TAGMA TIMES

NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

Volume: XXVIII / No. 9 (Private Circulation for Members Only) May 2022

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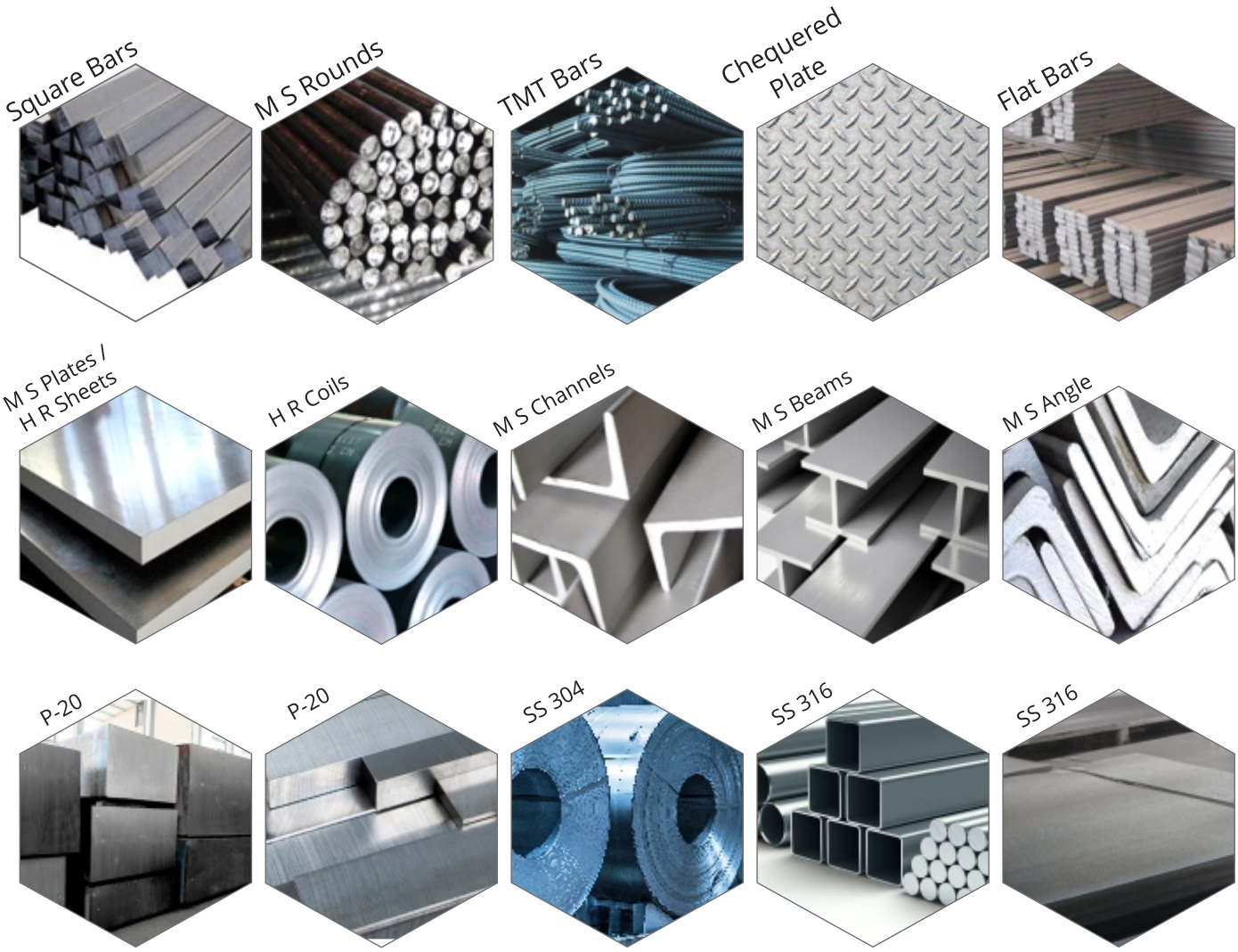

Reach at:

Corporate : 903/1007/1110, Techno IT Park, Link Road, Borivali (W), Mumbai- 92.
E : info@thevasagroup.com / hr@thevasagroup.com
Workshop : SK Tools, G/4 SK Industrial Park, Naik Pada, Vasai (E).
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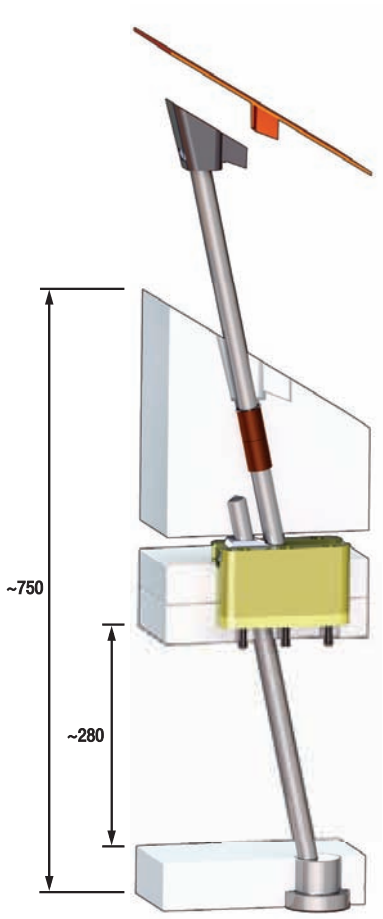

Conventional System

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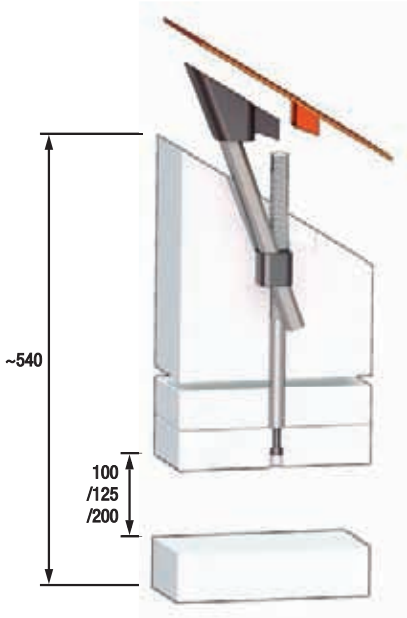

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ZAHORANSKY Moulds And Machines (P) Ltd - Coimbatore – 641 107
Email: arvind.chawla@zahoransky.com

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Email: gopalakrishnants@gmail.com

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Email: tagma.bangalore@tagmaindia.org
Contact: Mr. Ashok Shetty - Secretary
Cell.: +91 98453 97780

CENTRAL OFFICE

A-33, NandJyot Indl. Estate,
Safed Pool, Mumbai - 400 072.
Tel.: 022-28526876 / 28508976
Cell.: +91 96534 27396 / 97694 07809
Email: tagma.mumbai@tagmaindia.org

PUNE OFFICE

Plot A-22/2, Chakan Industrial Area,
Phase II, M.I.D.C, Village Khalumbre 410501
Tal. Khed, Dist. Pune.
Cell.: +91-95276 89700
Email: tagma.pune@tagmaindia.org

COIMBATORE CHAPTER

C/o. S & T Engineers (P) Ltd.
22, Vasanth Nagar, Trichy Road,
Singanallur, Coimbatore - 641 005.
Tel.: 0422-2590810 • Fax : 0422-2573629
Email: tagma.coimbatore@tagmaindia.org

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EDITED & PUBLISHED BY : D.M. SHEREGAR FOR TAGMA INDIA at A/33, Nand Jyot Indl. Estate, Safed Pool, Mumbai - 400 072.
Tel.: 2852 6876 • 2850 8976 / Cell.: 96534 27396, 97694 07809

EDITORIAL

A positive impact!

How will the industry respond to the 12th Die & Mould India International Exhibition after the pandemic-induced four-year gap? This question was on our minds while we were planning Die & Mould India 2022. Gauging from the overwhelming response we received this year, Die & Mould India, once again, proved to be the numero uno exhibition for the global tooling fraternity. You can read all about it in our 'DMI@2022' section.

The exhibition not only showcased the best-in-class technologies, but also provided Indian toolmakers the much-sought after platform to physically interact with end users. During the four-day event, I interacted with many professionals, including exhibitors, visitors, and delegates, among others. Based on my interactions with them, here's what I observed:

- Toolmakers are very confident about their future business prospects and many of them are planning to expand in recent times.
- Localisation among automakers is on the rise. They are exploring domestic toolmakers to reduce their dependency on imports.
- Toolmakers are planning to diversify and are gearing up to tap the opportunities emerging from industries such as aerospace, medical, toy making, and white goods, among others.
- Toolmakers feel the policy framework still needs modifications to help them grow.
- Toolmakers are looking for advanced and automated technologies to upgrade their infrastructure.
- Setting up tooling clusters, on the lines of China and Taiwan, is the need of the hour.
- The user industry feels that Indian toolmakers still don't have sufficient capacity to meet their demands and skill development is of utmost importance. All the stakeholders of the industry need to work together to empower the next generation of toolmakers and engineers.

What trends do you feel are shaping the Indian tooling industry? Email us your observations. We will be happy to feature them here.

Happy Reading!

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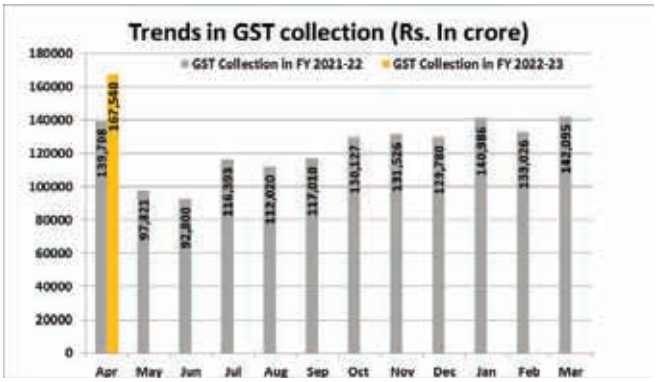
LOOKING FOR DISTRIBUTORS IN ANDHRA PRADESH & TELANGANA REGION

GST revenue collection for April 2022 highest ever at INR 1.68 lakh crore

THE gross GST revenue collected in April 2022 is INR 1,67,540 crore of which CGST is INR 33,159 crore, SGST is INR 41,793 crore, IGST is INR 81,939 crore (including INR 36,705 crore collected on import of goods), and cess is INR 10,649 crore (including INR 857 crore collected on import of goods). The gross GST collection in April 2022 is at an all-time high, INR 25,000 crore more than the next highest collection of INR 1,42,095 crore, in the previous month. The government has settled INR 33,423 crore to CGST and INR 26,962 crore to SGST from IGST. The total revenue of Centre and the States in April 2022 after regular settlement is INR 66,582 crore for CGST and INR 68,755 crore for the SGST.



Courtesy: Press Information Bureau

The revenues for April 2022 are 20% higher than the GST revenues in the same month last year. During the month, the revenues from import of goods was 30% higher and the revenues from domestic transaction (including import of services) are 17% higher than the revenues from these sources during the same month last year. For the first time, the gross GST collection has crossed the INR 1.5 lakh crore mark. The total number of e-way bills generated in March 2022 was 7.7 crore, which is 13% higher than 6.8 crore e-way bills generated in February 2022, which reflects recovery of business activity at a faster pace.

April 2022 saw the highest ever tax collection in a single day on April 20 and the highest collection during an hour, during 4 pm to 5 pm on that day. On April 20, INR 57,847 crore was paid through 9.58 lakh transactions and during 4-5 pm, almost INR 8,000 crore was paid through 88,000 transactions. The highest single day payment last year (on the same date) was INR 48,000 crore through 7.22 lakh transactions and highest one hour collection (between 2 and 3 pm on the same date last year) was INR 6,400 crore through 65,000 transactions.

During April 2022, 1.06 crore GST returns in GSTR-3B were filed, of which 97 lakh pertained to March 2022, as compared to total 92 lakh returns filed during April 2021. Similarly, during April 2022, 1.05 crore statements of invoices issued in GSTR-1 were filed. Till end of the month, the filing percentage for GSTR-3B in April 2022 was 84.7% as compared to 78.3% in April 2021 and the filing percentage for GSTR-1 in April 2022 was 83.11% as compared to 73.9% in April 2021.

Boost to 'Make in India': HAL & BEL sign contract for indigenous IRST

HAL and BEL recently signed a contract for co-development and co-production of Long Range Dual Band Infra-Red Search and Track System (IRST) for Su-30 MKI, in Bengaluru, under the MAKE-II procedure of Defence Acquisition Procedure (DAP) 2020, as part of the 'Make in India' initiative.

The proposed IRST system will be a high-end strategic technology product in the field of defence avionics and technically competitive to the existing IRST system in the global market with features of Television Day Camera, Infrared & LASER sensors in single window for air-to-air and air-to-ground target tracking and localization. The system will enhance the Indian Air Force's air superiority.

Mr. Suneel Kumar Srivastava, GM, HAL (Korwa), and Mr. Loyola Pedro Vianney G., GM, BEL (Chennai), signed the contract. Mr. Arup Chatterjee, Director, Engineering and R&D, (HAL), and Mr. M. V. Rajasekhar, Director, R&D (BEL), were present on the occasion.

The joining hands of two defence PSUs for development of technologically critical IRST gives impetus to 'Aatmanirbhar Bharat' in the defence sector. This initiative also opens the future path in the field of indigenous defence manufacturing for the development of a high-end strategic technology product of IRST for various platforms in the global competitive environment.

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ONE STEP AHEAD.

Biliti Electric to set up world's largest electric three-wheeler manufacturing facility in Telangana

CALIFORNIA-BASED Biliti Electric Inc. (Biliti) recently announced that it intends to set up the world's largest electric three-wheeler factory in India's Telangana state, with a production capacity of 240,000 electric vehicles each year. The new plant is estimated to drive a private investment of USD 150 million and expected to create over 3,000 jobs in the State aligning with the State's policy to become a global hub for electric vehicle (EV) and energy storage manufacturing.

Biliti currently operates through an exclusive manufacturing partnership with Hyderabad-based Gayam Motor Works (GMW) for manufacturing its three-wheelers. Biliti's Taskman™ is a popular last-mile delivery vehicle, which is deployed in 15 countries including Japan, USA, UK, France, Portugal, Germany, Lebanon, Uganda, Kenya, Senegal, Nepal, Bangladesh, Dubai and India, and has covered over 20 million miles. In addition to the manufacturing facility, it has assembly plants in the US, Portugal, and Kenya. Taskman™ is being used by Amazon, IKEA, Wasoko (Sokowatch), BigBasket (Tata), Zomato, Flipkart (Walmart), and Grofers among others.

"When we launched the EV policy two years ago, it was with the mission to make Telangana state a preferred destination for setting up electric vehicle manufacturing. We are now seeing that becoming true with companies like Biliti establishing the world's largest three-wheeler factory here," said Industries Minister K. T. Rama Rao.

"This is the largest investment in EV manufacturing announced in the State this year, coming shortly after another California-based company, Fisker, announced its second headquarters in Hyderabad. The State is committed to promoting clean industries and promises to extend all benefits to the company admissible under the government's policy. The story of Biliti is not just another opportunity because of the State's encouraging policy but a realization of the State's vision for innovation and technology with the founders of the Company directly associated with T-Hub through a previous start-up," Rao added.

"We are proud to manufacture our exciting EV lineup in Telangana state," said Rahul Gayam, Biliti Electric's CEO. "The Taskman™ has already made more than 12 million deliveries worldwide with many more to come. Our batteries and drivetrain are compact and modular in design, allowing them to have wider applications in auto, marine, warehousing, and backup power sectors enabling the buildout of an EV ecosystem."

Triton EV acquired AMW Motors manufacturing facility of 3.7 million square feet in Bhuj, Gujarat

TRITON EV is moving ahead on top gear to enter Indian roads. The company recently announced that it has acquired AMW's manufacturing plant in Bhuj, Gujarat. This 3.7 million sq foot manufacturing plant infrastructure will become the epicentre of EV truck manufacturing hub by Triton EV. This acquisition by Triton EV will ensure a fast track of Triton EV truck production and the production will start from this year itself.

"We are happy and excited to acquire this manufacturing facility as this acquisition is giving us a great edge of producing a best in class and India's first EV truck, which will be a complete a 'Make in India' product. The Triton EV manufacturing hub in Bhuj, Gujarat, will also be Asia's biggest and most comprehensive EV manufacturing facility where complete end-to-end manufacturing of an EV truck will be possible," says Mr. Himanshu B. Patel, Founder and Managing Director, Triton EV. The first Triton EV truck will be able to come out of the factory within this calendar year.

This acquisition by Triton EV is also bringing relief for AMW's employees who lost their jobs with the closure of the manufacturing plant. The Triton EV manufacturing hub will produce every critical component for the truck. From chassis manufacturing to battery to testing, everything will happen from this facility at Bhuj. The hub will have top of the line auto manufacturing organizations as part of the ecosystem. One of the leading names in this is of Bharat Electronics Limited (BEL), which will be responsible for the manufacturing of batteries for EVs.

Courtesy Business Wire India

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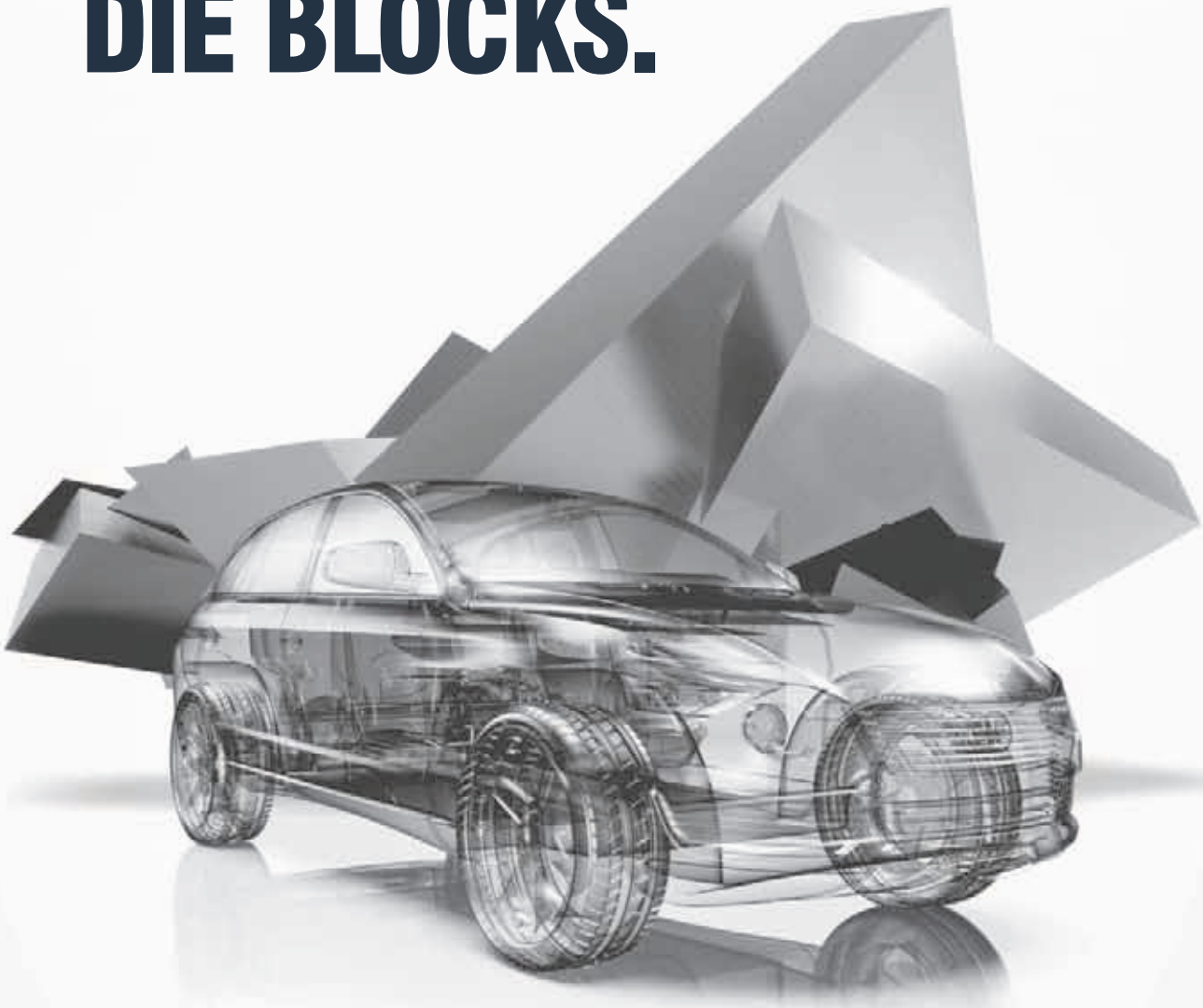

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LOOK BEYOND

Adani joint venture, IdeaForge among 14 firms selected as beneficiaries of PLI scheme for drone manufacturing

ADANI'S joint venture company with Israeli firm Elbit as well as IdeaForge Technology are among the 14 drone companies that have been selected as beneficiaries of the Production-Linked Incentive (PLI) scheme to boost drone manufacturing in India, the aviation ministry recently said. Under the PLI scheme that was announced last year, the incentive for a manufacturer of drones and drone components will be 20% of the "value addition" made by the company during the next three years.

Image used for representation only. Courtesy Envato Elements

Dhaksha Unmanned Systems, IdeaForge Technology, IoTechWorld Aviation, Omnipresent Robot Technologies and Raphe Mphibr are five drone manufacturers selected as beneficiaries, it mentioned. Absolute Composites, Adani-Elbit Advanced Systems India, Adroitec Information Systems, Alpha Design Technologies, Inventgrid India, Paras Aerospace, SASMOS HET Technologies, ZMotion Autonomous Systems and Zuppa Geo Navigation Technologies are nine drone component manufacturers selected for the PLI scheme, it noted.

The Ministry of Civil Aviation had on March 10 invited applications from the drone industry for the PLI Scheme. The ministry had on September 16, 2021, announced a PLI scheme for drones and drone components with an allocation of INR 120 crore spread over three financial years. "The list of beneficiaries is likely to be expanded further since some more manufacturers are likely to exceed the eligibility criteria for the full financial year 2021-22," the ministry said.

"The final list of PLI beneficiaries is expected to be released by June 30 after detailed scrutiny of their financial results and other specified documents," it mentioned. The ministry said the eligibility criteria for the PLI scheme includes an annual sales turnover of INR 2 crore for drone companies and INR 50 lakh for drone components manufacturers; and value addition of over 40% of sales turnover.

The PLI scheme came in September 2021 as a follow-through of the liberalised Drone Rules, 2021, released by the ministry on August 25, 2021. Aviation Minister Jyotiraditya Scindia had on September 16, 2021 said that the Indian drone industry will have a total turnover of up to INR 15,000 crore by 2026, as the government has given a major boost to the sector with the PLI Scheme.

Courtesy PTI News

Rossell Techsys and Knight Aerospace team up to deliver new solutions

KNIGHT Aerospace and Rossell Techsys have teamed up to provide quick-change roll-on/roll-off palletised solutions for cargo aircraft conversion, including next generation air transportable galley/ lavatory (NG-ATGL), aeromedical/VIP modular, patient transport and ground support equipment for the Indian aerospace market. The cargo conversion systems consist of VIP/ economy seating, bio-medical containment modules, patient airlift, airborne critical care, and various additional systems. The NG-ATGL consists of a full-service galley and lavatories on a customized pallet. Knight also designs and manufactures several other specialty palletized systems that integrate with and adapt to aircraft interiors, for a wide variety of applications.

"The Knight Aerospace NG-ATGL, Palletized Seating Systems and Aeromedical Modules are practical, cost-effective ways to transform the mission of cargo aircraft. These solutions represent the most technologically advanced and airworthy cargo conversion solutions available today across the world. With Rossell Techsys, as our trusted partner, we are now able to make available all these solutions and provide mission-critical capabilities in India," said Ms. Bianca Rhodes, President, Knight Aerospace.

"We are excited to partner with Knight Aerospace and be able to bring the very best of technology and solutions to the Indian aerospace market. The range of products provided by Knight Aerospace, complements our after-market services business, where Rossell provides local customization, accessory support, installation, commissioning, training, maintenance support through end of life and being the single point of contact for India-based customers," said Mr. Prabhat Kumar Bhagvandas, Chief Executive Officer, Rossell Techsys.

Source Rossell Techsys

Continental inaugurates INR 200-crore greenfield surface solutions plant in Pune

TECHNOLOGY company Continental recently inaugurated its greenfield plant in Pune, India, manufacturing surface solutions materials mainly for the Indian automotive and two-wheeler market. With investments totalling about INR 2 billion covering facilities and machinery, Continental will produce premium surface materials for car interiors, including electric vehicles as well as two-wheeler seats, catering primarily to the domestic market and exports. "Growing our business in the Asia-Pacific region is one of our main strategic pillars. Amongst others, India will play a major role to strive for our goal. That's why we continue to invest into our Indian locations. Thus, we will remain close to our customers maximizing value creation," said Philip Nelles, Member of the Continental Executive Board and Head of Group Sector ContiTech at the inauguration ceremony in Pune.

Dr. Dirk Leiss, heading the business area Surface Solutions, emphasized:

"Premium vehicle interiors are increasingly becoming important for car users. Our surface materials provide both, luxury and comfort, improving the overall driving experience." The new location is Continental's sixteenth surface solutions plant globally, producing well-known surface materials like Acella Eco used by worldwide top car manufacturers and automotive brands.

Prashanth Doreswamy, President and CEO of Continental India, explained, "Continental has been growing steadily in the Indian market. We have now invested in Pune, a significant and long-established hub for the automotive industry, and we aim to be our customers' first partner of choice for surface solutions. With this, we reaffirm our commitment to the local market, aligned to our 'in the market, for the market' philosophy."

The 149,000 square feet manufacturing facility, with an initial annual capacity of five million square meters of surface materials can be scaled up to 10 million square meters. During the inauguration ceremony, Landry Tchapda, head of the Surface Solutions plant management mentioned: "With skilled workforce and cutting-edge technology at our disposal, our production is world-class, to cater to the requirements of our customers…. India is a promising market to grow. So, we expand our operations at a rapid pace. Our innovative surface solutions are available for a variety of car interior and two-wheeler applications and we strive to be making us the market leader in near future."

Dassault Systèmes and BMW develop stamping die design application for body in white to reduce vehicle development time

DASSAULT Systèmes has announced that it is working with the BMW Group to establish solutions to increase efficiency for vehicle development programs. With BMW Group's valuable contribution of in-depth process and specialist know-how, the two companies collaborated to create a process-oriented, industry-ready solution for stamped sheet metal parts definition and stamping die design that will increase the efficiency of the parts design and production process.

Dassault Systèmes' CATIA stamping die face design application provides a seamless tooling experience used in the development of high-quality stamped body in white and chassis parts. Based on a detailed description of the production concept, the automated validation of the manufacturing process can be started in an early development phase. Errors that are recognized and eliminated before the industrialization stage will help to save costs and time in the manufacturing process.

The CATIA stamping die face design application offers digital continuity in all phases of the development process. It also helps users reduce manual effort by making all relevant information such as process and geometry available for following process steps including press line simulation or cost calculation.

"The BMW Group and Dassault Systèmes have been working in a trusted partner relationship for years, and our co-developed solution has now been implemented successfully in the BMW Group production system," said Laurence Montanari, Vice President, Transportation & Mobility Industry, Dassault Systèmes. "Our CATIA stamping die face design application can help automobile manufacturers and their suppliers to optimize stamped body in white or chassis parts and tooling engineering, while reducing associated tooling cost and design time. Tooling design and manufacturing is a significant part of the development cost of the vehicle, and its optimization is a key competitive factor."

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InnovMetric releases PolyWorks 2022

INNOVMETRIC recently launched PolyWorks 2022, the latest release of its smart 3D metrology digital ecosystem. PolyWorks 2022 offers new key functionalities that significantly expand the capabilities of its three ecosystem foundations:

- The universal 3D metrology platform now facilitates multipiece inspection when CAD data is not available as well as introduces a universal data hub.
- Digital connectivity between data and people is improved by enabling the deployment of global metadata management strategies and the programming of alerts that automatically detect failing dimensions and notify the right people in real time.
- The collaboration between probing operators and their measurement hardware is raised to a new level by mixed reality display technology that enhances the operators' perception of 3D metrology.

PolyWorks 2022 also demonstrates InnovMetric's commitment towards open solutions by releasing an API to query data from its data management solution and inject it into third-party software applications. "For decades, the main mission of manufacturers of 3D hardware and software, including ourselves, was to deliver state-of-the-art technologies to create data from 3D measurements. This strategy proved to be highly successful for market players and fueled a major growth of the use of 3D measurement technologies in manufacturing organizations. However, as the amount of 3D measurement data grew exponentially, new data management complexities also emerged, which led us to reconsider our company's mission. That's why today, PolyWorks goes beyond data creation by managing data storage, opening access to data enterprise-wide, and enabling digital data flows between hardware, software, and people," said Marc Soucy, President of InnovMetric.

Universal platform extensions

Manufacturing organizations often need to measure and inspect multiple pieces even though they do not have access to a reliable 3D CAD representation of those pieces; for example, in the early stages of a product engineering cycle or after having physically adjusted the design on the shop floor. To address these measurement scenarios, the PolyWorks universal platform offers a new feature measurement guide technology to guide probing, scanning, and feature extraction when measuring

and inspecting multiple pieces in the absence of CAD data and nominal feature components. Users can inject a CAD model and nominal feature components at any point later in the process and propagate these changes to already-measured pieces.

Improved digital connectivity for consumers of 3D measurement data

In a 3D metrology context, metadata consists of important attributes describing the part design, piece fabrication, and 3D measurement processes. PolyWorks 2022 ensures metadata is meaningful and usable by managing shared properties common to multiple inspection projects and piece templates. Unified and synchronized shared properties empower searches, filtering, and analysis across the broad centralized 3D metrology data archive.

PolyWorks 2022 also enables production teams to program alerts that monitor incoming measurements and notify the right people by e-mail when a dimension is out of tolerance or out of control. Notifications enable real-time reactivity, as they include a hyperlink that instantaneously opens the problematic piece within a Web-based 3D viewer. From there, users can quickly assemble an investigation team using the PolyWorks modern digital communication technologies.

More efficient probing workflows through mixed reality display

Mixed-reality display technology enhances the perception of 3D metrology by superimposing holograms on inspected pieces and offering an instinctual gesture-based user interface. The PolyWorks 2022 mixed-reality solution provides new visual guidance and feedback capabilities that optimize the efficiency of probing operators. In addition to overlaying guidance geometry and measurement instructions on the inspected piece, it also displays probed points, measurement results, and the digital readout in real time, and allows users to invoke common probing functionalities remotely.

Open solution

Manufacturing organizations need open solutions to interconnect their multiple enterprise solutions digitally and optimize their efficiency. InnovMetric is proud to announce the availability of an API for its data management solution. Based on the OData open protocol, the PolyWorks 2022 secure REST API allows third-party software applications to access the hierarchy of workspaces, projects, and pieces, and the measurement objects and controls of individual pieces. The PolyWorks REST API is compatible with data analysis solutions, such as Tableau, PowerBI, and Excel, and allows users to inject parametric URLs referring to measured pieces into other enterprise solutions, such as PLM, ERP, or MES solutions, and to transfer information to other digital systems using programming languages, such as Python and C#.

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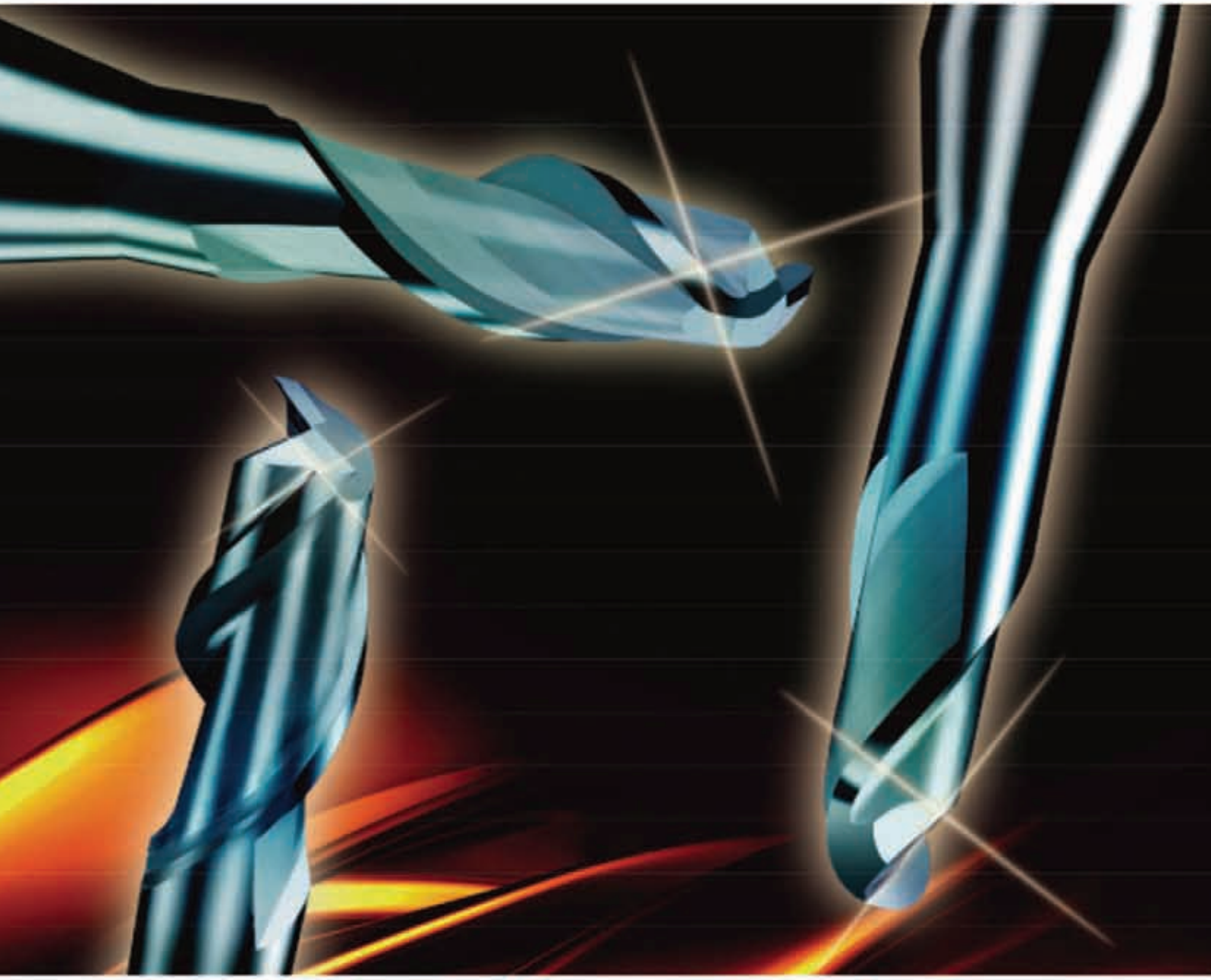

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Extensive range of springs at Meusburger

MEUSBURGER offers the right spring for every requirement – from very low to extremely high loads. The range also includes perfectly matched accessories for smooth installation of system and elastomer compression springs. All the springs are available from stock at Meusburger.

Meusburger offers a comprehensive range of springs in the highest quality.
Image Courtesy: Meusburger

System compression springs

At Meusburger, there is a large selection of system compression springs that are suitable for very high stroke rates due to their low inertia and low frictional heat. The springs minimise the force differences in the die set through improved length tolerance compared to the DIN ISO 10243. They are available in all common sizes and load classes, in both rectangular and round versions. The colour differentiation of the load classes with special coating ensures high corrosion resistance and mechanical strength. Meusburger's system compression springs feature dimensional interchangeability for subsequently changed loads or requirements.

Belleville spring washers

Belleville spring washers are used for very high spring forces with small strokes and low installation heights. They are manufactured according to DIN 16983 and are suitable for stroke rates of <100 strokes/min. due to frictional heating. There are a wide range of combination options for changing the spring displacement and spring force. The springs are available in various diameters from 8 to 50 mm and can be used up to a temperature of 150°C.

Elastomer compression springs

Elastomer compression springs are springs made of plastic that deform outward during compression. In contrast to system compression springs, they are used for high spring force and high stroke. Meusburger has two different hardness grades for the elastomer pressure springs in its range standardised according to DIN ISO 10069, 70 Shore
A and 90 Shore A. In addition, the springs are vibration damping.

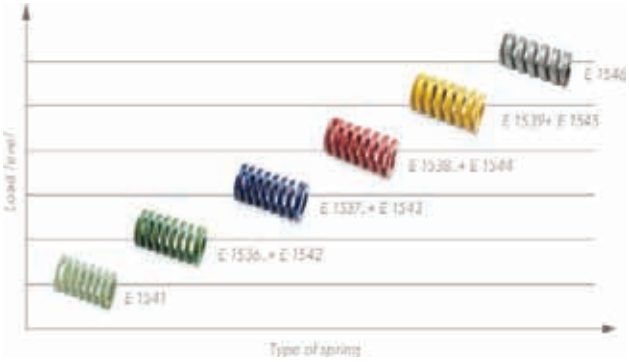
Meusburger's product range also includes the appropriate accessories for installing elastomer compression springs.

Coil compression springs

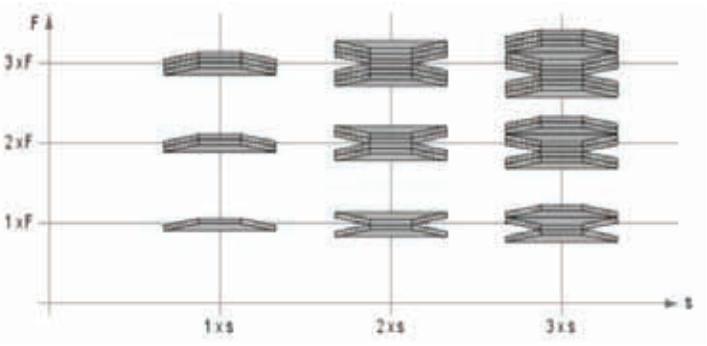
The coil compression springs at Meusburger are machined according to DIN 15800 and are temperature resistant up to 80°C. They are supplied ready-to-use and are available in diameters from 3 to 56 mm.

Accessories

Meusburger offers perfectly matched accessories for smooth installation of system and elastomer compression springs such as screw plugs, guide bolts and spring pre-loading units.



Load overview displayed in ascending order by colour.



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12th edition of Die & Mould India a grand success

Organized by TAGMA, the latest edition of Die & Mould India International Exhibition was a huge success. From the latest technologies and innovation to new launches, visitors witnessed it all at the four-day mega event. A report...

Highlights:

- Over 38,000 visitors from industries like automotive, aerospace, die & mould, machine tools, heavy engineering, plastics, packaging, consumer goods, toy making, and medical, among others
- Of the 38,000 visitors, 52% comprised of decision makers
- Exhibitor count increased by 26% from the last edition and a 15% increment in floor space
- Over 10 OEMs participated in the 'B2B PAVILION'
- Interesting technology sessions on the sidelines of the exhibition

The 12th edition of Die & Mould India International Exhibition organised by Tool & Gauge Manufacturers Association of India (TAGMA) concluded on April 30, 2022. The four-day mega event, which began on April 27, 2022, not only had the latest technologies and innovations on display, it also became the launch pad for some companies to introduce their new products.

The much-awaited exhibition was inaugurated on April 27, 2022, at the Bombay Exhibition Centre, Goregaon, Mumbai. It was inaugurated by Mr. Prabhakar Kadapa, Partner & Director at Mudita Strat-Aegis Consultants Pvt. Ltd. in the presence of Guests of Honour Mr. Vidyadhar Limaye, Senior Director at IAC Group; Mr. Raghava Badhya T. V., President & Director, Makino India Pvt. Ltd.; Mr. D. M. Sheregar, President, TAGMA India; and Mr. D. Shanmugasundaram, Vice President, TAGMA India.

Tooling industry's growth prospects

The inaugural lamp lighting by the dignitaries marked the beginning of the 2022 edition of the Die & Mould India International Exhibition, which had more than 300 exhibitors covering an area of 19,200 sq m and 10+ countries. Each exhibitor presented the latest developments in the tooling industry. With significant growth forecasted and the emergence of many sectors in India, the Indian tooling industry is expected to see double-digit growth in the coming years.

Talking about the industry trends, Mr. Sheregar said, "As we can see many opportunities evolving, it is time for us to channel our resources and enhance our capacity and capabilities. We must work on skill development, stimulate the government for industry-friendly policies, and adopt futuristic technologies."

As many reports suggest, this decade is all about India's growth story, said Mr. Shanmugasundaram. "We must gear up for the same. However, capacity addition is still the biggest challenge, and toolmakers should come forward to solve this issue. If we can enhance our capacity, we will definitely be able to reduce the imports," he opined.

Mr. Limaye also believes that toolmakers need to focus on maximising capacity utilization. "I am familiar with the tooling industry and have witnessed its growth journey. India's toolmakers have made significant contributions to the global manufacturing sector. However, our automobile industry is still heavily reliant on foreign toolmakers because of our toolmakers' limited capacity. If we find a way to bring toolmakers together to maximise capacity utilization, the Indian tooling industry will be able to meet the fast-paced demands of various sectors and will be able to tap the growing opportunities," stated Mr. Limaye.

Potential for a bright future

At the inauguration ceremony, Mr. Kadapa, in his keynote address, said, "The tooling industry has come a long way in the last 40 years. The sector has seen a lot of advancements and is now catering to demands from some global customers. The tooling industry's evolution over the next 5 to 10 years will be mindboggling. While Indian tooling companies lack the specialization that the

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Mr. Prabhakar Kadapa


Mr. Vidyadhar Limaye


Mr. Raghava Badhya T. V.


Mr. D. M. Sheregar


Mr. D. Shanmugasundaram

global market demands, the scenario is slowly changing. Indian toolmakers are adopting the latest technologies, like their global counterparts. I feel that the Indian tooling industry has major export potential."

Mr. Badhya then went on to highlight the potential of the tooling industry and share future insights. "Coming together is the beginning. TAGMA deserves appreciation for taking initiatives to help the Indian tooling industry. I believe the next five years will be ripe with possibilities. Indian toolmakers will find lots of opportunities in electronics, medical equipment, aerospace and defence, among others industries. We need to make India known for its quality. But for this, we need to focus on the global market, building strategic partnerships, and manpower development. No other country has a more educated population, a larger geographical area, and smart minds with talented hands than India. I am confident that this decade will be the most rewarding for India's manufacturing sector, which will positively reflect on the tooling industry," said Mr. Badhya.

Mr. Sheregar and Mr. Shanmugasundaram then presented the Chief Guest and the Guests of Honour with a shawl and memento as a token of appreciation. Mr. Shanmugasundaram thanked the dignitaries, exhibitors, and other professionals, who attended the event.

Mr. Shanmugasundaram said, "We are all aware that we come from the industry that forms the backbone of the manufacturing sector. The tooling industry is often referred to as the mother industry because without toolmakers no product development can take place in any industry be it automotive, aerospace & defence, packaging, electronics, toy making, or railways, among others."

"Toolmakers, if you carefully observe, every industry is brimming with a plethora of opportunities. Undoubtedly, the pandemic is still posing challenges. But the overall future looks promising. After the success of 'Make in India', we are optimistic that the 'Aatmanirbhar Bharat' campaign will help us grow further. Like I have already said, we have a lot of opportunities in front of us. All we need to do is introspect on our drawbacks and work on our areas for improvement," advised Mr. Shanmugasundram.

EXHIBITORS SEMINAR SLOTS DURING DMI 2022

Venue: International Lounge (above Hall 1) Bombay Exhibition Centre, Goregaon, Mumbai

Topic	Speaker	Exhibitor
Thermal Management of tooling inserts by using Metal Additive Manufacturing (3D Printing) Technology and its advantage	Günther Prunner - Regional Innovation Manager	Voestalpine High Performance Metals International GmbH
Solutions for Forging Dies	Sivamullainathan	MMC Hardmetal India Pvt. Ltd. (MOLDINO)
The Power of Growth Mindset	Atul Raje, Practice Head - Performance Enhancement	Leap2Excel Consulting LLP
Industeel innovative solutions for Mould and Tool steels.... Less segregation, through hardness, better polishability, easier machinability, improve thermal conductivity, easy repairing..	Henry Pascal	Industeel France
Profitable Solutions for Die & Mold Machining	K Gowrishankar	Lakshmi Machine Works Ltd.
Innovative Solutions for Profitable Mold Making	Abhay Deshmukh & Sankarshan Choukekar	Shilpin Machine Tools Pvt. Ltd.
Leveraging financial awareness for increasing Tool Room profitability	Sanjay Athalye, Practice Head - Risk Management	Leap2Excel Consulting LLP
Reduce Cycle Time with Conformal Cooling Channels	Priyesh Mehta	Imaginarium

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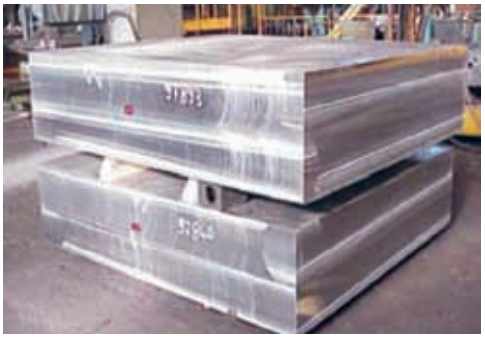
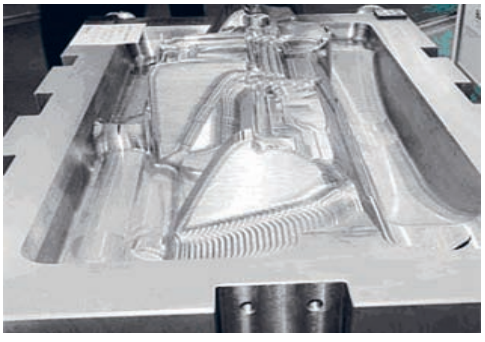


6 Sides milled with Lifting hole



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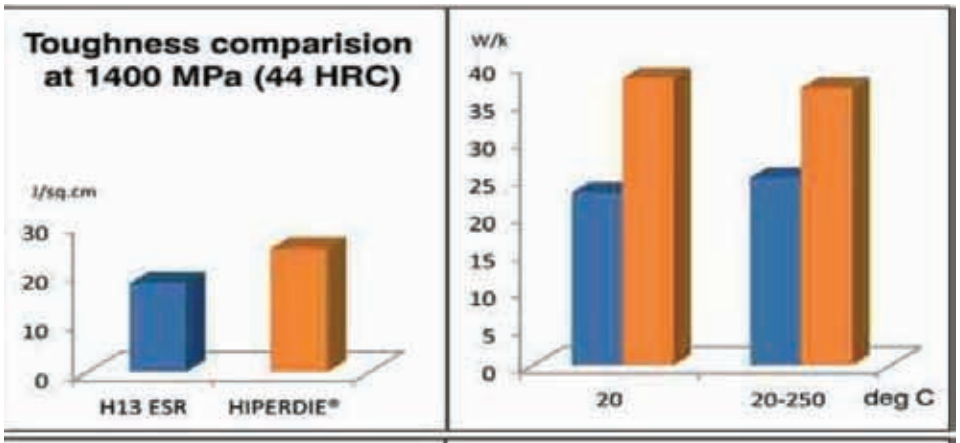

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'B2B PAVILION'

At the 12th edition of Die & Mould India, TAGMA introduced 'B2B PAVILION'. Here, 10 companies from the user industry met around 25-30 exhibiting toolmakers collectively and shared their expectations with toolmakers. The absolute objective of the 'B2B PAVILION' was to help the Indian manufacturing industry grow at the much-needed rate by offering a platform for toolmakers and companies to meet and network.

According to TAGMA, 'B2B PAVILION' proved to be an enabler. It facilitated face-to-face communication between qualified toolmakers, OEMs, and Tier-1 firms. The ten OEMs and Tier-1 companies were looking for at least 30 toolmakers to do business with. With approximately 60 toolmakers at the display, TAGMA's 'B2B PAVILION' was undoubtedly a success.

Appreciating TAGMA's role, Mr. Shatyabrata Das, Sr. General Manager, IAC Group, said, "The 'B2B PAVILION' is an excellent initiative by TAGMA. I had engaging interactions with toolmakers. It was very informative."

Mr. Dominic Savio, GM - Central Process, Legrand, said, "The 'B2B PAVILION' is an excellent tool to meet and select business partners for plastic industrialisation. It was fruitful."

The procedure to meet OEMs and toolmakers was taken care of with ease. All the toolmakers were introduced to the OEMs and corporations, each with their own company profile. This gave the companies a better understanding of the competence and technology that every enlisted toolmaker possesses.

Mr. Shatyabrata Das

Mr. Dominic Savio

Companies and OEMs could simply select the toolmakers of their choice from the exhibition based on their needs and manufacturing requirements. "I am sure that I will be doing business with some of the toolmakers I interacted with. I hope such productive occasions are held again," added Mr. Savio.

Products unveiled

Some companies also used the platform provided by TAGMA's Die & Mould India exhibition as an opportunity to launch their products. Some of them are:

First-ever display of Phillips EDM, grinding & milling products!

Phillips Machine Tools participated with its latest high-performance EDM, grinding & milling machine range and state-of-the-art Markforged 3D Printer at the Die & Mould India Exhibition 2022 held during April 27-30, 2022, at the Bombay Exhibition Centre, Goregaon, Mumbai. This is the first time Phillips products were displayed in a tradeshow.

Phillips exhibited products and solutions under four categories, namely, EDM, grinding, milling and additive. Under EDM, Phillips ZNC Die Sinker EDM and Phillips CNC EDM were displayed. Under grinding, the products displayed were Phillips Surface Grinder, Cylindrical Grinder and Top Work Tool and Cutter Grinder. In addition to that, Phillips also brought in the state-of-the-art Markforged 3D printers i.e., Onyx Pro.

Product experts for respective categories were available at the booth to assist visitors with their queries and demonstrate the implementation of these technologies. Visitors got an opportunity to experience hands-on the emerging technologies in EDM, grinding, milling and additive manufacturing and witness some of the latest manufacturing innovations.

"The expectation is quite high for Phillips products because we have seen a huge demand for these products even without conventionally displaying them. These products were launched early last year when the economy was still going through COVID waves. Now that the market is fully open, we are gearing up to prepare for the high inflow of demand for Phillips products," said Terrence Miranda, Managing Director, Phillips Machine Tools.

"The Die and Mould market in India is forecast to grow by $1.47 billion during 2021-2025 progressing at a CAGR of 9% during the forecast period. We, at Phillips Machine Tools, have been enabling Indian manufacturers for the 'Make in India' goal and are well poised to help them further achieve this estimated growth with our products and innovations for the die and mould industry. We have an installed base of more than 10000+ machines with over 4000+ customers. Phillips has also ventured into subtractive, additive, supply chain, manufacturing and education initiatives in the Indian subcontinent. Our service net promoter score sets the benchmark in the machine tools industry," he added.

Lakshmi Machine Works Ltd. showcases 3 new models

Lakshmi Machine Works (LMW), India's leading engineering company, and its machine tool division from Coimbatore, displayed 3 new models at Die & Mould India 2022. The highlight of the LMW booth for the 12th Die & Mould India edition was the newly launched J series vertical machining center.

Some of the features of their new J series vertical machining centre include:

- Direct-coupled spindle speed up to, 10,000/12000 rpm
- Precision linear guideways on the X, Y & Z axis
- Faster tool change time < 2 sec
- Ergonomically designed for easy loading/unloading operations
- Wider to ensure heavy-duty operations
- Improved chip and coolant management
- Compact design with a large working area.

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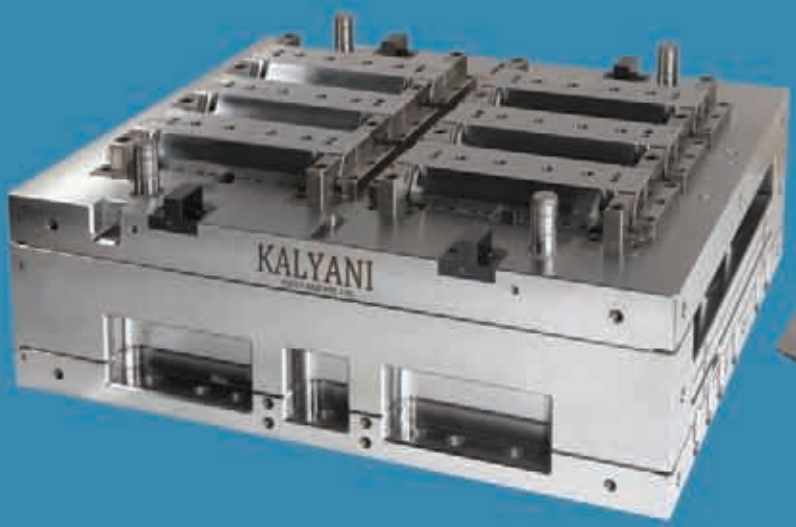

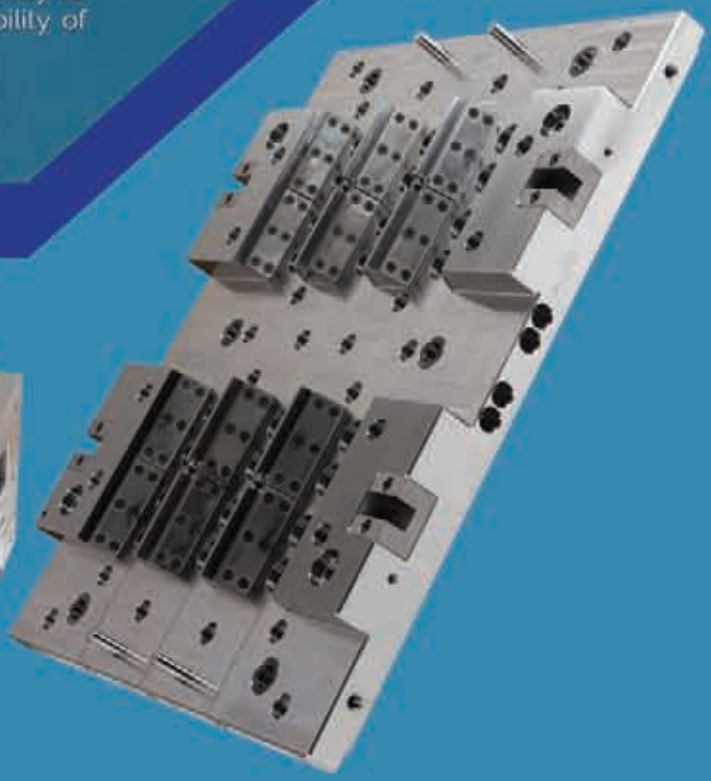

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LMW also launched a new compact turning centre to address the high-volume turning requirements of industries such as bearing manufacturing, gear blanks, and fittings for the plumbing, electrical, and electronic industries. In addition, LMW introduced a Moving Column Vertical Machining Center to cater to high-productivity segments like automobiles, pumps and valves, medical equipment, and other energy sector industries. This is in addition to the over 65 products that are already in their product range.

LMW offers comprehensive solutions as completely tooled-up machines or turnkey solutions that include tooling, programming, CAD/CAM, automation, IoT, and quality inspection solutions. This is derived from their vast experience of over 35 years serving the Indian manufacturing industry.

The company has completely digitalized the entire service operations, making it a paperless office in the true sense, while seamlessly connecting with customers through a new mobile application, web portal, and e-commerce platform for spare parts. To make it much easier, they also have a toll-free 24x7 helpline in operation. This has helped the company ensure 360-degree connection with their customers, serving them better and faster.

Manleo Designs launched 2 products

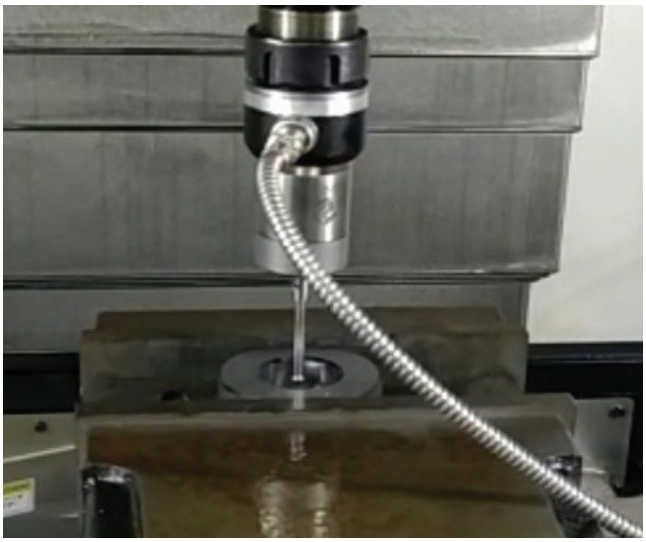
Manleo Designs launched 3D AW (Automatic Wired) Datum Finder at the 12th edition of TAGMA's DMI exhibition. The 3D AW Datum Finder is for MSMEs, especially those in the die & mould industry, who are looking for automatic reference taking in a cost-effective manner. It is a wired solution and hence, more suitable for non-ATC machines or in case of ATC machines, this needs to be taken out after reference checking operation. This is currently priced at INR 80,000, including installation and training.

This is a 3D Datum finder with automatic inputs to CNC for:

- Side reference
- Rectangle center
- Bore and boss center
- Datum references

Extended application can be in machine profile checking and dimension checking subject to integration with CAM software.

Manleo Designs also launched the DTS (Dial Tool Setter) 150 at the exhibition. The DTS 150 is for taking Z/ Tool length offsets. Unlike other tool setters available in the market, it comes with 5mm Real Z Travel. The large 58mm Dial for easy reading even from a distance. DTS 150 comes with a unique colour indication (1st of its kind in the world) and this is for reducing operator errors. The design is sturdy to prevent shock-induced errors as well as dent avoidance. It is the only dial-based tool setter in the world that comes with



service assurance, so it is serviceable in case of damage. This is currently priced at INR 25,000.

Positive feedback

Overall, over 38,000 visitors marked their presence at the 12th edition of Die & Mould India from over 15 different sectors. With the grand success of Die & Mould India 2022, the forthcoming years are sure to create huge opportunities in the Indian tooling industry. "The last two years have been challenging for all of us personally as well as professionally. However, the industry has emerged stronger and is ready to tap the growing demand for tools in the country. As COVID-19-related challenges fade away and the Indian manufacturing industry is witnessing growth opportunities, the 12th Die & Mould India exhibition played the role of a facilitator. The 2022 edition is a grand success. I spoke to all the exhibitors, and they were all happy with the outcome," said Mr. Sheregar.

Mr. D. K. Sharma, Consultant - Business Transformation & Immediate Past President TAGMA India, said, "The 2022 edition of the Die & Mould India exhibition showcased the strength of the Indian tooling industry. I personally met most of the exhibitors and they all shared their satisfaction with the show. The localisation trend among the Indian automotive industry and the emergence of many other sectors have led to the growing demand for Indian tools, which was clearly visible at the show as many delegates from the user industry visited the exhibition. I also witnessed some of the latest technologies in the field of tooling, which is a testimony that the Indian industry is adopting best-in-class solutions. I congratulate the current TAGMA Management, Secretariat and whole organising team for a successful show."

Mr. Shanmugasundaram concluded, "We are overwhelmed by the response. Many exhibitors have already enquired about bigger space for the next edition of DMI. With the response, we can see big opportunities in front of us."

TAGMA's Goals

The three major tasks mentioned by the TAGMA president, which will be focused on by the current TAGMA management.

- Ensure that the TAGMA membership reaches 1400 companies.
- Initiate a skill development program in the next 3 months through online courses and workshops.
- Launch award ceremonies during the International Tooling Summit to recognise and honour the country's most inventive toolrooms.

A look at the previous editions…

The 1st edition of the Die & Mould India International Exhibition was held in Mumbai in 1998. Over the years, the event has steadily grown to become the largest die and mould exhibition in the country. Today it is known to be one of the most important events for businesses related to the tooling industry. The unique industry event showcases the developments, innovations and the latest technologies and solutions among others. TAGMA India, a non-profit organisation, has been actively promoting the tooling industry since its inception in 1990.

The previous edition of the exhibition held in Mumbai was highly successful. It saw more than 300 exhibitors from 19 countries presenting a large variety of products and services for the die and mould and other related industries. With a 15% increase in exhibitors than the previous edition and 45% increase in this venue, the 11th edition of Die & Mould India turned out to be a grand success.

Here's what our exhibitors posted about DMI 2022 on LinkedIn

TARAKKAD GOPALAKRISHNAN • 2nd
DIRECTOR at MULTIPLE SPECIAL STEEL PVT.LTD.,
1d •••

TAGMA the Champion of the Indian Tool Rooms finally broke the jinx of the Pandemic by Bravely attempting to conduct Diemould Exhibition in this Year. And what a Success it was, Mind Boggling. Thanks to the Faith reposed on TAGMA by all the Exhibitors, Member Tool Rooms & all the Visitors who braved the Current Situation and made this Exhibition a Very Huge Success. 🙏

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We thank each and everyone who visited our stall during the TAGMA Tool & Die Exhibition. Proud to have been the only OEM to showcase its Metal 3D Printer in the exhibition.

Special thanks and congratulations to TOOL AND GAUGE MANUFACTURERS ASSOCIATION - INDIA for organising the event successfully.

Abhijith Bhat • 2nd
Founder Abhiwins, MP in Manleo ...
1h •
+ Follow

Special thanks to my customers for visiting our stall, you are the reason why we are in business and your testimonial, suggestions and support keep us striving to get better. "Any new development, first come to us, we will support" is the best compliment we get

A big thanks to Ace Micromatics, Global CNC, KTM, Jyoti for displaying our products in machine.

Without naming, Many thanks to all top executives of MTBs, MTS coming to our stall and giving us encouragement and valuable insights.

Thanks to all visitors showing interest in our products but also giving us new problem statements to solve and create new product variants.

Thanks TAGMA organisers, support staff for seemless exhibition, this was the highest sales orders and order pipeline we received from any previous exibition.

Lets all make Indian manufacturing achieve 5 microns

Satish Kumar Pandey • 2nd
M.D at SUNITA TOOLS PVT LTD
12h • + Follow

DO VISIT..... Very good and Well organised Exhibition by TAGMA i feel all associated with this Industry should visit the show to see in person and experience the latest developments and what's on offer as of today ..... Don't miss the chance...

S & T Engineers (P) Ltd
1,417 followers
2d • + Follow

Finally, the get together days are back. TAGMA has taken the steps to make die mold industry customers coming close to each other at DMI Expo 2022...
Honourable Chief guest and TAGMA officials visiting our S&T Engineers stall at the 12th Die Mould India International Exhibition 2022.

MILIND KORE • 1st
Head Purchase & Vendor Development at ...
1d •

It was pleasure meeting with tooling fraternity in Tagma DMI-22 at Bombay Exhibition Centre Mumbai, after long gap due to pandemic. Not only met our business partners, who has participated in the DMI show, but got connected with various new associates.

We had fruitful meetings with tool steel traders, standard parts manufactures / traders, press tools, plastic injection moulds, die casting die manufacturers, mould base makers, precision machining service providers, CNC machines & cutting tools traders.

It is well organized international tooling show. This show gives new insight of the industry trends & energizing hopes towards positive directions to grow together. #tagma #dmi2022 #tooling

---

Harshal Dongaonkar • 1st
Regional Manager - Western India Operations at ...
1h •

We would like to take the opportunity to thank all our clients and business partners for visiting our stand at Tagma 2022 exhibition. We are very excited about the large number of visitors at our booth. The exhibition gave the great opportunity to present our newest equipment and solutions. We thank you for your interest in our products and hope you enjoyed your visit!
If you have further inquiries or in case you want more information about our products, please feel free to contact us at: harshald@hurco.in

---

Veronica Just • 1st
Vice President - MILLUTENSIL SRL -Blu line ...
19h •

Tagma Times - April 2022
We are always next to the Die& Mould Makers.
MILLUTENSIL produce Spotting Presses to adjust mould&dies for plastic , die casting and sheet metal and is present in all the world.
Thanks to Tagma for the good organization of the DMI 2022 exhibition and thanks to all the visitors.

Nadir Khan • 1st
NCBrain India Software Pvt Ltd
1h •

Tagma 2022 end up with lots of hopes for coming year!!
We meet many customer and friend in tagma during exhibition.
It was a good Show overall!!
Thank you tagma for well organised with hassle free service!!
See you all in 2024!!!!

---

hidehiko yamamoto • 1st
Makino Milling Machine CO., LTD...
12h •

Thank for visiting Makino India booth in DieMould India(TAGMA).
Made me re-confirmed future India Die Mold industry growth.
So many booths and visitors indicate heat from passion for Die mould Industry. meet lots of Indian friend and new entries!
It was good 4days.

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Battery-swapping is an attractive alternate solution for EV charging, especially for commercial applications: ICRA

Battery swapping is cost and time efficient. It reduces the upfront cost of EV, as battery ownership is replaced by battery leasing, and is a quick way of recharging a vehicle. Battery swapping stations (BSS) are also space-efficient compared to EV charging stations. Niti Aayog has released a draft battery swapping guidelines recently. It is a step in the right direction for addressing range anxiety issues. The policy aims to ensure faster penetration of battery swapping as a service in the Indian market. The policy provides guidance on multiple areas including interoperability, traceability and data sharing, business models, fiscal support, grievance redressal, battery reuse and recycling and implementation of battery swapping stations, states ICRA Research.

ICRA Research expects a healthy electric vehicle (EV) penetration in India over the next five years, especially in the e-2W, e-3W and e-bus segments. The penetration of e-2Ws is expected to be at about 13-15% of new vehicle sales by FY2025. Likewise, the e-3W and e-bus segment penetrations are expected to be greater than 30% and about 8-10% of new vehicle sales respectively by FY2025. However, in order to achieve healthy EV penetration, expansion of charging infrastructure will play a critical role.

Giving more insights, Ms. Vinutaa S., Assistant Vice President and Sector Head, ICRA, says, "Battery-swapping is an alternative solution to developing EV charging infrastructure, especially for commercial applications. This is currently in nascent stages in India. Battery swapping is advantageous – it is a quick way of recharging a vehicle and is cost and time efficient. It reduces the upfront cost of EV, as battery ownership is replaced by battery leasing. There is increased predictability of battery life due to controlled charging conditions. However, ensuring interoperability, adequate financing availability and maintaining sufficient battery inventory can prove to be challenging."

In the Union Budget for FY2023, the Government

Image used for representation only. Courtesy Envato Elements

of India announced plans to introduce a battery swapping policy and interoperability standards, with the intent of building and improving the efficiency of the battery swapping ecosystem, thereby driving EV adoption. Subsequently, Niti Aayog has released a draft battery swapping guidelines recently. It is a step in the right direction and provides guidance on multiple areas including interoperability, traceability and data sharing, business models, fiscal support, grievance redressal, battery reuse and recycling and implementation of battery swapping stations.

The policy currently advocates usage of only advanced chemistry cells (ACC) batteries, where the performance is equivalent or superior to EV batteries supported under the FAME-II scheme, along with an option to add specifications/standards from time to time. An open communication protocol for ensuring back-end interoperability in the battery swapping ecosystem has also been encouraged. In order to ensure quality adherence and safety, batteries would be tested and certified as per AIS 156 (2020) and AIS 038 Rev 2 (2020) standards, apart from any additional tests prescribed for swappable batteries. Standards for battery charging stations (BCS), battery swapping stations (BSS) and battery recycling/reuse are also likely to be developed. Further, for traceability, the policy proposes unique identification numbers (UIN) for batteries and swapping stations. Accessibility to information on battery health and performance, and flexibility to switch networks is also proposed, to increase transparency.

Adds, Ms. Vinutaa S., "Battery swapping is still in nascent stages in India and there could be multiple models that could emerge as the market matures. Thus, the policy is agnostic to business models. However, it proposes fiscal support through demand incentives, and some guidelines of land provision and electricity tariffs. It also recommends easing the approval process through a single window system. All of these will ensure faster penetration of battery swapping as a service in the Indian market. However, while the battery quality and standards could improve financing, the extent of funding penetration remains to be seen."

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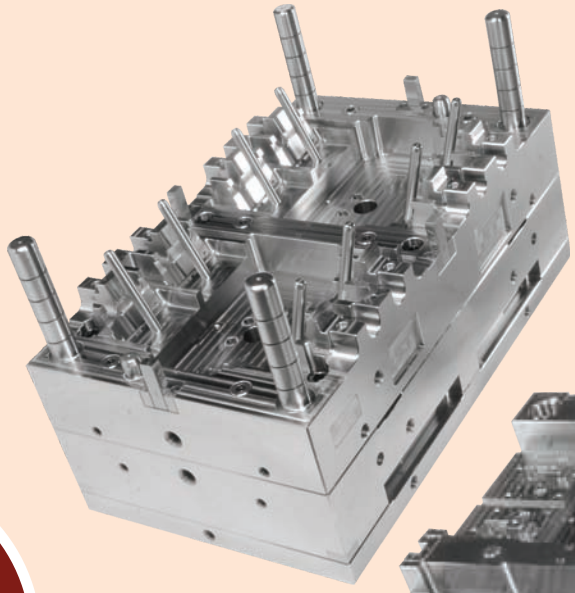

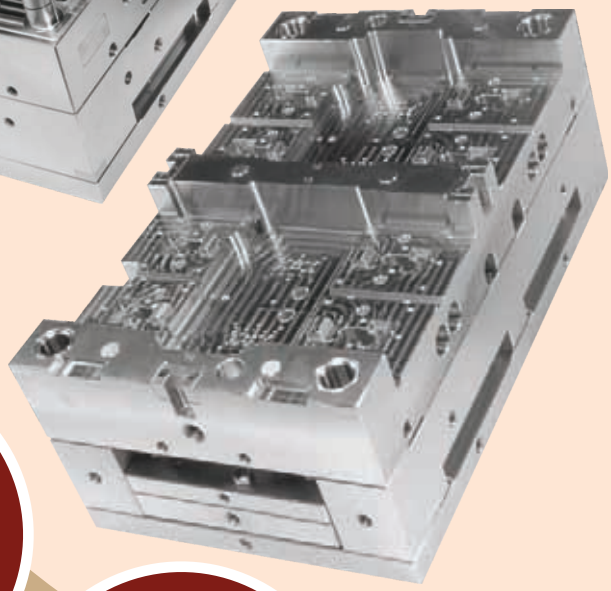

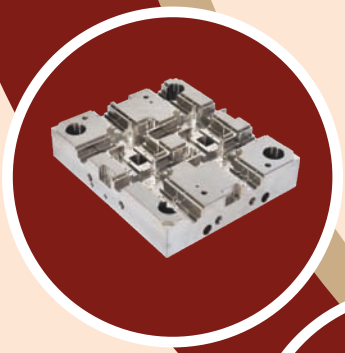

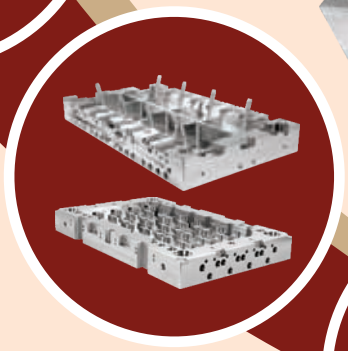

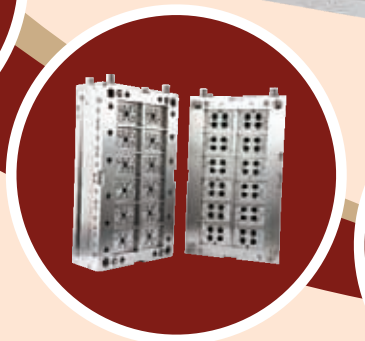

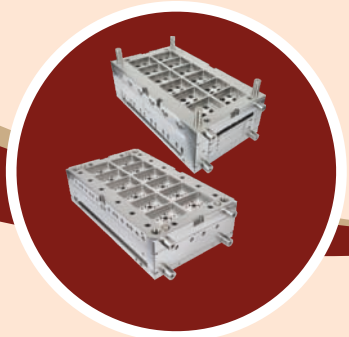

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Pandemic hastens digital transformation of MSEs

CRISIL's survey of firms with revenue less than INR 25 crore shows

The digital footprint of micro and small enterprises (MSEs) expanded amid the pandemic-led disruption last year, with micro enterprises exhibiting stronger traction, a CRISIL survey shows.

The survey of ~540 MSEs, conducted earlier this year, was aimed at gauging changes in the level of usage of digital channels — including of online aggregators, social media platforms, and owned websites — by such entities, over the course of the pandemic. Of these enterprises, 59% were micro with revenue less than INR 5 crore, while the remaining had revenue in the INR 5-25 crore range.

Survey

The survey reveals that more than 65% of the respondent MSEs adopted/ upgraded their digital landscape. This benefitted them in the immediate-to-short run by helping manage transactions at a distance, deliver goods efficiently, and facilitate access to financial services, apart from bringing in tangible benefits such as enhanced customer acquisition, operational efficiency, workforce enhancement, risk management, innovation and reduction in manpower requirement.

Says Bhushan Parekh, Director, CRISIL, "Within the MSE universe, manufacturing sectors showed a stronger shift towards digitalization, with 71% respondents adopting/upgrading to the digital ecosystem compared with 66% respondents from the service sectors. The growing demand for digitalization in operation was visible across segments. The highest transformation was recorded on financial transactions with ~68% extensively adopting payment wallets and net banking, while a mere ~4% were focused on procurement/ inventory management. This shift has the potential to enhance opportunities to access credit by MSEs through using their digitized data on transactions and business activity."

COVID-19 has also changed the way MSEs market/ sell their products/services — today, about 52% of the respondent use social media to market their products.

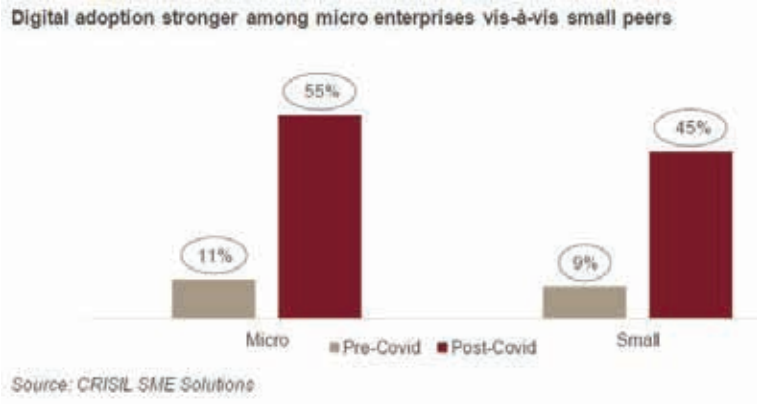
These trends are encouraging as a well-integrated and connected digital ecosystem is optimal to build connections, and drive transformation of MSEs.

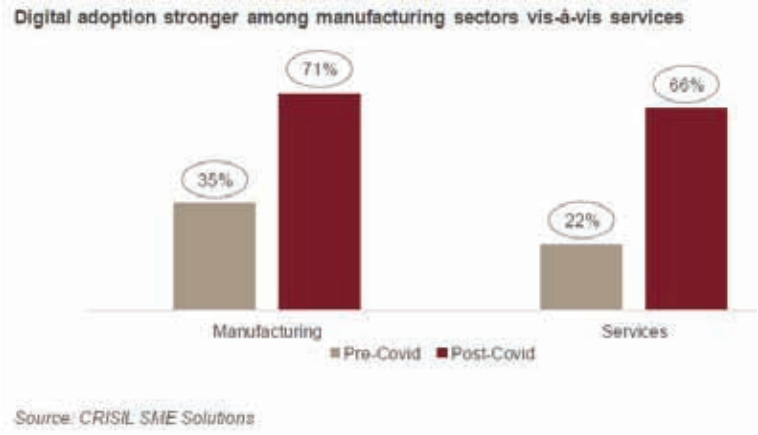
Increasing digitalization also augurs well from a financial inclusion perspective.

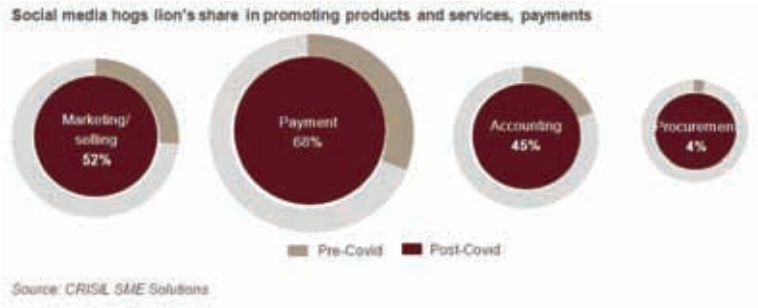
As things stand, access to formal credit has long been a challenge for MSEs due to absence of information such as historical cash flows, credit reporting systems, and credit track record of these enterprises. There is, thus, an urgent need to formalize the sector in order to boost formal credit flow to the MSEs. The government, on its part, has taken initiatives such as Udyam, OCEN, TReDs, etc., which have been in place to address these issues.

The growing digital adoption among MSEs is expected to help here.

That being said, the survey shows that MSEs are hesitant to disclose/ share financial data online and this reluctance is impacting the overall traction.







Says Manasi Kulkarni, Associate Director, CRISIL, "The survey shows ~80% MSE respondents are not comfortable sharing their data for fear of data theft. This is despite the Reserve Bank of India's assurance on privacy of financial data as it will be shared in encrypted form. In the context, fast-footing spreading of awareness and promotion of such initiatives become imperative for the government to ensure effective implementation."

Article courtesy: © 2021 CRISIL LIMITED - A DIVISION OF S&P GLOBAL.

Is 3D Printing really the future of the manufacturing industry?

Additive Manufacturing/3D Printing is all set to take center stage, as manufacturers unfold their potential to revolutionize the production process.

Today, businesses are increasingly adopting Additive Manufacturing (AM) or 3D Printing due to a number of reasons that include cost saving, unique designs, product customization, shorter time-to-market, and small series production.

The break-even point where AM becomes more cost-effective versus conventional manufacturing could range from 50 to 5000 parts, depending on the industry, material, and application factors. The long-tail needs of a mixed marketplace – ranging from medical devices, manufacturing equipment to certain purpose machines and spare parts – can more effectively be handled via AM.

Despite the benefits 3D printing technology provides in both the prototyping and creation phases of the manufacturing process, approximately 66% of companies currently use it.

Let's understand how 3D printing technology is the future of the manufacturing industry and what benefits it offers to companies for making the switch.

How is 3D Printing changing the manufacturing industry?

Once 3D printing technology's future reached the turning point of accessibility in the mid-2000s, it led to transformations in several vital manufacturing areas. These include:

Prototyping

3D printing transformed the materials, speed, and functionality with which prototypes could be efficiently produced, leading to fewer prototyping iterations, faster overall production, and decreased overall costs. With this technology, one-off prototypes can be produced in a matter of hours and with total turnaround times as short as a day.

Design and Testing

With the advancement of desktop 3D printing equipment, every shop and even every designer can have a 3D printer right on their desk. This just means designs can quickly be replicated in 3-dimensional space without requesting a prototype from a vendor. This printing technology has even advanced to the point where desktop machines can create useful working prototypes, testing functionality, and design.

Short-run Manufacturing

3D printing is usually the kind of payoff to one of the earliest promises of the technology. Advancements in the material types and properties can be replicated in 3D printing materials, meaning that workable, sellable parts can be created through the technique.

Advantages of 3D Printing

From the beginning, 3D printing has always offered the promise of huge advantages over traditional manufacturing in certain scenarios. Throughout the journey of 3D printing, those benefits — and more — have become a reality. Here are some of them:

Better quality prototypes at lower costs

Before 3D printing, sacrifices generally had to be made to produce viable prototypes, whether in fidelity to the design, materials, or the speed and cost of prototype development. Manufacturing quality prototypes were available; however, costs would typically become prohibitive given the suitability

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of one-off production on high-volume machinery. 3D printing technology and its advancement in equipment speed and materials simply mean that superior quality prototypes can be created at nominal cost and time.

Overall faster production speeds

Another benefit of 3D printing in manufacturing is that can save a lot of time in the design and prototyping processes, and that leads to reduced time-to-market. This equates to bottom-line benefits for businesses as well as their end customers.

Reduced waste

Traditional manufacturing processes can be extravagant and consume large amounts of energy and raw materials. Besides processing a product from a massive piece of plastic or metal, 3D printing precisely processes the item layer by layer. Hence, there is 70% to 90% scrap waste compared to traditional CNC manufacturing or injection molding methods.

Mobility

3D printers offer broadly improved portability over traditional manufacturing processes. It can be taken to boats, into remote environments — offering speedy manufacturing of required parts when they might not have otherwise been available.

5 exciting ways where 3D Printing technology will be used in future

While there are endless examples of 3D printing being utilized for incredible things, keep an eye out for its use in these five applications:

Rare Parts Replacement

The evolving future of metal-based 3D printing will enable the production of rare, concluded replacement parts in various applications. Repair shops could handle a wider variety of clientele, and online retailers might be able to print unique parts, offering more products through a just-in-time inventory approach.

Automotive Prototyping

3D printing technology has overcome the hype and is now widely adopted by non-tech businesses. The automobile industry is using it to prototype new car models rapidly. 3D printing is utilized to produce spare and replacement parts in sectors like aerospace. Healthcare has a comprehensive variety of 3D printing applications ranging from moulds in dentistry to prosthetics and 3D printed models for complex surgeries.

Customizable Solutions

The drastic shift from broad, one-size-fits-all solutions to more personalized and customizable offerings has been a significant trend in recent years. 3D printing has the ability to take it a step further. Businesses will be able to offer greater flexibility and personalization on the specifications and design of products sold without marking up the cost dramatically.

Fraud Prevention

3D printing shows assurance in preventing card-present fraud in things such as ATMs and point-of-sale systems. 3D printing technology will play a crucial role in creating hardware to fight fraud in the physical and digital world.

Apparel Printing

With 3D printing technology uses, customers can print their own gloves, belts, and glasses to meet their needs. This can offer co-creation opportunities for retailers and hand out personalized designs to customers.

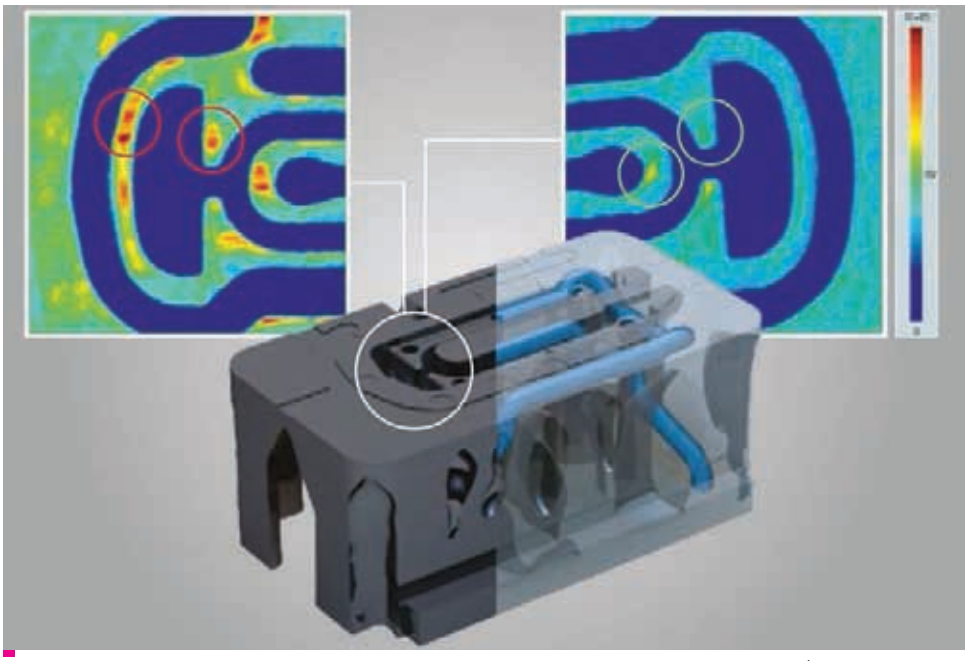
The Future of 3D Manufacturing

In the coming years, we are looking forward to seeing 3D printing being used to create more final-use products. With the increasing market demand for customized products, the role of 3D printing will increase exponentially since this technology allows for greater flexibility in customizing products without adding a tremendous cost.

Article and images courtesy Objectify Technologies Pvt. Ltd.

Case Study

Shorter Time to Market for AM Tooling Inserts with EOSTATE Monitoring Solutions



Source: voestalpine Additive Manufacturing Center GmbH

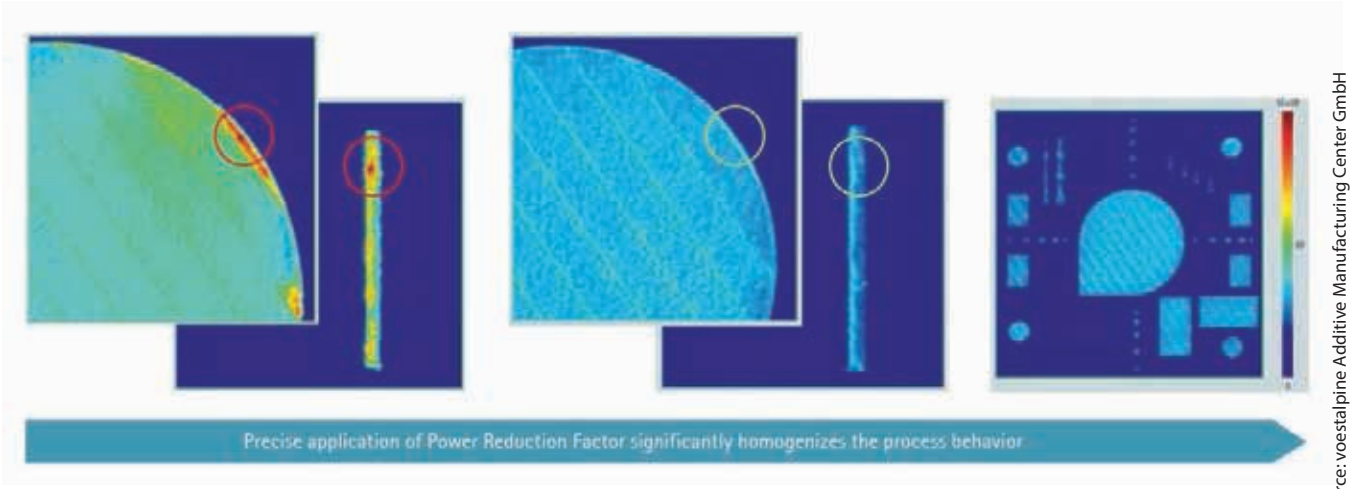
Digital representation of the process behavior measured by EOSTATE Exposure OT before (red marked positions, left) and after parameter optimization (green marked position, right)

Thanks to voestalpine´s experience and position as a global leader in the manufacture and supply of tool steel, voestalpine is aware of the challenges faced by customers in the plastic injection molding (PIM) industry. It is the high level of customer intimacy and technological familiarity that enables voestalpine to develop tailor-made solutions based on its three-pillar approach. This is why voestalpine's PIM customers enjoy significant improvements in performance across multiple applications in terms of inserts, sliders, filters, and mixers. Manufactured with the EOS M 290 machine and optimized with EOS monitoring solutions, voestalpine has supplied tailor-made tooling inserts for such partners as Eisenhuth and ARTC Singapore, as well as other industrial companies in the field of PIM applications.

voestalpine's three pillar approach: optimized powder, optimized design and optimized printing.

Challenge

With conventional tooling inserts, line-of-sight cooling often results in a non-homogeneous cooling profile around the molded part. If the thermal profile over such areas is not properly managed, it will lead to part warpage and an increase in scrap rates. When it comes to constructing a conformal cooling channel, additive manufacturing (AM) has proven to be the best solution. However, with the experience gathered by voestalpine in working with AM, the company is aware that quick application specific optimization of the process also involves many challenges. When optimizing printing process parameters, various anomalies can occur if inappropriate settings are applied. These anomalies can hamper the repeatability and precision of the process, directly affecting the properties of the additively manufactured tooling insert. In such areas, inappropriate scan strategies arising from higher input power or incorrect scan patterns lead to excessive energy input, which reduces the flow viscosity of the molten metal and increases the probability of oxidation. The reduction in solid-liquid wettability results in protruding surface features, which in turn gives rise to local deformations. In extreme cases, ball-like features can form on the surface that can



Validation of process parameters with EOSTATE Exposure OT based on a test matrix before and after optimization

Source: voestalpine Additive Manufacturing Center GmbH

increase residual stress, which manifests itself in the form of part distortion. A second source of irregularity is the uncontrolled deposition of process by-products, which can occur with inappropriate process parameter settings. The impingement of the laser on the powder bed during the process results in a high vapor pressure building up during vaporization. The momentum this produces is sufficient to eject molten particles from the surface of the powder bed. The inert gas flow also causes powder particles to fly off the powder bed. When using optimized process parameters in production in conjunction with a properly finalized design, orientation and position of the parts, these process by-products are successfully removed by the inert gas flow. However, inappropriate exposure parameters and gas flow settings during process and optimization can lead to uncontrolled by-product deposition, adversely affecting both the final surface quality and the mechanical properties of the additively manufactured part. Generally, an iterative approach is employed, which consists of printing the parts, conducting an extensive laboratory analysis of their properties, and testing and adapting the process parameters. This approach, however, involves laboratory analysis, which is both time-consuming and costly.

Solution

To address this challenge, voestalpine chose to produce AM tool inserts with conformal cooling using EOS M 290 manufacturing systems. To increase the cooling efficiency of the circuit, the diameters of the channel were increased to a minimum of 5 mm. The material selected was Uddeholm Corrax for AM or BÖHLER M789 AMPO, as it is known to exhibit superior corrosion resistance and is ideal for mold making. To obtain the desired combination of properties, design and performance, it was necessary to perform multiple build jobs and subject them to metallographic analysis and mechanical testing. The results were then correlated with the data obtained with EOSTATE monitoring solutions. EOSTATE Exposure OT and EOSTATE MeltPool Monitoring enable real-time signal monitoring, which reveals the formation of any local defects. For example, the monitoring analysis showed that areas subject to potential overheating due to high energy input occur around the geometrical contours and at zones involving short tracks in the scan pattern. In manufactured parts, areas with insufficient thickness are prone to such anomalies, as can be inferred from the monitoring system. Measures derived from the results of the analysis can then be taken to optimize the energy input dynamically to the part geometry by lowering the laser's input power during the printing process.

Results

Using EOSTATE Exposure OT made it possible to reduce the number of iterative build jobs that would otherwise have been necessary to develop and fine-tune the process parameters. This lowered the printing and lab costs, which in turn increased the overall return on investment in the development of PIM molds for AM processing. The use of inserts produced by AM meant that customers could now benefit from significant improvements in both cycle times and product quality. The optimized topology further reduced the overall mass of the tool as well as lowering printing costs. Homogenized process behaviour was achieved by precise application of the power reduction factor, resulting in enhanced part quality. Moreover, the layer thickness of the AM inserts was increased from 30 to 60 µm, which doubled the build rate and lowered lead times for production.

Article Courtesy: © 2022 EOS

New Members

Welcome to New Members

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Mobile: +91 9820481767
Email: aaditya2000@gmail.com
Website: www.aadityaconsultants.net
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Contact Person: Mr. Rohit P Pradhan – Partner
Mobile: +91 8484920163
Email: rohit.pradhan@accutechtools.com
Website: www.accutechtools.com
Activities: Trading in Industrial Products Cutting Tools, Tool Holder's Coolant.

CUTS & CURVES TOOLING SOLUTIONS
2/90, Irugur Road, Telephone Exchange, Chinniyampalayam Industrial Estate, Chinniyampalayam, Coimbatore – 641062. Tamil Nadu
Contact Person: Mr. S. Saravanan - Managing Director / Dr. N. Sudha - Proprietor
Mobile: +91 9944142966
Email: saravanan@ccts.in.net
Website: www.ccts.in.net

GLOBAL TECHNOLOGIES
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Contact Person: Mrs. G Deepa – Proprietor / Mr. C Prabhu
Tel: 0422-3566989 / +91 7867888111
Email: gtechedm@gmail.com
Activities: Tools & Dies & Job works

JSB POLYMERS PVT LTD.
Plot No. K-29/30, MIDC Ranjangaon, Tal - Shirur, Dist.- Pune-412220. Maharashtra
Contact Person: Mr. Bibhu Prasad Bhuyan – Director / Mr. Jignesh Prasad Bhuyan
Mobile: 9326584996 / +91-9326584996
Email: bibhu.prasad@imold-jsb.com
Activities: Plastic and Rubber Mould Manufacturing

KADKRAFT SYSTEMS PVT LTD
Plot No. D-133/B, Industrial Area, Phase-7, Mohali – 160055. Punjab
Contact Person: Mr. Raman Gupta - Director
Tel: 0172-4003272
Email: raman.gupta@kadkraft.com
Website: www.kadkraft.com
Activities: We are providing sales and services of software, 3D printer and 3D Scanner.

MICRON ENGINEERING
24, Sivalapuri Amman Nagar, Nallampalayam Road, Rathinapuri (P.O) Sanganoor, Coimbatore – 641006. Tamil Nadu
Contact Person: Mr. A. Senthil Kumar / Mr. A Kalaiselvi
Mobile: +91 9944479221
Email: micron2004@gmail.com
Activities: Dies, Jigs & Fixtures, Precision Components.

MATRIX ENGINEERING SOLUTIONS
No. 15c, Avinashi Road, Thottipalayam Pirvu, Civil Aerodrome Post, Coimbatore – 641014. Tamil Nadu
Contact Person: Mr. R. Senthil Kumar - Managing Partner / Mr. K Selvam - Managing Partner
Mobile: +91 7708355716
Email: matrix.mes16@gmail.com
Website: https://matrixengineeringsolutions.in/index.php

PAVITHRA TOOLINGS
#35 & 36, 2nd Stage, 6th Main J.C Industrial Estate, Bangalore – 560062. Karnataka
Contact Person: Mr. Pavana K.M - Plant Head / Mr. M. S. Nagaraj - Technical Director
Mobile: 080-26661986
Email: shirudkar@pavithrasprings.com
Activities: Manufacturers of Automotive Anciliary Parts, Like Springs, Wire forms Multislide Components, Pressed Components.

PRADINK TECHNOLOGIES
A-7/10, Jalavayu Vihar Greenlands, Sector-6, Sant Nagar, P.C.N.T.D.A., Moshi, Pune – 412105. Maharashtra
Contact Person: Mr. Pravin Deore – Director / Dipashri Deore – Director
Mobile:+91 9833267195
Email: pradink.technologies@gmail.com
Activities: Sheet Metal Stamping Tool Design & Manufacturing Assembly/Welding/Biw Fixture Design & Manufacturing Spm Manufacturing Robotics & Automation Engineering Services Machining Services

REAL TECH ENGINEERS
No. 12/1, Sri Ganesh Nagar, Pollachi Main Road, Eachanari, Coimbatore – 641021. Tamil Nadu
Contact Person: Mr. R. Kumar - Proprietor
Mobile: +91 9965320916 / +91 9994844081
Email: realtechrkumar@gmail.com
Activities: Manufacturing and supply of Mould & Dies, Jigs & Fixtures through, EDM Wirecut & Sparling Process.

SHREE RAPID TECHNOLOGIES
Unit No. C-51, 2nd Floor, Raj Industrial Estate, Marol Military Road, Andheri East, Mumbai – 400059. Maharashtra
Contact Person: Mr. Jivitesh Wadhwa
Mobile: +91 9004480457
Email: jivitesh@shreerapid.com / marketing@shreerapid.com
Website: www.shreerapid.com
Activities: 3D Printing, 3D Scanning, Metrology technology and Service Provider.

DEZYN3D SYSTEMS PVT LTD
A-401, Madhuban, Mahant Road, 4th Floor, Vile Parle E, Mumbai - 400057. Maharashtra
Contact Person: Mr. S Desai – Director / Mr. Saurabh - Director
Mobile: +91-9833992677/+91-8104804300
Email: sd@dezyn3d.com
Website: www.dezyn3d.com
Activities: Product Design, Reverse Engineering, Rapid Prototyping, Mould Design, Analysis, Assembly drawing and allied manufacturing services.

SANTHI TOOLING COMPONENTS
Plot No. 73, Sun City, Kundrathur, Chennai – 600069. Tamil Nadu
Contact Person: Mr. B. Perapakaran – Manager / Ms. Buvana Santhi - Proprietor
Tel: +91 6374761354 / +91 8110087007
Email: santhitooling@gmail.com

INNOVATIVE MOULDS CRAFT PRIVATE LIMITED
No.10 First cross street, SIDCO Industrial Estate, Thirumudivakkam, Chennai – 600044. Tamil Nadu
Contact Person: Mr. R Sankar Babu – Director / Ms. Divya S - Director
Tel: +91-044-45098088
Email: shankarbabu@innovativemouldscraft.in
Activities: Plastic Components & Injection Mould Components.

MM ENTERPRISES
No.1A Kulakarai Street, Pattaravakkam, SIDCO Industrial estate, Chennai – 600098. Tamil Nadu
Contact Person: Mr. S Sivasankara Subbiah
Mobile: +91-9941392539
Email: mmenps@gmail.com
Activities: Manufacturers of Forging dies for Automitive Industries.

MODERN TOOLING SOLUTION
Plot DP 282, 6th Main Road, SIDCO Industrial Estate, Thirumudivakkam, Chennai – 600044. Tamil Nadu
Contact Person: Mr. C Venkatesan – MD
Tel: +91-044-29990333
Email: venkat@mtsgroup.co.in; admin@mtsgroup.co.in
Website: www.mtsgroup.co.in

SUNSHINE ENGINEERING
102/46, Nehru Street, Sardar colony, 2nd Main Road, Ekkattuthangal, Chennai – 600032. Tamil Nadu
Contact Person: Mr. Raghu - Proprietor
Mobile: +91-9840392056
Email: sunshineengg2021@gmail.com
Website: Manufacturing of OEM.

SATHYA ENGINEERING WORKS
Old No 21, New No 31, Visalakshi Nagar, 1st St, Ekkatuthangal, Chennai - 600032. Tamil Nadu
Contact Person: Mr. Boobalan K
Email: sathyaenggworks@yahoo.in

YAE CUBE EQUIPMENTS
Plot No - 54, Om Prakash Nagar, Thiruneermalai Main Road (Opp Ar Weight Bridge), Natham Kundrathur, Chennai – 600069. Tamil Nadu
Contact Person: Mr. S Antoine – MD / Ms. A Mariya Chinnammai
Tel: +91-044-29580697
Email: antoine@yaecube.com
Website: www.yaecube.com
Activities: Mould base for Die casting, Plastic Mould & Die sets, Heavy engineering products & services.

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27	SANDVIK COROMANT INDIA AT SANDVIK ASIA PVT. LTD.	Pune
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35	VASA SPECIALITY STEELS PVT. LTD.	Mumbai
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AMPCOLOY® 83 Advantages

- High level of hardness
- High strength and thermal conductivity
- Excellent corrosion resistance
- Good machinability, easy to polish and weld repairable

AMPCOLOY®

Applications:

AMPCOLOY® 83 is used in the construction of chill plats, mould inserts, cooling pins, neck rings, bottom plates for blow moulding of plastic bottles and welding dies for flash-butt welding in cold-rolling mills.

Special applications in aerospace and deep sea water connections.

AMPCOLOY® 83 - 2% Beryllium Copper
High level of hardness and good conductivity

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Thermal Conductivity λ	W / m -K	106
Electrical Conductivity	% I.A.C.S	22

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AMPCO® 18, AMPCO® M4 , AMPCOLOY® 940 , AMPCOLOY® 944

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Phase IV, Tal : Khed, Pune – 410501
MAHARASHTRA, INDIA
Tel: +91 2135 610 810 | Fax: +91 2135 610 811
infoindia@ampcometal.com
An ISO 9001:2015 Certified Company

AMPCO METAL S.A
Route de Chesalles 48 P.O Box 45,
1723 Marly Switzerland
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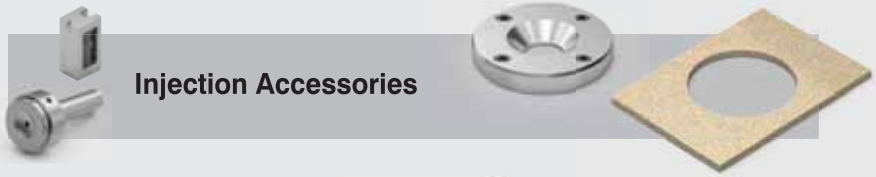
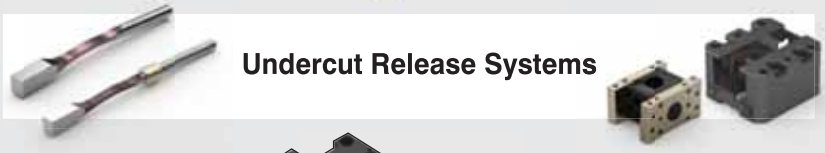
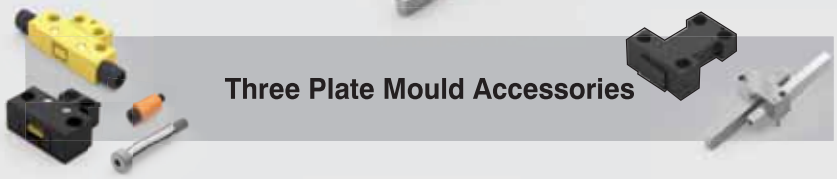
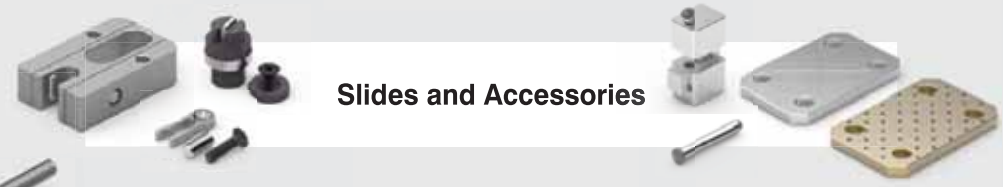
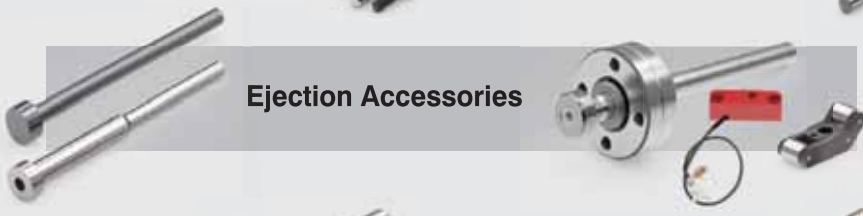
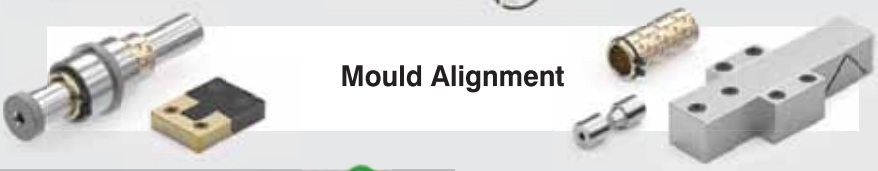

Injection Accessories

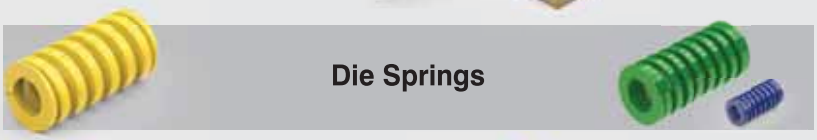

Undercut Release Systems

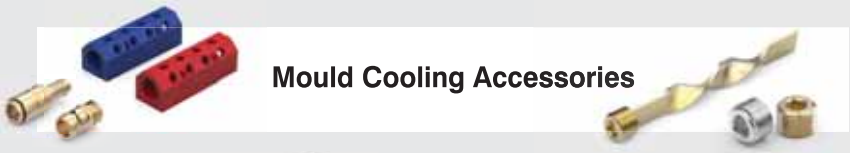

Three Plate Mould Accessories

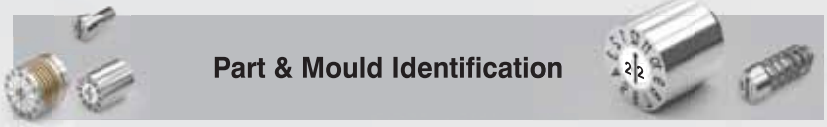

Slides and Accessories

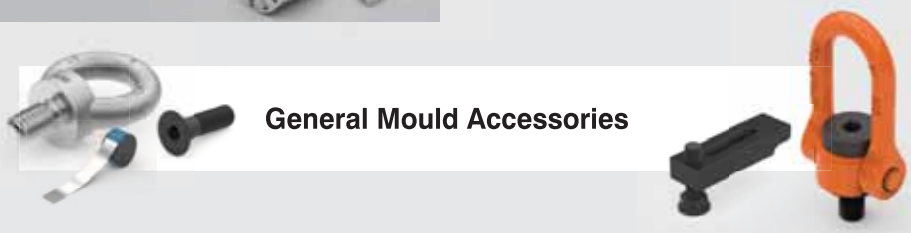

Ejection Accessories


Mould Alignment


Die Springs


Mould Cooling Accessories


Part & Mould Identification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