

TAGMA TIMES

NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

Volume 30 / Issue 1

(Private Circulation for Members Only)

September 2023



**ITS 2023:
UNLOCKING
GROWTH
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Injection molded Bumper part



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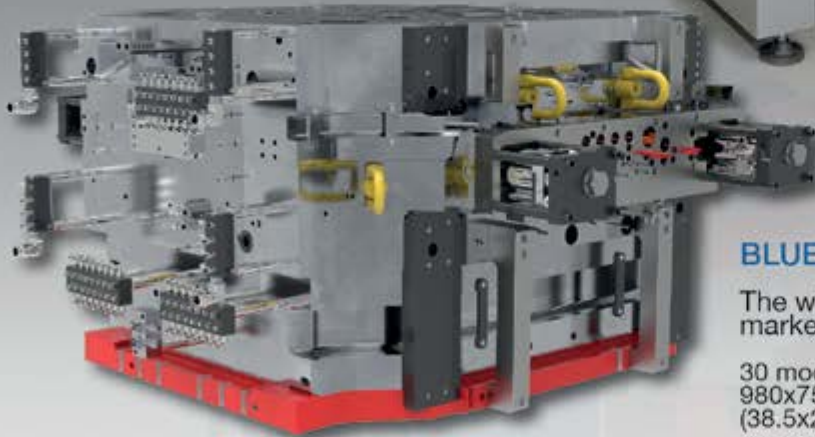
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Edited & Published By: DM Sheregar for TAGMA INDIA at
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PRESIDENT'S MESSAGE



D. M. Sheregar
President,
TAGMA India

I am thrilled to share with you the remarkable growth trajectory that our nation is currently experiencing. According to the official data released by the National Statistical Office, India's GDP surged by an impressive 7.8 percent in the April-June quarter of the current fiscal year. This robust growth, following a commendable 6.1 percent in the previous quarter, speaks volumes about the resilience and potential of our economy.

The positive economic indicators are not limited to GDP alone. We have witnessed consistent news of strong Goods and Services Tax (GST) collections, credit growth, and a robust Purchasing Managers' Index (PMI). These factors are clear indicators of our nation's economic resurgence.

Furthermore, India's long-term economic outlook is exceptionally promising, driven by several key growth factors. One of our most significant assets is our vast and burgeoning middle class, a vital force propelling consumer spending. The thriving domestic consumer market, coupled with our expansive industrial sector, has made

India an increasingly attractive destination for multinational corporations across diverse sectors, including manufacturing, infrastructure, and services.

The enthusiasm and optimism in the industry are palpable. Over the past one-and-a-half years, we successfully organised three major events: the Die & Mould International Exhibition and two International Tooling Summits. The industry's response exceeded our expectations, underscoring the undeniable signs of growth.

These factors create a fertile ground for the Indian tooling industry to thrive. We must seize the opportunities that lie before us.

During the recently concluded International Tooling Summit, the theme was diversification. Many eminent speakers highlighted opportunities in their respective sectors and urged toolmakers to diversify accordingly. We must embrace these changes and adapt to the evolving demands of the market.

(Excerpt taken from Mr. D. M. Sheregar's speech at the International Tooling Summit 2023)



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VICE PRESIDENT'S MESSAGE



D. Shanmugasundaram
Vice President,
TAGMA India

The theme for this year's ITS was 'Exploring Diversity in the Tooling Industry'. This theme serves as a call to action, urging us to step beyond the boundaries of convention and embrace the uncharted territories that lie ahead. While our roots have been firmly planted in the automotive sector, the winds of change bring with them new horizons that are brimming with opportunities. We witness this transformation in the remarkable surge of toy exports, a staggering 60% increase that echoes the unfolding growth story in aerospace, electronics, toy manufacturing, white goods, and home appliances. This flourishing ecosystem breathes life into our journey of expansion and innovation.

As we move forward through the passages of time, we witness the Indian economy expanding before our very eyes. This growth is reflected in the upward trajectory of GST collections, the enhanced purchasing power of our citizens, and the consistently positive PMI indices that paint a picture of industry vitality. This progress, while inspiring, also brings with it a crucial responsibility - a responsibility to shape our growth with a steadfast commitment to environmental precision and sustainability.

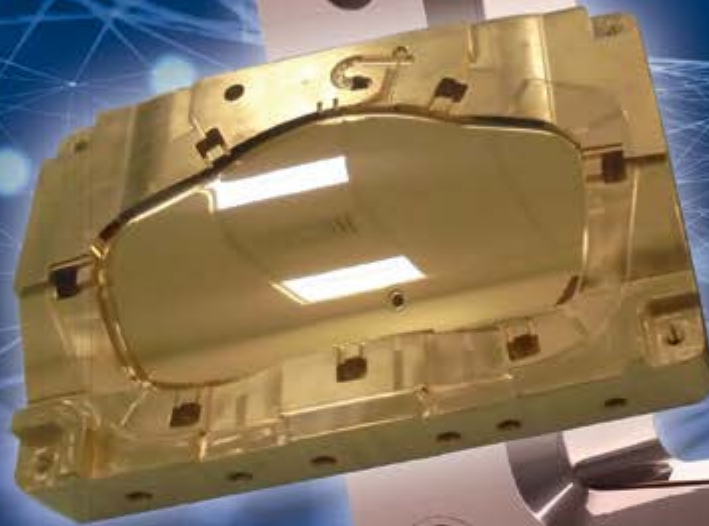
Amidst the waves of progress, it becomes ever more imperative that we do not lose sight of our duty towards the planet. Just as our ambition to flourish is unwavering, so too must be our dedication to fostering a greener tomorrow. As we reach for the stars of achievement, let us remember that the constellations of our endeavours must align with the principles of environmental stewardship. We must embrace sustainable practices and aim towards making green tools.

Amidst the ever-evolving landscape, we stand at a crossroads, armed with the opportunity to redefine the very trajectory of our industry. By embracing diversity, honing our skill sets, and making prudent investments, we position ourselves to thrive in this new era. As we cast our gaze towards the horizon, we are met not only with challenges, but also with a panorama that is ripe with potential. With the right mindset and preparedness, our industry stands on the threshold of unparalleled growth and achievement.

(Excerpt taken from Mr. D. Shanmugasundaram's speech at the International Tooling Summit 2023)

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Dear Readers,

The curtains have drawn on the remarkable International Tooling Summit (ITS) 2023, leaving behind a resounding echo of success and optimism. This year's event, the biggest ever in the history of ITS, shattered expectations and set a new standard for excellence in the world of toolmaking and manufacturing. It was an event that showcased the indomitable spirit of innovation and collaboration that defines the industry. The sheer scale of the event was awe-inspiring, with record-breaking attendance and participation from toolmakers, manufacturers, and industry experts from across the country and across the globe too!

The success of ITS 2023 underscores the pivotal role that toolmakers play in the ever-evolving manufacturing landscape. This year's summit demonstrated that toolmakers are not just integral cogs in the machinery of production but also the driving force behind innovation and progress in the manufacturing industry.

One of the most compelling aspects of ITS 2023 was how the speakers illuminated the vast opportunities awaiting toolmakers in the coming days. As the manufacturing industry continues to evolve, toolmakers find themselves at the nexus of groundbreaking transformations. From precision engineering to advanced materials, the speakers underscored that the future holds boundless potential for those who dare to innovate.

The era of Industry 4.0 and digitalisation is upon us, and toolmakers are poised to be at the forefront of this revolution. The speakers at ITS 2023 emphasised that embracing cutting-edge technologies such as artificial intelligence, machine learning, and IoT will not only enhance efficiency but also open new avenues for customised solutions and rapid prototyping. You can read all about it in the 'Event Report' section.

As we move forward, let the success of this event serve as a catalyst for toolmakers to embrace change, seize opportunities, and play an even more pivotal role in shaping the future of manufacturing, not just in India but on a global scale.

Happy Reading!

A handwritten signature in black ink, appearing to read 'Nishant'.



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ITS 2023: Unlocking Growth Opportunities

In a crescendo of knowledge, networking, and innovation, the International Tooling Summit (ITS) 2023 drew its curtains on a high note of success. Organised by TAGMA India, this flagship event left an indelible mark on the industry landscape. Spanning vibrant discussions, insightful presentations, and collaborative interactions, the summit showcased the tooling industry's unwavering spirit and commitment to excellence.



On August 24 and 25, 2023, at The Sheraton Grand Bangalore Hotel, Brigade Gateway, luminaries, thought leaders, and practitioners from across the country and diverse industry domains gathered at the International Tooling Summit (ITS) 2023, which was aimed at 'Exploring Diversity in the Tooling Industry'. With a sharp focus on leveraging innovation to unlock new horizons, ITS 2023 – the flagship event of the Tool and Gauge Manufacturers Association (TAGMA) India – presented a platform for dynamic conversations that are poised to shape the future of the tooling sector. The event began on a celebratory

note as the attendees applauded ISRO's incredible accomplishment of Chandrayaan-3's successful landing on the moon's South Pole. With their hearts filled with a sense of pride, the attendees then sang the National Anthem. This historic milestone, which filled the atmosphere with inspiration, has proved India's unwavering commitment to pushing boundaries and reaching for the moon – a sentiment that resonated with everyone gathered there.

Dignitaries speak

This moment was followed by the solemn lamp-lighting ceremony, which was graced by the presence of the esteemed dignitaries. The

summit's Chief Guest Mr. Sudeep Dalvi, Sr. Vice President & Director - Technical & Purchase and Chief Communication Officer, Toyota Kirloskar Motor, illuminated the occasion with his esteemed presence. Accompanying him as Guests of Honour were Mr. Satyajit Gupta, Chief Technical Officer, International Aerospace Manufacturing Pvt. Ltd. (IAMPL), Mr. Yuki Kita, President & CEO, FANUC India Pvt. Ltd.; Mr. G. Manikantan, Managing Director, Multiple Special Steel Pvt. Ltd.; Mr. D. M. Sheregar, President, TAGMA India, and Mr. D. Shanmugasundaram, Vice President, TAGMA India.

Mr. Sheregar then welcomed the audience. "We are truly honoured

and delighted to have you all here today, coming together to discuss and explore the dynamic world of toolmaking. We extend our gratitude to each one of you for gracing us with your valuable time and insights. As we gather here today, it is important to recognise the vast opportunities that lie ahead for Indian toolmakers. In the coming days, our industry holds the potential to scale new heights and carve a niche on the global stage. We stand on the cusp of transformation and must be prepared to seize these opportunities. Aerospace, packaging, electronics, toy making, white goods, and many other industries are growing. Even the automotive sector, which has displayed remarkable numbers since the pandemic, shows promising signs of improvement. We must align our strategies to harness these potential growth areas and propel Indian toolmaking to new horizons," he said.

Mr. Dalvi, the Chief Guest, then addressed the audience. He said, "I would first like to extend my gratitude to TAGMA for conceiving such an exceptional event and providing us, as an OEM, with the opportunity to engage with crucial stakeholders in our supply chain. Initially, we hesitated to source tools from India

The solemn lamp-lighting ceremony was graced by the presence of esteemed dignitaries.



due to our global launch strategy. However, after participating in a TAGMA event at our plant a few years ago, we recognised the impressive capabilities of Indian toolmakers.

Consequently, we increased our sourcing from domestic vendors, and the recently launched Innova Hycross now contains 85% domestic tools, up from 35%. I extend my heartfelt appreciation to all of you for your invaluable support and for being an integral part of our supply chain. Your contributions are immeasurable."

Mr. Gupta, the first Guest of Honour, then highlighted the growth opportunities that the aerospace industry presents Indian toolmakers. "The Indian aerospace industry is growing multi-fold in both defence and civil aviation. Almost all the aerospace OEMs have their footprint in India and are looking forward to strengthening it by the day. This presents immense opportunities to the Indian Industry and toolmakers. However, meeting cost and timeline requirements for such high-accuracy fixtures are necessary. Some examples of aerospace tooling include precision clamping chucks, precision clamping mandrels, zero-point clamping systems, hydraulic fixtures, precision drill jigs, stretch forming dies, form blocks, milling fixtures, vacuum fixtures & acceptance gauges, etc. I would like to request the tooling and part manufacturing industry to imbibe the right technology & equipment to meet the requirements of the aerospace industry," he said.

Mr. Kita commented, "I'm excited to be here. The Indian tooling industry has grown rapidly in recent years and is expected to sustain this growth for the next decade. India's GDP is forecasted to grow by 6.4% this fiscal year, driven by private consumption and investments, with government support. The Indian manufacturing sector is projected to reach a \$ 1 trillion market size by 2025. Traditional sectors like automotive, engineering and consumer electronics are thriving, while emerging areas like EMS, EV, aerospace, and consumer goods offer promising opportunities. TAGMA plays a crucial role in uniting industry stakeholders."





When the esteemed dignitaries had finished addressing those present, Mr. Shanmugasundaram delivered the 'Thank You' note. "As we delve into the heart of our industry's discussions, we are inspired by the theme that guides us this year: 'Exploring Diversity'. This theme serves as a call to action, urging us to step beyond the boundaries of convention and embrace the uncharted territories that lie ahead. While our roots have been firmly planted in the automotive sector, the winds of change bring with them new horizons that are brimming with opportunities. We witness this transformation in the remarkable surge of toy exports, a staggering 60% increase that echoes the unfolding growth story in aerospace, electronics, toy manufacturing, white goods, and home appliances. This flourishing ecosystem breathes life into our journey of expansion and innovation," he said.

Mr. B. P. Shiv, Vice President & Head – Sales & Marketing, TAFE Engineering Plastics & Tooling Division, then presented the 'Keynote Address'. "In the past decade, the Indian tooling industry has experienced a phenomenal growth trajectory. This surge is not merely coincidental; it is the result of dedicated efforts, visionary leadership, and a commitment to quality that has placed us at the forefront of the global tooling landscape. Reports from around the world resonate with the sentiment that this decade indeed belongs to India. The manufacturing sector is poised to play a pivotal role in propelling our nation toward its audacious goal of becoming a \$5-trillion economy. As this sector takes centre stage with a projected 20% contribution to our economy, Indian toolmakers find themselves at the nexus of a transformative era," he said.

Speaker line-up

The heart of ITS 2023 lies in its

remarkable speaker line-up. The event welcomed accomplished experts, each bringing a unique perspective and wealth of knowledge to the table. From veteran industry professionals to visionary leaders, the speakers left no stone unturned in sharing their insights, experiences, and forecasts. The summit's sessions spanned a range of topics, from digital transformation to aerospace tooling, exploring uncharted avenues that often define the industry's growth trajectory.

ITS sessions: Day 1

The first panel discussion on the topic 'Indian Tooling Industry: Diversifying for Greater Heights' was moderated by Mr. Ashim Sharma, Senior Partner & Group Head - Business Performance Improvement Consulting, Nomura Research Institute. The panellists included Mr. James Walsh, VP - Tooling, TATA Electronics; Mr. N. Prabakaran, Managing Director, DieTech India; Mr. Vijay Kumar Baheti, Director - Technical, Manjushree Technopack; and Mr. Nithish Parambath, Director - Industrialization, Schneider Electric. In this panel discussion, the panellists highlighted the opportunities in their respective sectors and the challenges they face while sourcing tools from India. They also spoke about how diversifying to other sectors could be the key to growth.

The panel discussion was followed by a presentation by Mr. Aashutosh Sinha, Principal - Business Performance Improvement, Nomura Research Institute (NRI) Consulting & Solutions. Subsequently, Mr. Paolo Frassi, Tool Steel Development



Panel Discussion - 1



'Indian tooling industry: Diversifying for Greater Heights'



Mr. Ashim Sharma



Mr. James Walsh



Mr. N. Prabhakaran



Mr. Vijay Kumar Baheti



Mr. Nithish Parambath

Manager, Lucchini RS, presented a technical session on 'Forging the Future: Evolution of Tool Steels and its Impact on Tooling'.

The informative sessions worked towards building everyone's appetite (not only for knowledge). The gathering then took a lunch break and returned recharged to attend the sessions presented by Mr. Steffen Domay, Business Development Manager, FIBRO GmbH, on 'Inspirations for the Value Chain of your Sheet Metal Production'; and Mr. Hidehiko Yamamoto, Specialist/ DM Business Development - Project Sales Department, Makino Milling Machine Co., Ltd. on 'Global Die & Mould Industry Trends'.

The next session was presented by Mr. Sachin Sanghi, Principal Architect - Manufacturing, Google, on 'Rethinking Digital Solutions for the Indian Tooling



Strengthening Global Bonds: Alfonso Tagliaferri, Consul General, Italian Consulate, Bengaluru, receives a warm felicitation from TAGMA Vice President, Shanmugasundaram, during ITS 2023.

Sector'. In this session, he highlighted the importance of data security & cloud and urged Indian toolmakers to adopt digital solutions. Mr. Hank Wu, International Sales, YCM, then presented a technical case study.

The second panel discussion on 'Designing and Building Moulds for the Aerospace Industry' was moderated by Mr. Vineet Seth, MD - India, S. Asia, Middle East, Mastercam. The panel comprised Dr. Ravi Guttal, CTO, Aequs; Mr. Rakesh S. B., Vice-President - Aerospace, Sansera Engineering Limited; Mr. Maneck Behramkamdin, Business Head, Godrej Aerospace; Dr. S. Ravishankar - Chief Scientist & Head, Aircraft Prototype Manufacturing Facility, CSIR - National Aerospace Laboratories.

In this engaging panel discussion, the speakers talked

Panel Discussion - 2



'Designing and Building Moulds for the Aerospace Industry'



Mr. Vineet Seth



Mr. Rakesh S. B.



Dr. S Ravishankar



Dr. Ravi Guttal



Mr. Maneck Behramkamdin

Technical Speaker



Mr. Aashutosh Sinha



Mr. Paolo Frassi



Mr. Steffen Domay



Mr. Hidehiko Yamamoto



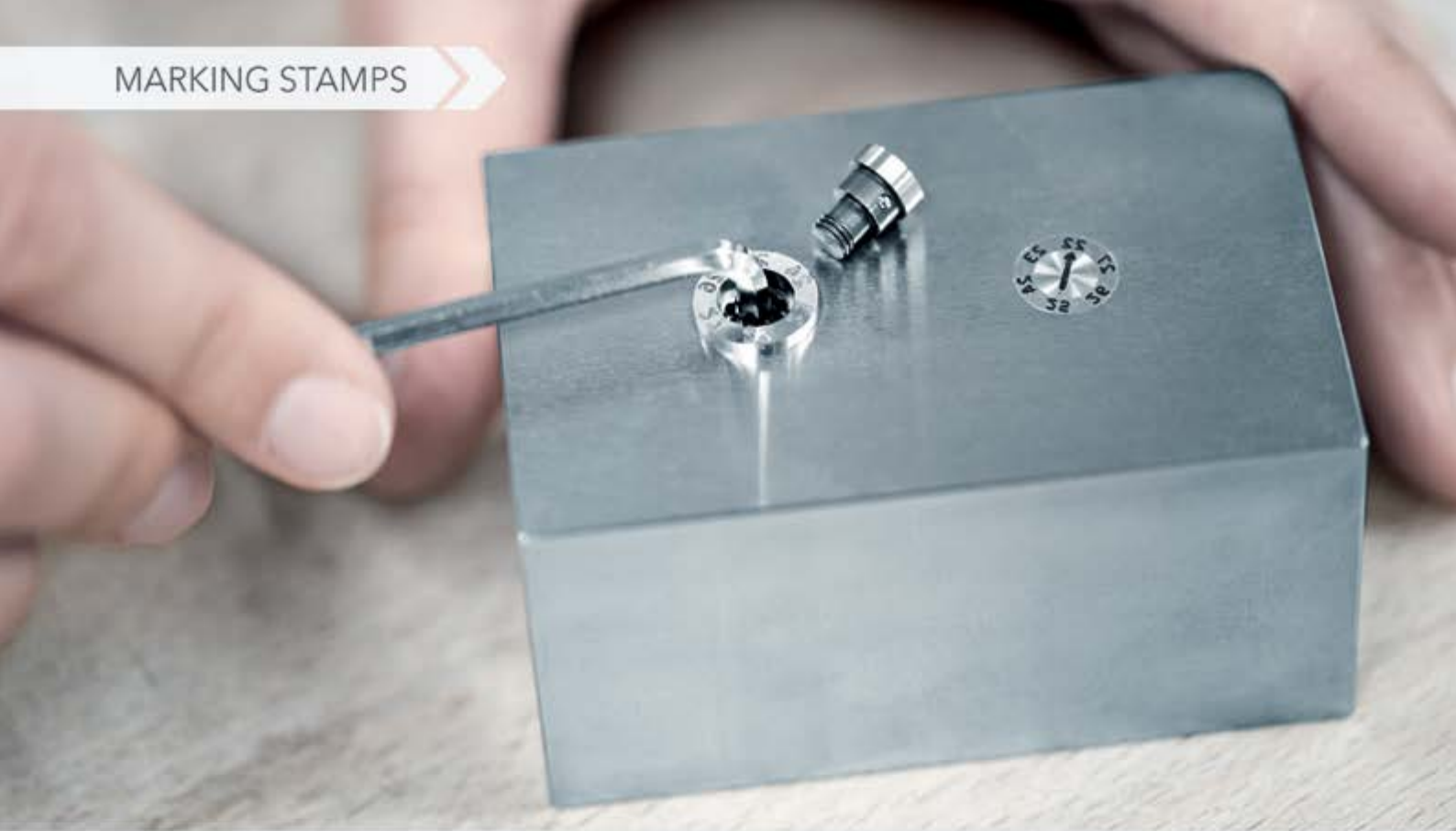
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Felicitations!

Every ITS, TAGMA India felicitates leaders who have contributed immensely to the growth of the Indian tooling industry. This year, Mr. Raghava Badhya T. V., President, Makino India Pvt. Ltd.; Mr. A. Dayanand Reddy, Founder & Managing Director, Vasantha Tools Crafts Pvt. Ltd.; Mr. Bala Thomas, Founder CEO, ELTA Tools & Dies; Mr. S. Johnson, Managing Director, Pretech Plast Pvt. Ltd.; Mr. P. Ramadas, Managing Director, Ace Manufacturing Systems; and Mr. D. Jayaseelan, Managing Director, Vishal Precision Products Pvt. Ltd., were felicitated. The felicitation ceremony was followed by dinner, which gave those present an opportunity to network with each other.



Mr. Raghava Badhya T. V.



Mr. P. Ramadas



Mr. S. Johnson

about the current trends and growth opportunities in the Indian aerospace industry. They highlighted how global giants setting up shop in India will present a great opportunity for Indian toolmakers. While discussing the challenges, they suggested why toolmakers need to invest in the right technologies, acquire the

necessary certifications and adopt a process-oriented approach.

In the last session on 'Ideal Tool Room for EMS Industry', Mr. Kannan R., AVP - Tooling, TATA Electronics, highlighted the tools required in the aerospace industry and how toolmakers should be prepared for the same.

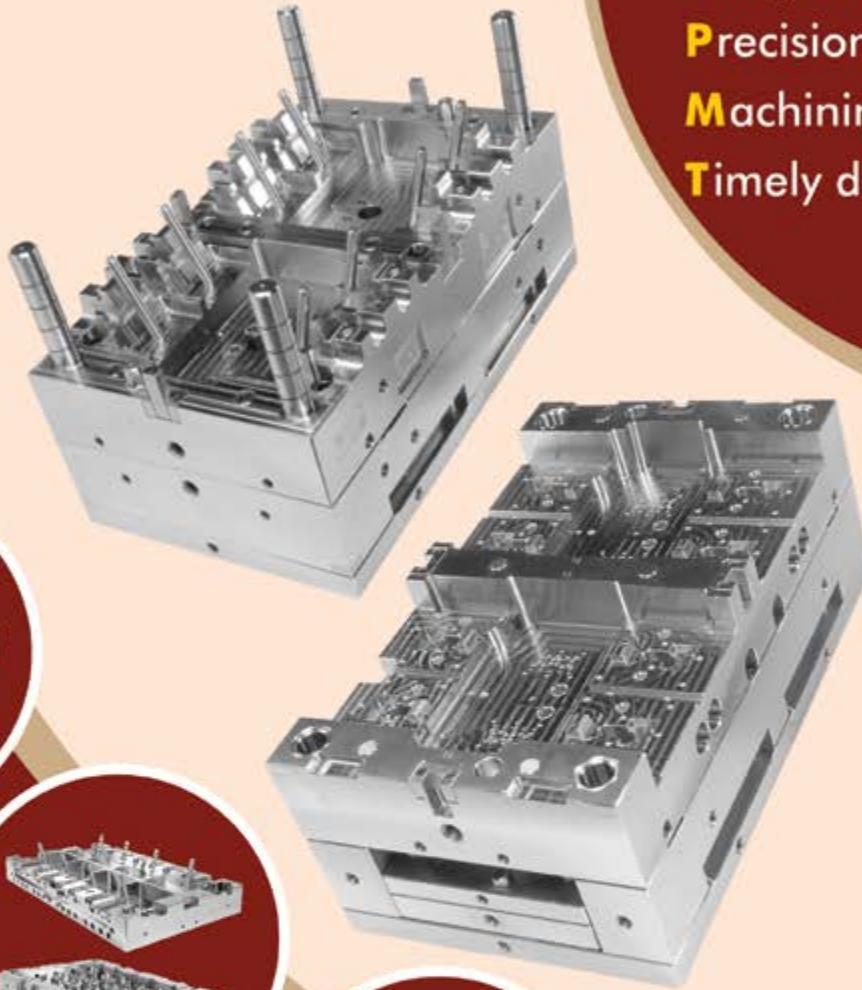
The power-packed Day 1

sessions then came to an end with Executive Council Member, TAGMA India, Mr. T. Gopalakrishnan, Director - Marketing, Multiple Special Steel Pvt. Ltd., presenting the 'Thank You' note. The audience dispersed for a 30-minute break and then reconvened for the cultural program, wherein artists presented dance forms from various Indian states.

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Panel Discussion - 1



'Let Us Get Ready & Play for the World'



Mr. Rajesh Nath



Mr. Bapugouda Patil



Mr. B. V. Sudarshan



Mr. Santosh Kulkarni



Mr. Shin Jung Hyun

ITS sessions: Day 2

Day 2 began with a welcome speech by TAGMA Executive Council member, Mr. D. Ravi, Managing Director, CM Precision Product (Formally - Classic Moulds & Dies) & MD, Clastek Engineering.

The first session of the day was on 'High Hard Aluminium for Injection Moulds - The French Connection' by Mr. G. Manikantan, Managing Director, Multiple Special Steel Pvt. Ltd. This was followed by a technical presentation by Dr. Vishwas R. Puttige, Business Head, amace Solutions Pvt. Ltd. on 'Advancements in Mould Manufacturing Technologies'.

The first panel discussion of the day was on 'Let Us Get Ready & Play for the World', which was moderated by Mr. Rajesh Nath, MD, VDMA, and included Mr. Bapugouda Patil, GM, Division Head - Purchase

Division, Toyota Kirloskar Motor Pvt. Ltd.; Mr. B. V. Sudarshan, Dy MD, NTTF; Mr. Santosh Kulkarni, Vice President Materials - Polymer & Elastomer, Bajaj Auto Ltd; and Mr. Shin Jung Hyun, Managing Director, SEO YEONG DIETECH PVT. LTD. as panellists.

The speakers spoke about the importance of having skilled manpower, the right infrastructure



Mr. D. Ravi

and a conducive policy framework for the Indian tooling industry to grow. They also spoke about the difference between Indian and overseas toolmakers and what India can learn from the developed world. Speakers from Bajaj and Toyota also appreciated the advancements in the Indian tooling industry and urged companies to keep up the good work and focus on exports as well.

This was followed by a technical session on 'New Machining Strategies for Die & Mould industry (Barrel Machining, Trochoidal Milling)' by Mr. Sashi Menon, Cutting Tool Expert.

Mr. Santhosh Raj, Head - Technical Centre, ALPLA Group, spoke about 'Innovations in Packaging Industry Moulds: Trends and Advancements', which was followed by a technical session

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Panel Discussion - 2



'Die & Mould Sourcing Challenges in EV'



Mr. Akshay Kalyanpur



Mr. Ramesh K. S.



Mr. Thej Kumar



Mr. Vinod Kubher



Mr. Rajeev Chopra

Technical Speaker



Mr. Sreeraj P. V.



Dr. Vishwas R. Puttige



Mr. Sashi Menon



Mr. Santhosh Raj



Mr. Pulkit Datta



Mr. Raghunanda Gupta B. V.



Mr. Ambresh Nagaraj



Mr. M. Mohanavel



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on 'Revolutionary Raw Material Solutions for the Tooling Industry' by Mr. Pulkit Datta, General Manager, Proterial India Pvt. Ltd.

The second panel discussion took place right after the lunch break. The topic of the discussion was 'Die & Mould Sourcing Challenges in EV'. It was moderated by Mr. Akshay Kalyanpur, Director, Sridevi Tool Engineers Pvt. Ltd. The panellists were Mr. Ramesh K. S., Sr. Vice President, Ather Energy; Mr. Thej Kumar, Vice President - Operations, Product Development and Quality, Toyoda Gosei South India Pvt. Ltd.; Mr. Vinod Kubher, Partner, Prabha Industries; and Mr. Rajeev Chopra, Director - Strategic Sourcing, Ola Electric Technologies Pvt. Ltd. This engaging panel discussed the trends shaping the automotive industry and how the emergence of EVs will impact toolmakers. The speakers also highlighted the challenges they face while sourcing tools and charted out their expectations from the toolmakers while highlighting the requirements of the EV sector vis-a-vis ICE vehicles.



Team TAGMA behind the success of ITS 2023



Next, the session on 'Financing Solutions to Maximise your Business Success' was presented by Mr. Raghunanda Gupta B. V., Vice President - Sales (Region Head – Karnataka & Kerala), Siemens Financial Services Pvt. Ltd. This was followed by a technical session on 'Conformal Cooling Insert by Binder Jet 3D Printing (BJT)' by Mr. Ambresh Nagaraj, Team Leader, Indo-MIM.

The last session of the day was presented by Mr. M. Mohanavel, Aerospace Machining Consultant on 'How to Prepare for the Aerospace Industry'. This highly engaging session was very well received, as Mr. Mohanavel highlighted the skill sets, infrastructure, and documentation required to serve the aerospace industry.

As the last session of the day concluded, Mr. Shanmugasundaram presented the 'Thank You' note. In his speech, he thanked the special guests, all the speakers, delegates and particularly event partners. He also congratulated the organising team for the success of ITS 2023.

A resonating success

The resounding success of ITS

2023 was evident not only in the quality of discussions but also in the participation. The event drew a diverse audience, with delegates from various corners of the country converging to exchange insights and experiences. The jam-packed hall resonated with the energy of collaboration and the quest for knowledge.

The success of ITS 2023 is a testament to TAGMA's commitment to elevating the tooling industry's standards, fostering connections, and driving innovation. As the event came to an end, the corridors were abuzz with conversations that echoed the commitment to continuing the momentum generated during the summit. This sense of purpose is what sets ITS apart and positions it as a cornerstone event in the tooling calendar.

In a world where innovation is a constant, ITS 2023 demonstrated the industry's resilience and its determination to explore new frontiers. The event's impact extends beyond its conclusion, leaving a lasting imprint on attendees and inspiring a wave of creativity and advancement in the tooling sector. ♦



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Tata Motors provides hands-on automotive skills to students in partnership with Jawahar Navodaya Vidyalayas

First automotive firm to tie-up with JNV for vocational education

Tata Motors, India's leading automobile company, has joined hands with Jawahar Navodaya Vidyalaya (JNV) to provide knowledge, hands-on automotive skills and industrial exposure to the secondary and senior secondary students of JNV, as a part of the vocational courses envisioned in the 'National Education Policy 2020'. Launched in 2022, the programme is on offer at 25 JNVs across Gujarat, Maharashtra, Jharkhand, West Bengal, Karnataka, Uttar Pradesh and Uttarakhand. So far, 2500 students have been imparted training under the programme and the training is expected to cover 5000 students this year.

Under this unique initiative, Tata Motors is utilising its extensive expertise in the automobile domain to provide Automotive Courses (404 & 804) for vocational skilling to the students of JNVs.

The course is offered to students in 9th to 12th grade and the curriculum and lab setup has been designed as per the CBSE guidelines and with inputs from the Tata Motors team. The programme aims to equip students with hands-on automotive skills and industry exposure right within the school premises.

Tata Motors has created the required 'Automotive Skill Lab'



infrastructure at 25 JNVs schools and also conducted a training programme for the instructors teaching these vocational subjects. The training was conducted at the Tata Motors plant in Jamshedpur. After finishing their schooling with vocational automotive skills, students can opt for Diploma in Mechatronics that will be fully funded by Tata Motors. The students get an exposure to the on-the-job training in the TML manufacturing facility while earning a stipend from the company. Post this, the students can either seek an opportunity within the automotive industry or pursue B. Tech in engineering and follow the career

progression thereafter.

Mr. Vinod Kulkarni, CSR Head at Tata Motors, said, "We are committed towards enriching the lives of the youth of the country and upskilling is one of the means to achieve this goal. We are delighted to work with Jawahar Navodaya Vidyalayas to make students from underserved communities employable thus fuelling their career ambitions as well. The progression of the course into professional education helps students to envisage their future in this field. Further, this project reiterates our commitment to nurturing talent, empowering youth, and bridging the skills gap in the automotive industry under the 'Skill India Mission'. We are happy to enable cultivation of an engaged and skilled workforce and creating a future-ready workforce in partnership with JNVs."

Mr. Vinayak Garg, Commissioner, Navodaya Vidyalaya Sangathan, said, "We are delighted to partner with Tata Motors in this first-of-its-kind initiative wherein we are providing our students access to holistic education that includes both academic as well as vocational streams as per NEP 2020. This partnership will enable students get the necessary knowledge and skills to succeed in a particular career or trade and align themselves with the current trends in the automotive industry." ♦



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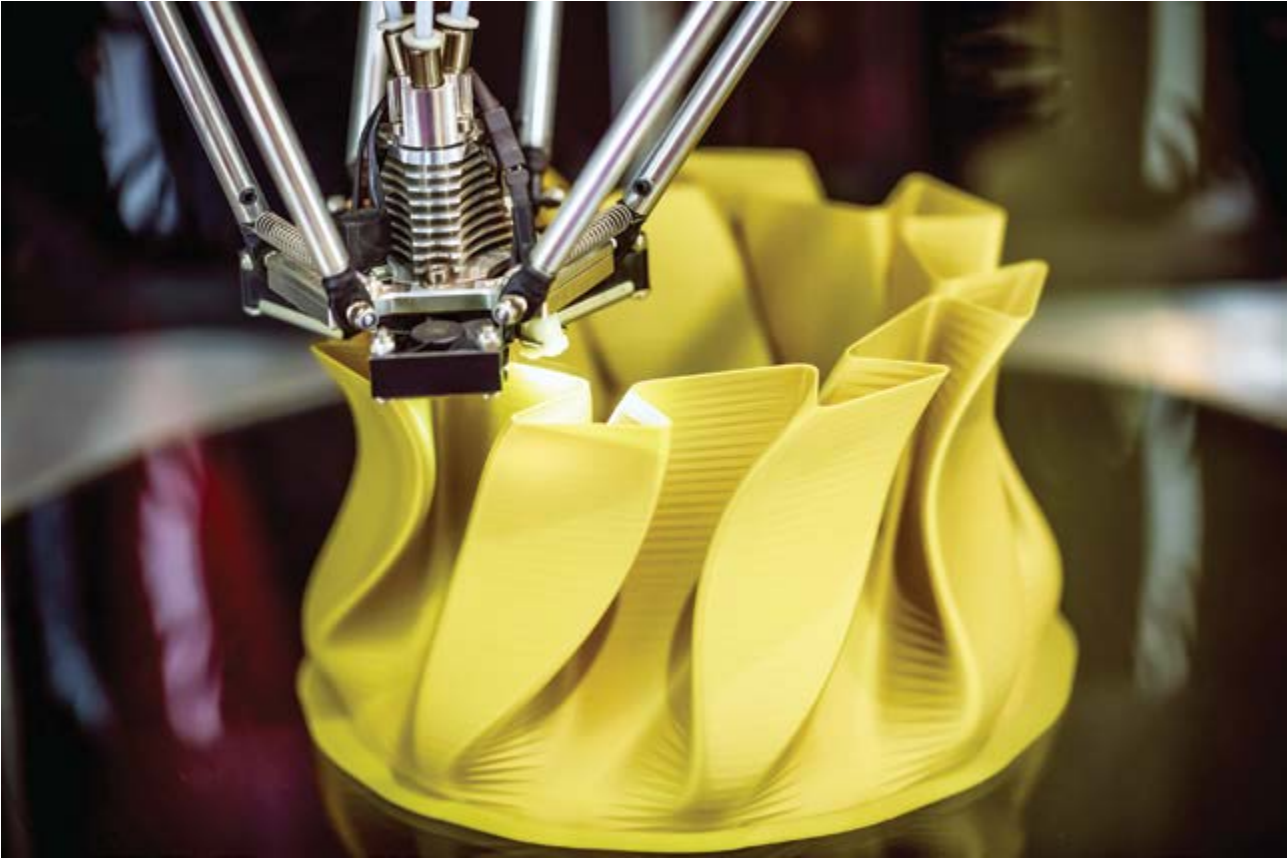
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Guide to low-volume injection moulding

This comprehensive guide highlights how you can use 3D-printed injection moulds with both benchtop and industrial machines to efficiently and affordably produce hundreds of functional prototypes and parts that accelerate product development, reduce costs and lead times, and bring better products to market.

Injection moulding is one of the leading processes for manufacturing plastics. It is a cost-effective and extremely repeatable technology that yields high-quality parts for large series production. As a result, it is widely used for mass-producing identical parts with tight tolerances.

Injection moulding is a fast, intensive process where high heat and pressure are involved to inject molten material inside a mould. The molten material depends on the scope of the manufacturing project. The most popular materials are various thermoplastics, such as ABS, PS, PE, PC, PP, or TPU, but metals and

ceramics can be injection moulded as well. The mould consists of a cavity that accommodates the injected molten material and is designed to closely mirror the final features of a part.

The moulds are traditionally made out of metal by CNC machining or electric discharge machining (EDM). These are expensive industrial methods that require specialised equipment, high-end software, and skilled labour. As a result, the production of a metal mould typically takes four to eight weeks and costs anywhere from \$2,000 to \$100,000+ depending on the shape and the complexity of the part. For

smaller part quantities, the cost, time, specialised equipment, and skilled labour required to fabricate the mould out of common tooling metals and manufacturing methods often makes injection moulding at this scale unobtainable. However, there are alternatives to machining moulds out of metal. Leveraging in-house 3D printing to fabricate injection moulds for prototyping and low-volume production significantly reduces cost and time compared to metal moulds, while still producing high-quality and repeatable parts.

Desktop 3D printing is a powerful solution to fabricate injection moulds rapidly and at a low cost. It requires

very limited equipment, saving CNC time and skilled operators for other high-value tasks in the meantime. Manufacturers can benefit from the speed and flexibility of in-house 3D printing to create the mould and couple it with the production force of injection moulding to deliver a series of units from common thermoplastics in a matter of days. They can even achieve complicated mould shapes that would be difficult to manufacture traditionally and can be used on both desktop and industrial moulding machines, enabling development teams to be more innovative. Furthermore, product development benefits from the ability to iterate on the design and test the end-use material before investing in hard tooling.

Even though 3D printing moulds can offer these advantages when used appropriately, there are still some limitations to be aware of. We should not expect the same performance from a 3D printing polymer mould as from a machined metallic one. Critical dimensions are harder to meet, cooling time is longer because the thermal transfer occurs slower in plastic, and printed moulds can more easily break under heat and pressure. However, companies across the industry are continuing to implement 3D-printed moulds into their short-run injection moulding workflows, enabling them to quickly produce hundreds to thousands of parts. From designing functional prototypes with end-use materials, fabricating parts during pilot production, or manufacturing low-volume or custom end-use parts, 3D-printing injection moulds is a cost-effective and quick way to produce parts in limited quantities.

Stereolithography (SLA) 3D printing technology is a great choice for moulding. It is characterised by a smooth surface finish and high precision that the mould will transfer to the final part and that also facilitates demoulding. 3D prints produced by SLA are chemically

bonded such that they are fully dense and isotropic, producing functional moulds at a quality not possible with Fused Deposition Modeling (FDM) 3D printing. Desktop SLA printers, like those offered by Formlabs, can seamlessly be integrated into any injection moulding workflow as they are easy to implement, operate, and maintain.

As an alternative for mid-volume production of about 500 to 10,000 parts, machining moulds out of aluminium can also reduce the fixed costs associated with manufacturing moulds. Machining aluminium is five to ten times faster than steel and causes less wear on the tooling, which means shorter lead times and lower costs. Aluminium also conducts heat faster than steel, resulting in less need for cooling channels and allowing manufacturers to simplify mould designs while maintaining short cycle times.

The type of injection press does not have a significant influence on the process for low-volume injection moulding; traditional large industrial injection moulding machines can also be used with 3D-printed injection moulds. However, these machines are expensive, come with stringent facility requirements, and require skilled labour, and as a result, most enterprises outsource mid- and

high-volume production to service providers and contract manufacturers.

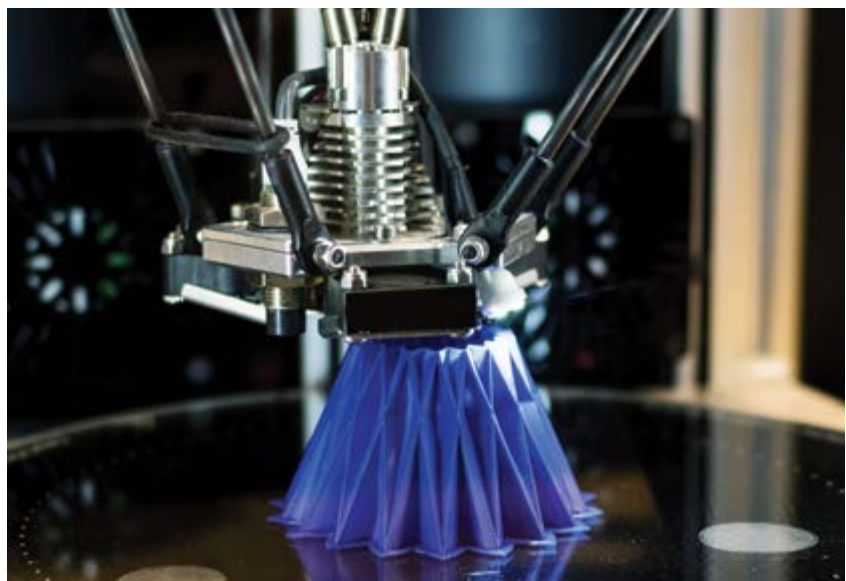
Low-volume injection moulding applications

The three major applications for low-volume injection moulding are rapid prototyping, short-run injection moulding, and on-demand or custom injection moulding.

▶ Rapid prototyping with injection moulding

Rapid prototyping helps companies turn ideas into realistic proofs of concept, advances these concepts to high-fidelity prototypes that look and work like final products, and guides products through a series of validation stages toward mass production.

In general, 3D printing is the most common way to produce rapid prototypes. However, in the later stages of the development process, there is often a need to produce slightly larger volumes of identical prototypes using the same materials and production processes as for the final parts. These prototypes can then be used for applications like beta and field testing. Combining 3D-printed moulds with injection moulding allows manufacturers to rapidly and efficiently develop functional prototypes and speed up the product development process.



For example, French startup Holimaker develops a manual injection moulding machine that enables engineers and product designers to process plastic parts on their desktop in low quantities for prototypes, pilot production, or even a limited series of end-use parts.

The company offers feasibility studies for their customers, using 3D-printed moulds for a fast and affordable turnaround. This allows their clients to quickly and affordably prototype designs and validate final manufacturing conditions during the pilot production phase of new product introduction.

By using the same manufacturing method, including mould design and materials, these parts can be tested in the field and ensure the designs are ready to be produced at scale. The 3D-printed mould designs can then be easily adapted for tool-grade steel during mass production.

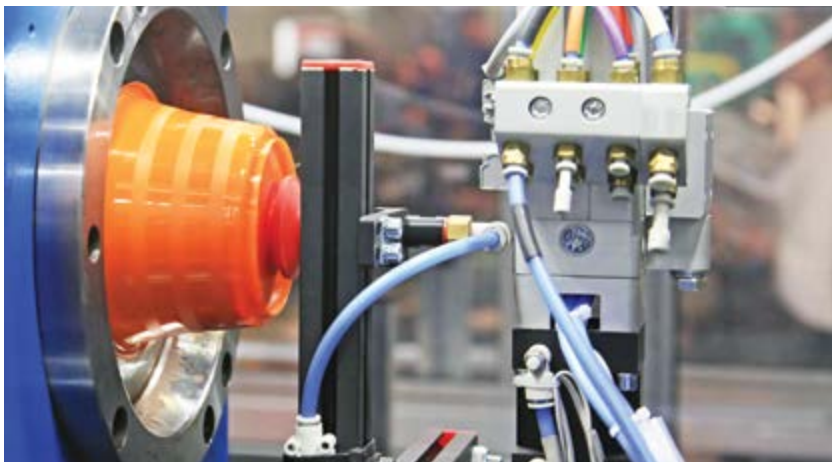
Using 3D-printed moulds, Holimaker managed to shorten the lead time for producing moulds for the injection moulding process to 24 hours and they use 3D-printed injection moulds in 80% to 90% of their projects today.

▶ **Short-run injection moulding**

Short-run injection moulding provides manufacturers with a means to produce smaller series of end-use parts for products that are only produced in limited quantities or manufacture a pilot series of a product for testing the market before sinking too much capital into the venture.

Using low-volume injection moulding provides the opportunity to manufacture accurate and repeatable end-use parts without the high fixed costs associated with traditional injection moulding.

Multiplus is an injection moulding solutions provider based in Shenzhen that covers the entire production cycle from design to manufacturing of plastic products



and provides services to over 250 clients per year, including some Fortune 500 companies. Some of these clients require small batch production, which is traditionally expensive and time-consuming with injection moulding due to the complexity of manufacturing hard tooling.

As the demand for small batch production started to grow, Multiplus turned to 3D printing to explore different materials in an attempt to find a cost-effective way to produce cheaper plastic moulds for smaller orders and pilot production runs. Fabricating low-volume injection moulds with Formlabs 3D printers reduced costs, labour, and time compared to machining aluminium moulds, and could seamlessly be used with their Babyplast industrial injection moulding machines.

▶ **On-demand or custom injection moulding**

Custom or rapid on-demand injection moulding can be required to manufacture customised end-use parts for specific purposes, such as human factors, application, or occasion, often on an expedited timeline. The limited volume and/or short lead time means traditional injection moulding with hard tooling is neither efficient nor feasible. In these cases, low-volume injection moulding with 3D-printed moulds is an ideal solution to speed up the

process and deliver custom parts.

The example of Braskem, one of the world's leading petrochemical companies, highlights the case for using 3D-printed moulding to fulfill rapid orders on-demand. During the first wave of the COVID-19 pandemic, the company needed to produce thousands of mask straps to protect its global workforce. Braskem identified injection moulding as the ideal method to produce the parts, but without access to 3D printing, they would have had to outsource an expensive metal mould, costing the team money and valuable time.

Braskem's team turned to injection moulding using a Formlabs Form 3 3D printer to print the mould for its straps and the all-electric Cincinnati Milacron 110 Ton Roboshot injection moulding machine to develop the straps.

By leveraging 3D printing, the team was producing thousands of straps within a week of receiving the VP's email and preparing them for shipping to offices around the world.

Conclusion

Injection moulding is traditionally considered a manufacturing process only for mass production due to its high tooling costs. However, leveraging 3D printing to fabricate injection moulds can empower you to use this process to produce high-quality and repeatable parts for prototyping and low-volume production. ♦

Article and images courtesy Formlabs

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8 things you should look for while selecting your **CNC manufacturer?**

Choosing the right CNC machine tool manufacturer for your production needs is one of the most important decisions of your business. There are many options to choose from, but how do you make the right decision from the ones that are suggested? How do you find manufacturers, who offer quality, performance, reliability, and lower price? Do you go with the expensive manufacturers and reputed ones? To get a better idea of how to choose the right manufacturer for your shop floor, think about the below points for better clarity.



Image used for representation only. Courtesy Envato Elements.



1 What are your preferences?

Before going into who would be the right match, first,

let's figure out what your needs are for your facility. What are your goals, which industry do you cater to, what are the quality requirements, what materials will you be working on, what is your production volume, how much floor space can you afford, what is your budget, what turnover are you expecting, how do you project the future will be and more? Getting answers to some core questions like these will create the groundwork on which you can base your search on. Going through suppliers or manufacturers blindly is a waste of time. Through this focused effort, getting a match will be easier.

This defines the destiny of the machine you will pick. The design of the machine tool will outline how complex the machine will be, how much space it will take, thermal behaviour, product reliability, what amount of load it can bear and lifecycle. Other important factors are: When a company invests in the right talent that can understand your needs and can suggest improvements to the same, then you've struck gold.

larger mean time between failures of the machine (MTBF), and an overall reduction in the cost of ownership? If a supplier can offer all these things, then it means you've added remarkable value to your purchase. Remember, if there's more to the buy than just the instrument, that's a steal.



3 Value

Machine tools don't come cheap but spending more doesn't mean it's the

better option in the machine tools world. Setting up a manufacturing facility isn't easy. Getting your RoI fast means choosing a supplier whose machines offer added value to the money invested. How much are you able to get out of your machine and what more support is the company offering you, will they offer part prove outs, training, accessories, essentials, and spares like a one-stop-shop supplier? How about a quick mean time to respond (MTTR) to calls, a



4 How is the company performing?

An easy way to tell if your choice of manufacturer is

a good one is to see how they are performing in the market. What is their share in the market? If they come on top of these searches, then you can believe that their reputation hasn't come easily. It would have taken a lot of hard work which means they can be trusted. The opposite results should have you running in the opposite direction.



2 Design

Once your needs are understood, it's time to look for good traits from

your manufacturers starting with the design. Most obviously, the design will show whether the company is capable of catering to your needs.



5 Ask your peers

Asking those in the field already will give you a clue as to what machines



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are the bestsellers and who these manufacturers are. When you hear a machine tool manufacturer's name positively the majority of the time, that should tell you that they are a tried-and-tested company. Also, find out about their approach to business. If it is customer centric, that means they are ready to suit their products to their customers' needs.



6 How are the company's support and reach?

How is the company's supply and service network? If their presence isn't really spread out and especially not close to your manufacturing facility, support will come slow. Ensure that the company you choose has the necessary spares, accessories, and access to where your plant is set up

so that your production isn't knocked behind due to delayed response. For instance, AceMicromatic Group is spread across 55+ locations across the world, this also includes popular industrial hubs and even remote areas. With this kind of reach, their customers can rely on their supply partners for assistance in the shortest period.



7 Company ethics

A company is like a breathing individual. Within a small period, you can easily judge them to be capable or not. Are they ethical and transparent in their processes or do you need to pull strings to get them to respond favourably? Preferring flash-in-the-pan sort of results will only take you back 5 steps. Going about your business with the right partners who

have the right values and morals will stabilise your journey.



8 Look at the people

Remember to choose machine tools manufacturers

who want to make a long-term relationship that makes you happy. Meeting the people behind the company or group will give you an idea of what you will be getting into. If the leadership are not people who care, then that speaks of the organisation. Buying a machine tool is getting into a relationship for the long run. Therefore, choosing the right match will decide the fate of your business. So, be sure to pick the right manufacturer/supplier for this journey. ♦

Article courtesy AceMicromatic ©2023

If you deal with some sophisticated software, high-end CNC machines, the latest injection moulding machines, tool steel, or any technology that makes a toolmaker's life easy, send us your product writeup along with images and we will feature the same in TAGMA Times Newsletter.

Writeup Format (300 words max):

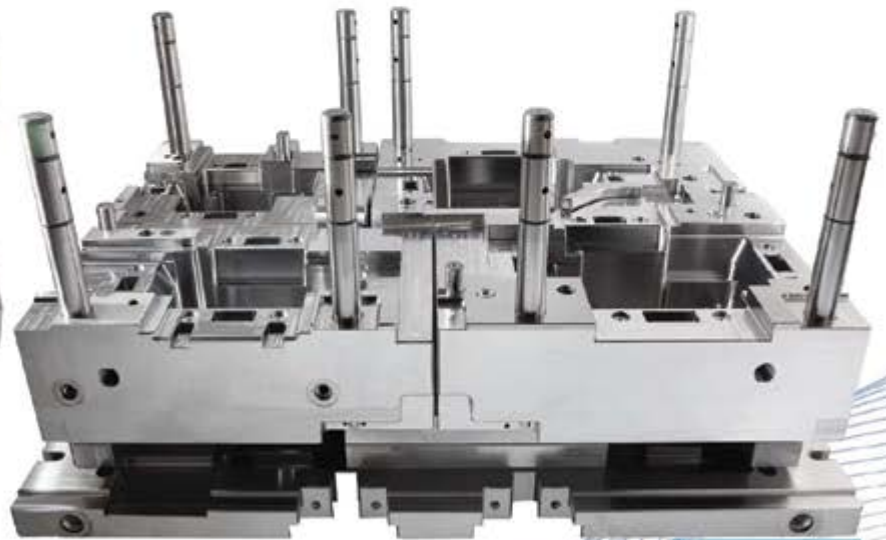
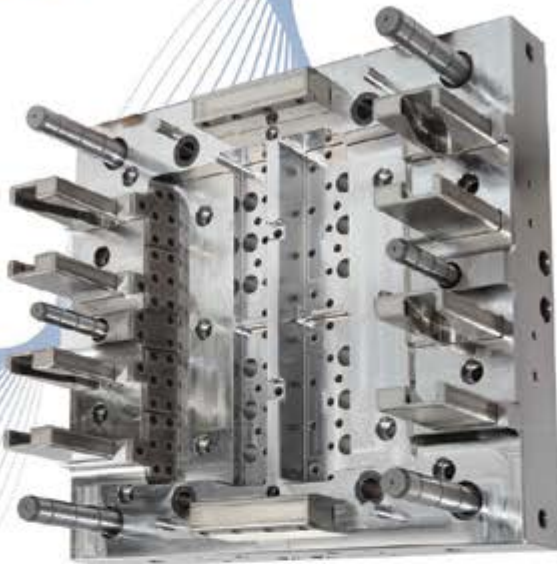
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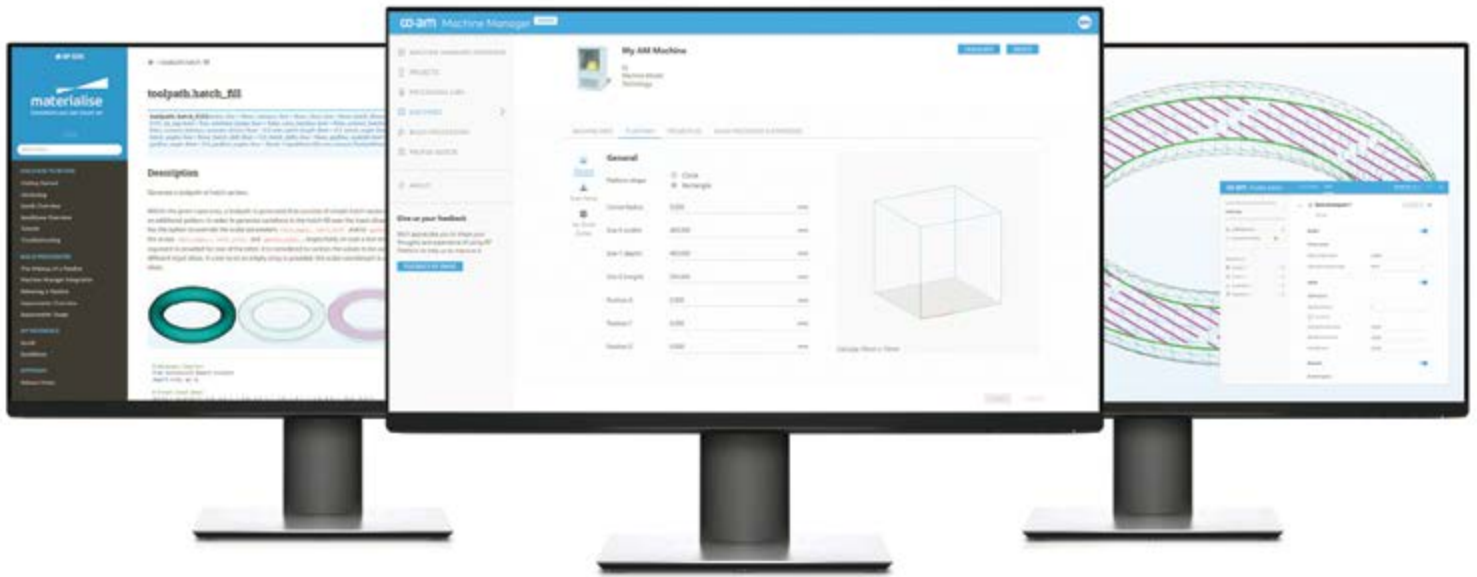
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Materialise empowers control of the 3D printing process

Materialise introduces Process Control software, collaborates with Phase3D and Sigma Additive Solutions to provide process monitoring for metal 3D printing, and announces its Build Processor SDK to optimise AM processes.

Materialise, a global leader in 3D printing software and service solutions, announced its Process Control software for metal 3D printing and introduced the Build Processor Software Development Kit (BP SDK). The new solutions enable Additive Manufacturing (AM) users to take full control of the 3D printing process by using automated quality control and customising their 3D printer parameters.

AM service providers are being challenged to meet the growing demands and expectations in terms of part quality and competitive pricing. A key element of this task is to monitor and control the 3D printing process. However, AM users are missing the right tools and suffer from failed builds, hidden defects

within their parts, and standard 3D printing parameters that don't support their AM applications. This wastes machine time, material, and post-processing capacity, leading to unnecessary costs.

One step ahead with automated quality control

Materialise Process Control enables manufacturers to introduce quality control using data gathered during the 3D printing process. By analysing and correlating layer data from the 3D printing process, users can identify defective parts before they are sent to post-processing and quality inspection, which can account for 30 percent to 70 percent of a part's total manufacturing cost. Analysing the layer data also enables users to find the root cause of defects

faster, allowing them to optimise the process and adapt their 3D printing parameters. Early scrap detection and root cause analysis help lower the cost per part by reducing both scrap rates and expensive quality control efforts during post-processing.

"Materialise Process Control uses artificial intelligence to automate quality control, helping our customers save significant time and money," said Bart Van der Schueren, CTO of Materialise. "Through collaborations with partners like Phase3D and Sigma Additive Solutions, AM users benefit from a technology-agnostic innovation that offers unparalleled insights into their 3D printing process for continuous improvement."

As most 3D-printed parts are made of thousands of layers, manually analysing them is time-

intensive and prone to human error. Materialise Process Control automates the process, providing workers additional time to improve the AM process. It uses artificial intelligence to examine 2D images of the powder bed taken during the 3D printing process. Materialise collaborated with Phase3D and Sigma Additive Solutions, Inc. to integrate complementary data and to provide deep insights into the 3D printing process. Phase3D technology adds height mapping, a form of topographic layer data, and Sigma Additive Solutions provides thermal data from the melt pool, the area of the melted material during the metal 3D printing process.

Materialise Process Control is available as part of CO-AM, Materialise’s end-to-end software platform for 3D printing, and as a standalone software solution. As an open software solution, partners will be able to add their software and monitoring technology.

Optimising the 3D printing process

A Build Processor (BP) connects 3D printers with software for data preparation, such as Materialise Magics. It manages 3D printer-specific information and enables users to influence build parameters, which influence how fast a 3D print job is done and determine part properties such as density and

Materialise Process Control enables manufacturers to introduce quality control using data gathered during the 3D printing process. By analysing and correlating layer data from the 3D printing process, users can identify defective parts before they are sent to post-processing and quality inspection, which can account for 30 percent to 70 percent of a part’s total manufacturing cost.

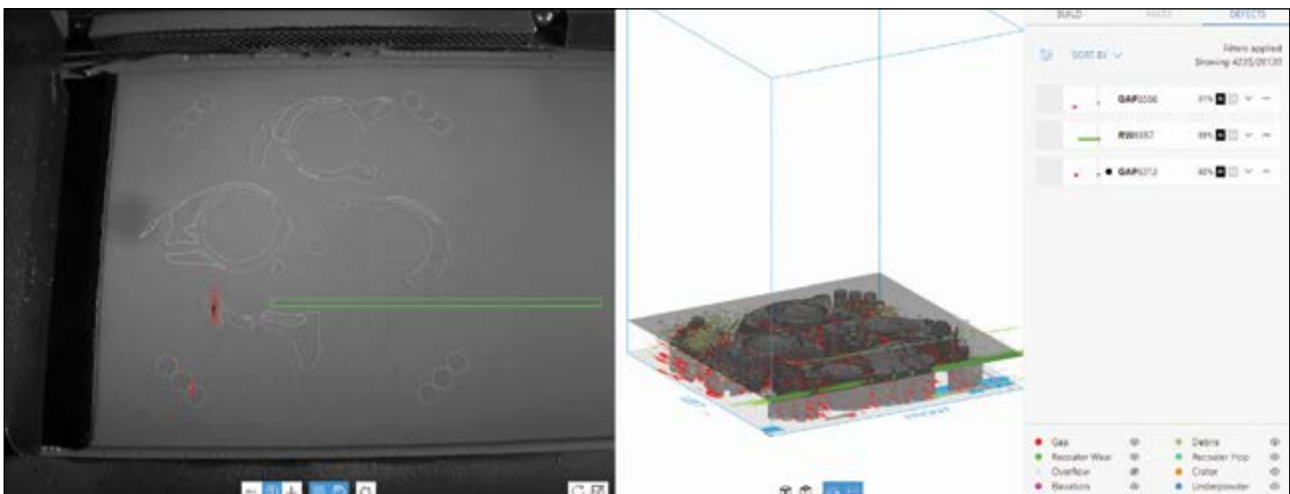
surface quality. Suboptimal build parameters increase the cost per part by causing long build jobs, high efforts during post-processing, and high scrap rates.

“More and more AM users want to scale up their activities and serve the demand of quality end-part manufacturing. Very often the standard build parameters of a 3D printer don’t match their needs,” shared Karel Brans, Senior Director Partnerships at Materialise. “They are looking for ways to improve the machine utilisation rate and achieve consistent quality. With a BP developed for a specific use case, you can push productivity and quality to a whole new level.”

However, until now it was very difficult to create BPs or adapt them for specific applications. The BP SDK offers an agile way to achieve that. Machine vendors and manufacturing companies with R&D capacities can use the development platform as a toolkit on their own, rely on Materialise’s AM expertise, or choose a collaborative approach. Using proven BP technology, they can shorten the product development cycle, integrate their own APIs, and generate new intellectual property. This open development process supports collaboration and can drive the diversification and optimisation of BPs.

The BP SDK offers AM users the opportunity to deploy BPs tailored to their needs. A tailored BP applies print parameters hitting the sweet spot of cost-efficiency and part quality for an AM application. It allows users to manufacture complex parts and mass-produce identical or customised products with consistent quality, decreased scrap rate, and shortened lead times. Optimising the 3D printing process will help to make more AM use cases sustainable and drive industrial adoption of the technology. Build Processors co-developed with the BP SDK provide full connectivity to CO-AM and Materialise Magics. ♦

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How start-ups can succeed leveraging Additive Manufacturing and Phillips Education

Start-ups have been disrupting multinationals and publicly listed companies unabated for the past two decades. While some start-ups get massive funding from venture capitalists, more than 80% of all start-ups the world over are completely bootstrapped, which means that they don't depend upon external equity or debt to finance their business. This becomes a "suicide mission" for them, as the teams of 2-4 co-founders are expected to innovate, differentiate, offer their products at an extremely competitive price, and build a loyal customer base without hefty R&D, marketing, and branding budgets, as are enjoyed by their more established competitors. To save "the David from Goliath", Additive Manufacturing (AM) or 3D printing is arming start-ups with the technology they need to experiment, prove concepts, iterate, and eventually scale without large production facilities.

The bane of AM is that it has been perceived as an emerging technology for the past 40 years, due to its unaffordability and inaccessibility to most. It was only in the past 10 years that the cost of AM equipment began consistently falling, as innovations in the technology began overcoming previous barriers to adoption. Today, most industrial-grade printers are inexpensive to most, along with standard materials, making them a much more viable technology.

Phillips Education has made a conscious commitment to additive technology by partnering with technologies such as Markforged, EOS, and Meltio, realising that these technologies have begun to play a transformative role in the global start-



up landscape. This groundbreaking technology, which creates physical objects from digital models by successively adding material layer by layer, is not only democratising the production process but also significantly propelling the success of start-ups across the globe.

Market growth and adoption

According to a study by Wohlers Associates, the 3D printing industry has witnessed robust growth in recent years. The report estimated that the industry's market value, which stood at \$16 billion in 2020, is expected to cross \$40 billion by 2024, marking a remarkable compound annual growth rate of 26.4%. These figures underline the increasing adoption of 3D printing technology across various sectors, with start-ups at the vanguard of this movement.

Facilitating rapid prototype development

Traditionally, the design and creation of prototypes comprised resource-

intensive activities, often demanding significant financial outlay and time investment. For start-ups typically operating under stringent budgets and timelines, this presented a substantial hurdle. However, the advent of 3D printing technology has fundamentally altered this paradigm, offering a rapid, cost-effective solution to prototype development.

According to a PwC report, approximately 52% of manufacturers were using 3D printing for developing prototypes and final products in 2020, marking a significant increase from 35% in 2014. This suggests a growing recognition of the potential of 3D printing to expedite the product development process.

3D printing allows start-ups to swiftly iterate and refine their prototypes, eventually transitioning to full-scale production once a viable model has been established. This capability for rapid prototyping accelerates the product development cycle, empowering start-ups to expedite market entry,

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Cost reduction

Start-ups typically operate under tight financial constraints, making it crucial to manage initial overhead costs effectively. The digital nature of 3D printing can dramatically decrease these costs. In traditional manufacturing, considerable costs are incurred for tooling, moulds, and other upfront expenses. However, 3D printing virtually eliminates these costs, contributing to a leaner, more efficient production process.

Material usage is also optimised, as the AM process involves designing every part down to its exact specifications. This directly reduces waste and saves costs, and even more so in the case of complex designs that would be impractical or expensive to manufacture using traditional methods.

The 2019 State of 3D Printing report by Sculpteo revealed that 50% of businesses that adopted 3D printing reported significant savings in production costs. By minimising upfront costs and reducing the need for large-scale inventory, 3D printing can substantially decrease capital expenditure, enabling start-ups to maximise resource allocation and accelerate growth.

Enabling personalisation and customisation

3D printing provides unparalleled customisation capabilities. "As consumer demand increasingly shifts towards personalised products, 3D printing technology offers start-ups a unique opportunity to distinguish themselves from competitors," explains Anuj Budhiraja, Vice President of Additive at Phillips Machine Tools. "The ability to modify digital models for each individual product allows start-ups to offer an extensive range of customisation options without significantly increasing production costs."

The need of the hour is tailored

solutions for specific industries and applications, encompassing everything from medical devices and prosthetics to automotive components and consumer goods. This supreme level of customisation enhances product performance, functionality, and the user experience, while also addressing unique challenges across industries and fostering innovation. Plus, it keeps start-ups agile enough to quickly respond to the ever-changing market conditions to consistently meet customer demands and stay ahead of the competition. In essence, this drives new avenues for growth and differentiation, enabling start-ups



Supporting diverse applications

The flexible and versatile nature of 3D printing means it can be applied in a variety of industries, opening vast opportunities for start-ups. For example, in the aerospace industry, start-ups like Relativity Space are leveraging 3D printing to revolutionise how rockets are built and flown, dramatically reducing production time and cost.

to carve out their niche and industries to cater to diverse markets with precision and flexibility.

Promoting sustainability

As consumers become more environmentally conscious, sustainability has emerged as a competitive differentiator for businesses. 3D printing can contribute to sustainability in several ways. It minimises waste by precisely using the amount of material needed for each product. It also reduces the carbon footprint associated with long-distance transportation by enabling local production. AM can even be used with eco-friendly materials, including recycled or sustainable biomaterials. By leveraging these materials, businesses of all sizes can reduce their carbon footprint and promote a more circular economy.

A report by the Energy Policy Institute at the University of Chicago (2021) found that 3D printing could reduce the energy consumption of product fabrication by up to 50%. This indicates that, in addition to its various other benefits, 3D printing represents a more sustainable choice for manufacturing.

For example, Phillips Education has worked with federal governments around the world to supply and train defence officials in AM equipment. This enables users to access 3D printing resources at the site of need, so officials can print components and equipment as and when needed, as opposed to waiting for parts to be airlifted or shipped, which is an expensive and time-consuming process.

Design freedom & complexity

Additive technology enables unparalleled design freedom, as well as the ability to create complex shapes and geometries. Traditional manufacturing, in contrast, is often limited by tooling or production processes and is therefore restrictive. On the other hand, AM facilitates the creation of intricate and organic



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shapes, even lightweight structures with internal geometries optimised. So, you can reduce material usage without sacrificing on strength or performance. This can unlock a realm of possibilities, enabling the development of products with enhanced functionality, improved ergonomics, and unique features that may have been previously impractical or even impossible to produce with traditional subtractive manufacturing techniques.

Enabling adoption/closing the knowledge gap

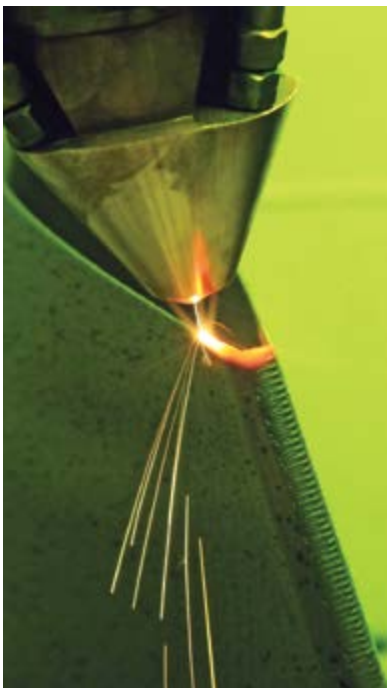
One of the primary barriers to the adoption of AM is the lack of available, comprehensive training and education. While AM holds immense potential for revolutionising a multitude of industries, processes, and functions, the complexities involved in implementing and optimising AM can be daunting without proper guidance and expertise. The limited availability of specialised training programs leads to a shortage of professionals with the right skills to effectively leverage AM technologies.

This is where Phillips Education comes in. An initiative of Phillips Corporation, Phillips Education was established to enable innovators to have access to the resources they need to unlock the full potential of advanced manufacturing. Founded in 1961, Phillips Corporation is a USA-based company with a legacy

of over six decades in advanced manufacturing technology solutions. The Phillips Group has numerous strategic partnerships with pioneering international manufacturers, including leaders in AM, such as EOS, Markforged, Meltio, and more.

The road ahead

Undoubtedly, AM has the potential to reshape industries, drive innovation, and achieve ambitious sustainability goals. Start-ups, in particular, stand to benefit greatly from incorporating AM into their operations, as it enables them to rapidly iterate on product designs, optimise supply chains, and



bring their ideas to market faster than ever before.

According to Rakshii Kejriwal, President of Phillips Education, "The successful adoption of AM requires more than mere access to the technology – it requires a deep understanding of the process, materials, and design consideration, as well as the ability to address knowledge gaps that may hinder implementation."

Kejriwal added: "This is where Phillips Education plays a crucial role... We have a dream that start-ups should be able to print their ideas into parts or products in a matter of few days and their demo days to investors should be done not on PowerPoint slides but with actual physical products in hands."

Phillips Education is aggressively looking to partner with such incubators and tech parks across the world to make this dream a reality. Through Phillips' partnership with industry leaders, collaboration with government and private organisations, and diverse set of offerings, start-ups can gain technical expertise, practical insights, and a solid foundation in AM. This enables them to embrace this transformative technology to reshape traditional manufacturing practices with efficiency, quality, and flexibility. ♦

Article and images courtesy: Phillips Education (Phillips Machine Tools India Pvt. Ltd.)

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FOR DETAILS:



Hyundai Motor India signs 'Asset Purchase Agreement' for acquisition of identified assets at GM India Talegaon plant

Hyundai Motor India Limited (HMIL), India's first smart mobility solutions provider and the largest exporter since inception, recently signed an Asset Purchase Agreement (APA) for the acquisition and assignment of identified assets related to General Motors India (GMI)'s Talegaon Plant in Maharashtra.

Unsoo Kim, Managing Director and CEO of Hyundai Motor India Ltd., and Asifhusen Khatri, Vice President Manufacturing of General Motors India and General Motors International Operations, participated in the signing ceremony in Gurugram, Haryana.

The APA covers the acquisition and assignment of land and buildings as well as certain machinery and manufacturing equipment situated at GMI's Talegaon plant. The completion of the acquisition and assignment is subject to fulfilment of certain conditions precedent and receipt of



regulatory approvals from relevant government authorities and relevant stakeholders.

Announcing the APA signing, Unsoo Kim, Managing Director and CEO of HMIL, said, "This year is a significant milestone for Hyundai Motor India, as we celebrate 27 years of activity in the market. Demonstrating our dedication to India, earlier this year, HMIL entered into a Memorandum of Understanding (MoU) to invest

INR 20,000 crore in Tamil Nadu for expanding capacity and establishing an electric vehicle ecosystem. As we reinforce our commitment to 'Atmanirbhar Bharat' (Self-Reliant India), we intend to create an advanced manufacturing center for cars made in India in Talegaon, Maharashtra. Our manufacturing operations are scheduled to begin in Talegaon, Maharashtra, in 2025."

GMI's Talegaon plant currently has an annual production capacity of 130,000 units. Upon completion of the agreement, HMIL plans to expand the annual production capacity to achieve its strategic goal in the market. Since HMIL already has enhanced its production capacity from 750,000 units to 820,000 units in the first half of this year, the capacity augmentation of the GMI plant will lay the foundation for HMIL to produce around 1 million units a year. ♦

Mastercam acquires post processor developer, Postability

Sandvik recently announced the acquisition of Canadian company, Postability, which will be part of Mastercam, the world's #1 CAM Software. Postability is a bespoke software development firm developing NC post processors for Mastercam.

"The addition of Postability's post-processing technology makes industry-preferred solutions more accessible to Mastercam users around the world," says Mastercam President and CEO, Meghan West. "This acquisition enables Mastercam to further support our customers by integrating best-in-class post-processing technology along with



improved responsiveness and technical support."

The acquisition of Postability adds talent, technology, and diversity to Mastercam's ecosystem of solutions. Postability's solutions and support are recognised as best-in-class and will now be accessible globally through Mastercam's robust Reseller channel. With the addition of Postability, Mastercam users will have the opportunity to acquire a broader range of post-processing technology with

excellent support and responsiveness.

Jodi Spall, Owner, Postability, states, "We are very excited to sign this agreement of acquisition with Mastercam and Sandvik. Joining the Mastercam team will enable us to bring our technology to more Mastercam users around the world."

Mastercam has no plans to change relationships with any external vendors, customers, or support solutions as a result of this acquisition. Mastercam continues to shape the future of manufacturing. Mastercam is committed to expanding the tools available in the Mastercam ecosystem through organic growth and acquisitions. ♦

Uno Minda commissions two new plants for manufacturing EV components and systems

Uno Minda Ltd., a manufacturer and supplier of proprietary automotive solutions and systems, has recently commissioned a new EV systems plant in Farukhnagar, Haryana, under a joint venture with FRIWO AG Germany, the company announced through an exchange filing.

This new plant would manufacture On-Board Charger, Off-board charger, Motor Control Unit, DCDC converter, Battery Management System, and many more products catering to EV 2-wheelers and 3-wheelers. Supplies from this plant have already started and are



expected to further ramp up in the coming quarters with a start of production of more orders received.

In August 2023, Uno Minda Ltd. commissioned its second new EV systems plant under its subsidiary, Uno Minda Buehler Motor Private Limited (UMBM), in Bawal, Haryana. The plant will manufacture traction motors/BLDC motors for EV

2-wheeler and 3-wheeler. UMBM has already received orders from OEMs and is expected to start supplies by Q3 FY24.

The company has also received new orders with annualised peak value of more than INR 600 crores for EV systems during the Q1 FY24. The aggregate order book now stands at more than INR 2500 crores annualised peak value from EV OEMs comprising both existing and EV-specific products. The company is targeting to achieve INR 1500 crores in revenue from EV systems by FY26. ♦

Courtesy: Free Press Journal

Mahindra and NXP sign MoU to drive next-generation smart electric mobility

Mahindra & Mahindra Ltd., a leader in automotive, farm and services businesses in India, recently signed an MoU with NXP Semiconductors, a world leader in secure connectivity solutions for embedded applications. With the association, M&M and NXP will jointly explore the electric and connected vehicle landscape, covering a wide range of vehicles including utility vehicles, light commercial vehicles, farm equipment, and tractors.

Mahindra intends to explore NXP's extensive portfolio, innovative automotive system solutions, and expertise in zonal and domain controllers, electrification, advanced vehicle networks, and secure car access



Image used for representation only. Courtesy Envato Elements.

technologies for their upcoming platforms. The step is in line with Mahindra's commitment to deliver innovative solutions that enhance the safety, eco-friendliness, and overall enjoyment of the commuting experience for its customers.

Rajesh Jejurikar, Executive Director & CEO – Auto and Farm Sectors, Mahindra & Mahindra Ltd., said, "We are thrilled to explore opportunities to leverage NXP's

advanced technologies and solutions to build SUVs that are safer, highly connected, and environmentally friendly. At Mahindra, we are driven by our mission to elevate people's quality of life through innovative and cutting-edge technology. Together, we endeavour to shape the future of smart electric mobility and deliver extraordinary experiences to our consumers."

Kurt Sievers, President & CEO, NXP, said, "We are excited to collaborate with Mahindra and Mahindra, a company with a rich history of transforming the fast-growing automotive space in India and a focus on striving to improve quality of life through mobility. By working together and leveraging our rich portfolio of technologies, solutions and expertise, NXP and M&M are charting a course to build a brighter tomorrow." ♦

Domin chooses Renishaw AM system for ultra-efficient hydraulic valve production

To help fluid power specialist Domin meet the growing market demand for its high-performance energy-efficient hydraulic valves, global engineering technologies company, Renishaw, has supplied its RenAM 500Q Additive Manufacturing (AM) system to Domin's new Technology Centre near Bristol, UK. The hydraulic specialist will use the system to design and manufacture a competitive range of servo proportional hydraulic valves, aiming to save the industry one gigatonne of CO₂e by 2030.

Metal AM allows Domin to design complex geometries with internal features, such as highly efficient stiff structures, that would not be possible using conventional subtractive manufacturing methods. Now, Domin can produce single parts with a good strength-to-weight ratio, while also reducing waste. Domin has also combined AM with other innovations like high-speed motor control, modern electronics, big data and connected technology, to create a range of four servo proportional hydraulic valves.

Domin designed the new range of high-performance hydraulic valves to satisfy the rigorous demands of control systems in industries including automotive, aerospace and manufacturing. Domin will use Renishaw's RenAM 500Q system to build the valves at its new Technology Centre in Pucklechurch, near Bristol, where it is consolidating its manufacturing from one Polish and two UK facilities.

"We designed these servo valves to achieve a better-performing, more sustainable product at a lower price point," said Marcus Pont, CEO, Domin. "The success of these valves in a broad range of applications means demand is outpacing what we can supply. Renishaw is the go-to choice for coupling productivity with quality, and we expect that the increased capacity the new AM system provides will allow us to maintain low production turnaround times and deliver consistently high quality to our growing customer base."

"With four high-power 500W lasers able to access the whole powder bed surface simultaneously, the RenAM 500Q system achieves significantly higher build rates than previous systems, which vastly improves productivity and lowers cost per part," said Bryan Austin, Director of AM Sales at Renishaw. "This productivity enabled Domin to take its range to market competitively. Their valves require high-precision machining to achieve tight tolerances and accurate positioning, and use high-grade materials to ensure strong chip shear and durability. Domin wants to manufacture them at scale and our RenAM 500Q system makes meeting these requirements possible."

Renishaw's 500Q system also features an intelligent gas flow system that provides superior removal of process



emissions from the laser path, resulting in a stable processing environment that has measurably driven up quality standards to levels not previously achieved with metal AM technologies.

"Most hydraulic systems today only operate at 23 per cent efficiency, resulting in the wastage of billions of kilowatt-hours every year," said Pont. "Globally, hydraulics produces twice the CO₂e emissions of the aerospace industry ⁽¹⁾. Over its lifetime, each of these game-changing valves has the potential to save multiple tonnes of CO₂e, and with them we can spearhead the advance of the fluid power industry towards a sustainable future."

Austin concluded, "Domin is a great example of cutting-edge British engineering, and exactly the kind of innovator that's going to help ameliorate the climate crisis. These high-performance valves show how additive manufacturing is increasingly suitable for high-spec, high-production applications, where it was previously uneconomic." ♦

⁽¹⁾ Oak Ridge National Laboratory, Estimating the Impact (Energy, Emissions and Economics) of the U.S. Fluid Power Industry, December 2012.



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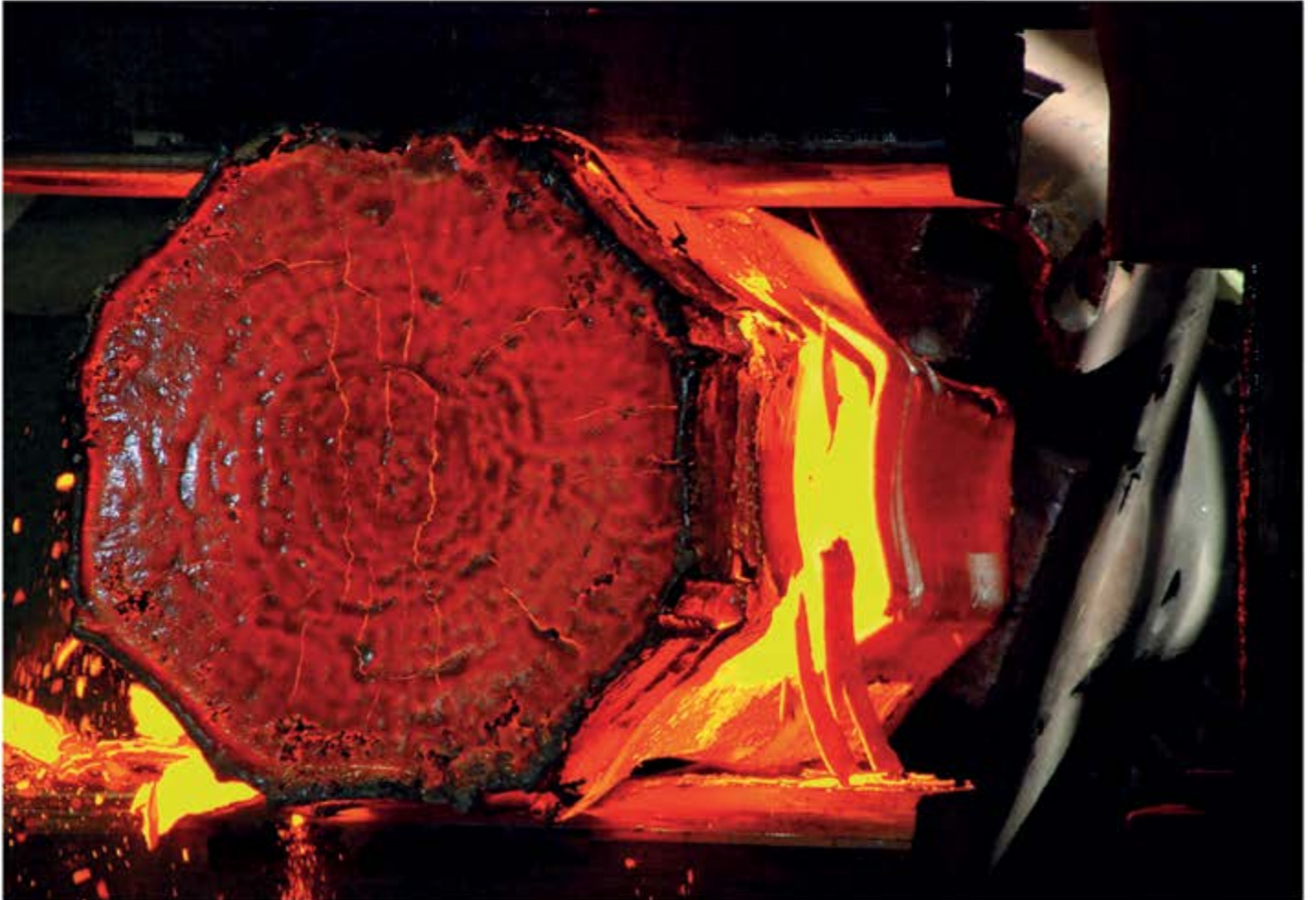
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Meusburger presents range at Fakuma

The international trade fair for plastics processing will take place in Friedrichshafen from October 17-21, 2023. Meusburger will be attending and showcasing its product range at stands 2313 and 2316 in hall A2. Alongside its range of injection moulders, the wide range of components and the ENGEL injection moulding machine, the spotlight will be on the company's latest campaign relating to bars.

Meusburger will be presenting its wide range of injection moulders at Fakuma. Two things are essential for reliable and smooth operation: the use of high-quality moulds and the fast delivery of replacement parts. Meusburger offers a wide range of over 96,000 items of high quality and functionality. In addition, all items are immediately available from stock. This saves you time and money when purchasing and operating.

Alongside the ENGEL injection moulding machine, which will showcase the production of lunch boxes in a



live demo, another highlight at the stand will be the special area for designers, where the functions and areas of the Meusburger online world are presented. For example, visitors will gain an insight into the benefits of the "My account" customer area. Moreover, they will have the opportunity to take a look at the wizards and configurators for mould bases, which make it possible to assemble compatible plates, calculate the corresponding components and export the CAD data. They can also find out more about the WIVIO Knowledge Management software from the subsidiary WBI at the stand. ♦



Tungaloy has expanded its GigaMiniDrill micro solid carbide drill series by adding ten size options to the DSM drill line.

GigaMiniDrill's DSM micro drill line covers drilling diameter range from 0.1 to 3.0 millimeters (from .004 to .118 inches) with three drilling depths available: the diameter ranges from 0.10 to 0.30 millimeters (.004 to .012 inches) and from 0.51 to 1.00 millimeters (.020 to .039 inches) are for drilling depths up to 10 x D; from 0.31 to 0.50 millimeters (.012 to .020 inches) up to 15 x D; and from 1.01 to 3.00 millimeters (.040 to .118 inches) up to 5 x D.

Tungaloy to expand its GigaMiniDrill micro solid carbide drill series

The DSM micro drill line features an optimised cutting-edge geometry and flute design, which provides excellent self-centering capability when making contact with the workpiece surface. A special cutting-edge preparation of the DSM drill not only promotes a smooth drill tip engagement and light cutting action, but also enables outstanding surface finish quality on the component and ensures long tool life. The micro drills are available in YH170 and YH180 grades. Both grades consist of extremely wear-resistant PVD coating, combined with a dedicated carbide substrate, providing the drills with excellent reliability and tool life predictability.

With the latest additions of ten new sizes to the DSM line, which is now offering 91 total size options, GigaMiniDrill's expansive micro-drilling solutions provide machinists with added performance and tool life in a wider application area. ♦



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