: www.srujana.com
Activities: High Speed Precision Stamping, laser welding
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DIE & MOULD INDIA INTERNATIONAL EXHIBITION

Company Name	Booth	Company Name	Booth	Company Name	Booth
Aakar Dies and Moulds	J29	Die and Mould Solution	B20	Indo German Tool Room	F61
Abbott Toolfast Pvt Ltd	A16	Dietech India (P) Limited	D33	Indo German Vacu Treat Pvt Ltd.	L03
Abco International	J19	Die-Tek Springs Private Limited	D29	IndoTech Machines Solutions	J02
Abhijeet Dies & Tools Pvt Ltd	B03	Dijet Industrial Company Limited	F22	Industeel India LLP	A07
Abhinitee India	G21	DME India Private Limited	J14	Infinity Solutions	D27
Accurate Sales & Services Pvt Ltd	B36	Dow Trading Company	I01-02	Innovative Hydropneumatics	L07
Ace Designers Limited, Machining Center Division	B01	Drives and Drives	A11	Institute For Design of Electrical Measuring Instruments (IDEMI)	A49
Acme Toolings	C22	Dynaform India Pvt Ltd	I28	Ionbond Coatings Private Limited	F27
Adroit Control Engineers Pvt Ltd	D15	Dynamic Dies and Moulds LLP	C08	Italian Technology Center (Rare Tech LLP)	L01
Ahire Machine Tools Pvt Ltd	B18	East Coast Magnets Private Limited	D31	ITL Industries Ltd	G01
Alex Machine Tools Pvt Ltd	D21	EDM & Machineries Co.	F62	JBM Auto Limited	C12
Alif EDM Solutions	F24	Electronica HiTech Machine Tools Pvt Ltd	I02(B)	Jergens India Private Limited	D25
Ampco Metals India Pvt Ltd	H02	Electronica India Limited	H06	Jig Engineering	E18
Anil Plastics & Enterprises	G02	Eltec Engineering	C11	Jupiter Tooling	C37
ARYA TRADING COMPANY	A20	EST Tools Steel Pvt Ltd	A07	Jyoti CNC Automation Ltd	C06
Ashna Enterprise	E12	Etech Hot Runner System India	B42	Kadkraft Systems Pvt Ltd	E27
Asian Laser	A17	Excellence Engineering Services	E04	Kalyani Mould Base Pvt Ltd	F03
Associated Technocrats (P) Ltd.	F14	Falcon Toolings	B19	Karl Schussler GmbH & Co. Kg	J08(A)
ATQ Metro Pvt Ltd	A12	Fanuc India Pvt Ltd	I03	Kemtree Enterprises Pvt.Ltd.	D22
Automac Services	G11	Ferrament Global	A29	Ken Ichi Machine Co., Ltd.	F63
Automould	A44	Fibro India Precision Products Pvt Ltd	D06	Khodiyar Industrial Products	I23
Avi Sales Corporation	C26	Fidia S.P.A	A06	Kind Special Steels (India) Pvt Ltd	D08
Axis Engineering Solutions	G04	Force Motors Limited	F23	Kind Special Steels (India) Pvt Ltd	J03
B N Tools and Components Pvt Ltd	B40	Francis Klein & Co. Pvt Ltd	B12	Kishore Industries Pvt.Ltd	H11
B. S. Steel Corporation	E35	Galva Decoparts Pvt Ltd	K09	Kitagawa India Private Limited	I08(A)
Bangalore Bhat Metals	A30	Gentiger Machinery Industrial Co., Ltd.	F60	Korea Die & Mould Industry Cooperative	I01
Beryllium Copper India (Vijay Commercial)	E31	GF Machining Solutions PTE Ltd	L04	KRAMSKI Stamping & Molding India Private Limited	B38
Bhakta Industries	L08	Godrej & Boyce Mfg Co Ltd - Tooling Division	H03	Kushal Metal and Steel Industries Pvt Ltd	F04
Bharat Fritz Werner Limited	B02	Goel Steel Company	B04	Lakshmi Life Science Limited	E32
Bharat Technoplast Private Ltd	E07	GUNN Solution Co., Ltd	I01-01	Lakshmi Machine Works Limited	C02
Bhavya Machine tools LLP	C33	Haimer India Pvt. Ltd	E10(A)	Lakshmi Vacuum Technologies Pvt Ltd	B27
Bhurji Super-Tek Industries Limited	K11	Hallmark Advanced Technology Pvt Ltd	I08(B)	Laxmi Electronics Moulds & Precision Engg Pvt Ltd	D18
Bichamp Cutting Technology India Pvt Ltd	J17	Handok Tech CO., LTD	I01-05	Laser Technologies Pvt Ltd	A13
Blum Novotest Measuring and Testing Technology Pvt Ltd	F19	Hanspark Industries Pvt Ltd	C02(A)	Liba Enterprise	D12
Breton SPA	B25	Hasco India Pvt Ltd	B09	Lokesh Machine Limited	K05
Bukwang Technology Co., Ltd.	I01-03	Helli Moulds	C18	Longnan New Well Ejector Pin Manufacturing Co. Ltd	J09(a)
CAD CAM Galaxy	B39	Hexagon Manufacturing Intelligence c/o Vero India Software Pvt Ltd	F59	MacPro Technologies Pvt Ltd	I12
Cad Macro Design & Solutions Pvt Ltd	F34	Hi Link Printing Technologies	L10	Madhu Machines & Systems Pvt Ltd	E10
CADBRO India	D34	Hightech Mould Industrial Limited	I18	Madhura Investment & Plastic Equipment	D10
Cam Tools Industries Pvt Ltd	C10	Hindustan Export & Import Corp. Pvt Ltd	J18	Mahr Metrology India Pvt. Ltd.	I19
Carl Zeiss India (Bangalore) Pvt. Ltd	F45	Hoffen Plastics Pvt Ltd	F28	Make3d.in	E30
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China Machinery Engineering Suzhou Company Limited	E21	Hotmold Engineering India Pvt Ltd	C21	Mangal Industries Limited	J09(A)
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Creative EDM Engg Pvt Ltd	G17	Hurco India Private Limited	D02	Mastercam India Pvt Ltd	D16
Customised Technologies (P) Ltd	A36	Hyunseo Precision	I01-09	Mastercraft Engineers Pvt Ltd	B08
Daido Steel Co.Ltd	D13	I-MOLD (JSB Polymers Pvt Ltd)	B17	Maxeff Engineering Pvt Ltd	A50
Daxter Tools	D09	Indian Machine Tool Manufacturers Association (IMTMA)	I20		
Devu Tools Pvt Ltd	E05				

Company Name	Booth	Company Name	Booth	Company Name	Booth
MC Machinery Systems India Pvt Ltd	E06	Plassteze	F11	Sri Venkateswara Tools	D28
MDX3D India LLP	F37	Plastindia Foundation	I21	Sridevi Tool Engineers Pvt Ltd	B06
Mechanite Engineering Solutions	C31	Plastipack Industries	C27	Sriyantra Engineers (P) Ltd	A08
Mechmatrix	G12	Pneumec Kontrolls Pvt Ltd	A14	SRK International	A41
MERSEN India Pvt. Ltd	C17	Pragati Ispat Udyog	E34	Stiack Engineering Pvt Ltd	C29
Meraki Precision Moulds (A PPAP Group Initiative)	F64	Prasol Chemicals Ltd	L09	Store Supply (India) Agency	A05
Metacut Technologies	F42	Pre Mould Engineers	B21	Struclab Co.,Ltd.	A31
Metals United Alloys & Fusion Products Ltd.	B14	Precision Punches & Dies	F03	Subros Tool Engineering Center (STEC)	B16
Meusburger India Pvt Ltd	B05	Prime Graphite Pvt Ltd	D11	Sunita Engg Corporation	K20
Microtech Engineers	B41	Promac S.R.L	A46	Sunshine Technology	I17
Miju Precision India Pvt Ltd	A23	Proterial India Pvt Ltd	D05	Supply Point Systems Pvt Ltd	K07
Milacron India Private Limited (Mold-Masters Division)	K03	Protosys Technologies Pvt Ltd	D26	Swedish ME Steel Pvt Ltd	D20
Misumi India Pvt Ltd	E03	Punch Industry India Pvt Ltd	D14	Swiss Steel India Pvt Ltd	F49
Mitechnoplast Private Limited	K02	Purohit Steels India Pvt Ltd	D04	Swit	A10
Mitutoyo South Asia Pvt Ltd	A03	Quaker Chemicals India Pvt Ltd (Quaker Houghton)	A21	SXXH Automation India Pvt Ltd	F11
MMC Hardmetal India Pvt Ltd.	F02	QVI India Pvt. Ltd.	G06	Synergy Machine Tools	C28
Mohinder Agencies	E35	R & W Tooling Solutions Pvt Ltd	J10	Synventive Molding Solutions JBJ Pvt Ltd	H04
MST Corporation	C35	Radix Dies & Moulds Pvt Ltd	K08	Taehwamold	I01-06
MTK Tooling & Engineering Pvt Ltd	I16	Raise Machine Tools Pvt Ltd	J02(A)	Taistar Components Industrial Co Ltd	F36
Multiple Special Steel Pvt Ltd	C04	Raj Tools and Stamping Pvt Ltd	G19	Tap Master	A47
Mutual Engineering Pvt Ltd	F01	Rajamane Solutions	G05	Tara Tools	B15
Nagata India Private Limited	B07	Rajdhani Profiles	I14	TCM Exim Pvt Ltd	J15
Nambu CYL Thailand Co Ltd	F67	Rajshree Precision Pvt Ltd	A18	TGK Special Steel Pvt Ltd	F04
NCBrain India Software Pvt Ltd	F26	Raut Engineering Pvt Ltd	H01	The All India Plastics Manufacturers' Association [AIPMA]	I22
Nettur Technical Training Foundation	I11	RDES Engineering Pvt Ltd	F54	TopSolid India	A43
Next Tech Solutions Pvt. Ltd.	K04	Rego-Fix India Pvt Ltd	F41	Trucut Tools India Pvt Ltd	B22
N-Gravetek	F55	Renata Precision Components Pvt Ltd	F25	Trumould Technology Pvt Ltd	C25
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Ningyuan Machine Tools Pvt Ltd	F38	Riya Electrodes Pvt Ltd	G03	TTB Tooling	D07
NK Engg Dies & Tool	C24	Ronch Absolute Tools Pvt Ltd	J01	UCAM Pvt Ltd	A04
Nulo Innovations	A45	S & T Engineers (P) Ltd	C01	UE Press Tools Pvt Ltd	D30
Oerlikon Balzers Coating India Pvt Ltd	B10	Sahas Softtec LLP	I15	Ugro Capital Limited	I09(B)
OH Sung Tech CO LTD	I01-04	Saketh Sevenstar Industries Limited	J09(B)	USBCO Steels Pvt Ltd	C09
Oilmax Systems Pvt Ltd	A28	Sandeep Enterprises (A Unit of Vision Vanijya Pvt Ltd)	J02	Valiant Hiteck Pvt Ltd	F47
Om Enterprises	A02	Sandeep Technologies Pvt Ltd	G09	Vanto Industries Pvt Ltd	H09
Om Enterprises	G10	Sanjay Tools & Adhesives	B35	Vasa Speciality Steels Pvt Ltd	B26
Om Steel Enterprises	F10	Sanjay Tools & Adhesives	A35	Vasantha Tools Crafts Pvt Ltd	E08
ONSE Machine Tools P Ltd	A40	Seventh International	A37	Vem Tooling India Pvt Ltd	B43
Open Mind Cadcam technologies India Pvt Ltd	F35	Shilpin Machine Tools Pvt Ltd	F43	Venus Seimitsu LLP	J11
Orcan Products of India	L02	Shinho Precision India Pvt Ltd	A22	Vijaydeep Mould Accessories Pvt Ltd	E09
Orion Innotech Pvt. Limited	F57	Shinwa Moulds India Pvt Ltd	C14	Vishal Precision Products Pvt Ltd	F20
Orotig	I10	Shubhline Automation Pvt Ltd	I13	Voestalpine High Performance Metals India Pvt Ltd	C03
OSG (India) Private Limited	F12	Shree Rapid Technologies	D19	Wenzel South Asia Pvt Ltd	F53
Otto Bilz India Private Limited	B11	Shreedaa Enterprises	E26	Wonjin Industry Co.	I01-07
Param Machining Technologies Pvt Ltd	B37	Shri Gajanana Industries (I) Pvt Ltd	H12	Xtra Precision Screws Pvt Ltd	E19
Param Machining Technologies Pvt Ltd	G14	SigmaTEK Systems India Pvt Ltd	K10	Yamazaki Mazak India Pvt Ltd	D03
Pawan International	B33	Simcon (Viscoperusetech Pvt Ltd)	E15	Yash Tools (I) Pvt Ltd	C34
PCK Buderus (India) Special Steels Pvt Ltd	D01	SK International	J13	Yes Tools & Consultancy Services	I09(A)
Perfect Engineers	G22	SKH Technologies	F32	Yudo Hot Runner India Pvt Ltd	C07
Phillips Machine Tools India Pvt Ltd	E02	SMART SAVE	A32	Zahoransky Moulds and Machines Pvt Ltd	G13
Pi-Tech Services	G16	SMW Autoblok Workholding Pvt Ltd	G08	Zecha Precision Tools Limited	H05
Planetto Tooltech Pvt Ltd	D36	Sodick Technologies India Pvt Ltd	F09	Zoom Technologies	I02(A)
		Sparkonix (India) Pvt Ltd	F31		
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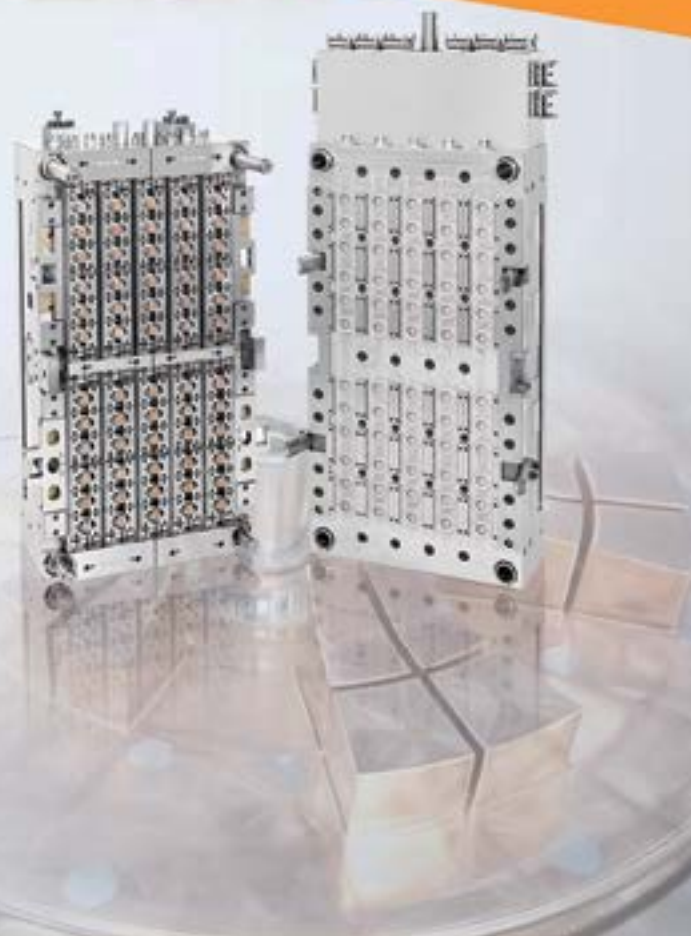
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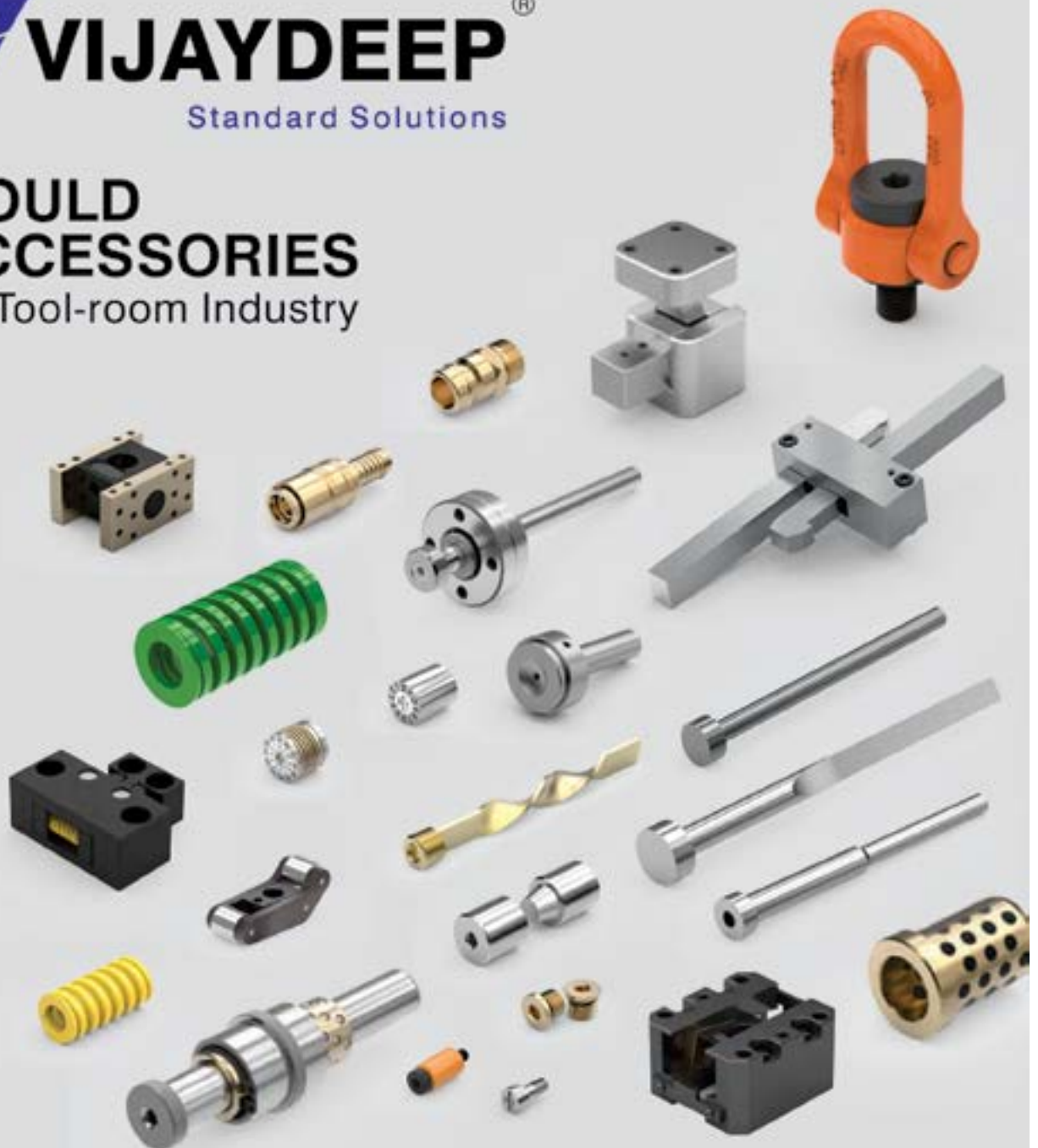
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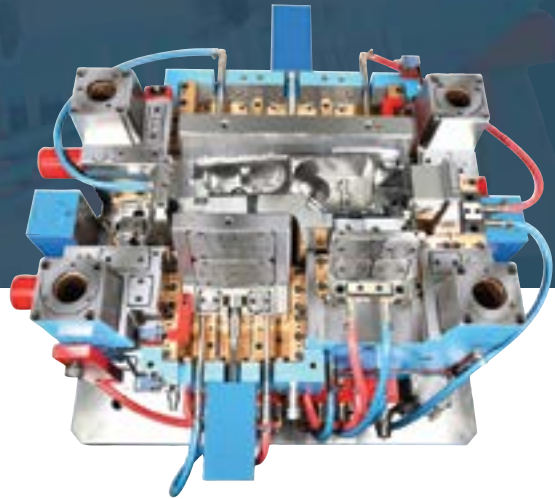
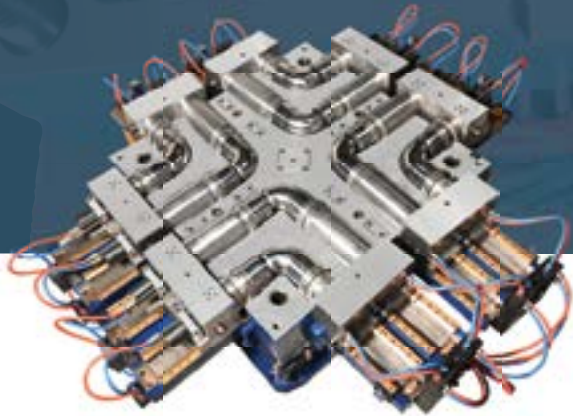
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