

TAGMA TIMES

NEWSLETTER

(Technical Info. on Die, Moulds & Toolroom)

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Unveiling the Future

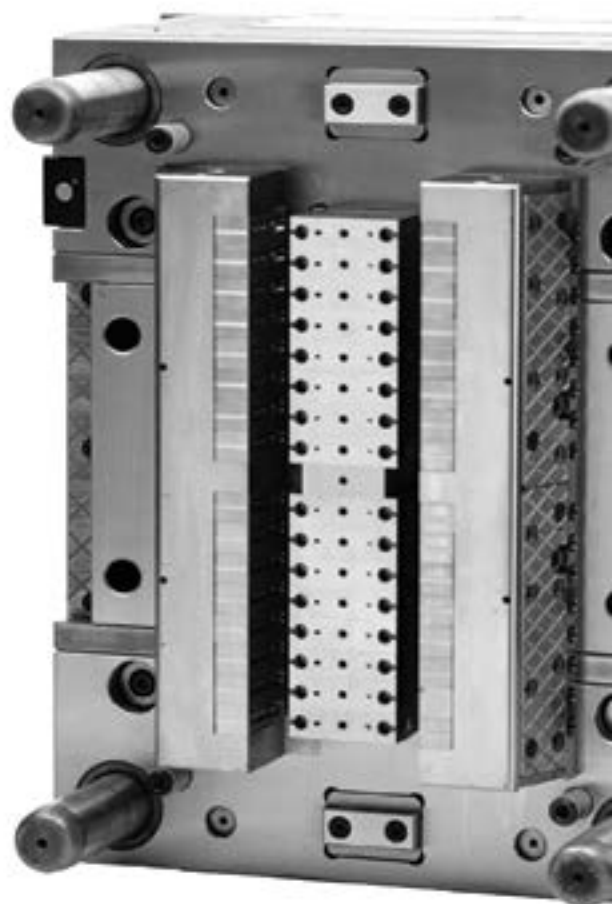
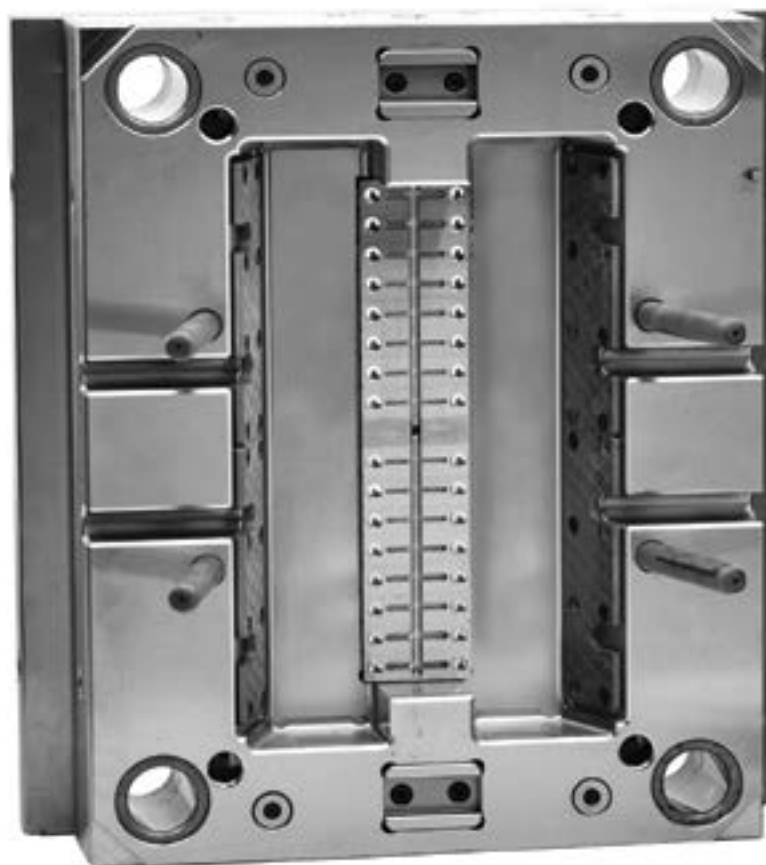




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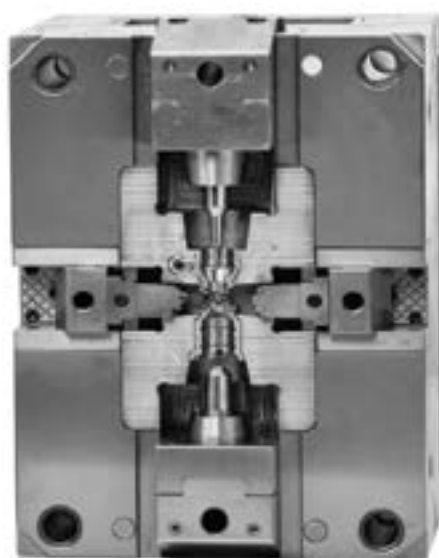


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Question often arises why Two Molds made from the same Steel Grade and to the same Standard or Specification Polish and Etch completely differently?



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Dear Readers,

We recently concluded the biggest ever Die Mould India International exhibition. The 2024 edition was a wonderful experience to witness the latest trends and innovations in the industry, and to interact with the exhibitors and visitors. In this editorial, I would like to share some of my key takeaways from the event.

First and foremost, the show boasted a record number of 72 toolmakers, signaling a robust business sentiment and underscoring the immense potential of the Indian tooling industry. Conversations with industry insiders revealed a prevailing optimism about their performance in 2023 and the outlook for the year ahead.

Machine tool companies, tool steel suppliers, and software providers showcased their cutting-edge products and solutions, emphasizing advanced technology and quality standards. Notably, there was a discernible shift towards cloud and integrated software solutions among CAD CAM providers, promising enhanced efficiency and productivity for the sector.

The significant presence of delegates from the automotive industry was particularly noteworthy, reflecting a growing trend towards localization among automotive companies. They seek domestic toolmakers capable of meeting their evolving needs and expectations. Moreover, the show attracted visitors from diverse sectors such as aerospace, electronics, white goods, toy making, and packaging, indicating a broadening scope for sourcing molds and dies from India.

The quality of visitors was commendable, with genuine interest and curiosity evident in the products and solutions on display. Feedback from exhibitors underscored their satisfaction with the show and the positive response received.

In conclusion, the Die Mould India 2024 show was a testament to the promising future of the Indian tooling industry. It provided an excellent platform to showcase achievements and potential, paving the way for growth and prosperity in the days ahead. I eagerly await your thoughts and feedback on the show and any trends you may have observed.

Best Regards,



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13th DIE & MOULD INDIA INTERNATIONAL EXHIBITION



THANKS

to all our exhibitors, visitors, and sponsors
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DMI 2024: A resounding success

In the 2024 edition of the Die & Mould India Exhibition, over 300 exhibitors from 15+ countries showcased the latest advancements in the tooling industry across 25,000 sq m. With India's diverse sectors driving growth, the industry is poised for double-digit expansion. Over 38,000 visitors from 15 sectors attended the event, signalling immense potential. The success of Die & Mould India 2024 promises abundant opportunities ahead for the Indian tooling industry.



THE 13th DIE MOULD INDIA INTERNATIONAL EXHIBITION

14th - 17th February 2024

BOMBAY EXHIBITION CENTRE, GOREGAON, MUMBAI



The 13th Die & Mould India International Exhibition held from February 14-17, 2024, at the Bombay Exhibition Centre in Goregaon, Mumbai, was a grand success. Hosted by the Tool & Gauge Manufacturers Association of India (TAGMA), the biennial event showcased various technological developments for the booming die and mould industry. It highlighted

the opportunities and challenges and provided a platform for toolmakers to learn from the user industry.

The inauguration ceremony

The exhibition's inauguration ceremony was graced by esteemed guests — Guest of Honour Mr. Sachin Kulkarni, Executive Director - Corporate Procurement & Member of Board, Skoda Auto Volkswagen India Pvt. Ltd., and Mr. Jim Walsh, Vice President - Tooling, Tata Electronics, joined Mr. Devaraya M. Sheregar, President of TAGMA India, and Mr. D. Shanmugasundaram, Vice President of TAGMA India, alongside other dignitaries. The ceremonial lighting of the lamp by the esteemed guests marked the auspicious beginning of the exhibition.

Extending a heartfelt welcome to everyone present at the opening ceremony, Mr. Sheregar said: "As we gather here today, it is important to reflect on the current state of the Indian tooling industry and the opportunities that lie ahead. Over the past two years, the Indian toolmaking sector has witnessed remarkable growth and achievements. According to the recently released Indian tooling report, the estimated market size of the Indian tooling industry stands at approximately INR 23,600 crore, underscoring the immense potential of our industry. However, there is still considerable room for improvement, particularly when

Event Report

considering that around 34% of the tooling demand is currently met through imports. It is imperative that we collectively target these areas for improvement and work towards reducing our dependence on imports."

Mr. Sheregar also acknowledged the crucial role initiatives aimed at promoting indigenous manufacturing and fostering innovation will play in driving the growth and competitiveness of the industry. He called upon OEMs to collaborate with TAGMA in building a more robust and competitive tooling ecosystem in India.

Mr. Kulkarni highlighted India's remarkable economic growth, crediting the government's significant progress towards sustainable development. Emphasising the need for sustainable self-reliance, he underscored the Indian auto industry's substantial 7% contribution to the nation's GDP. Commending the resilience of the supply chain industry, Mr. Kulkarni celebrated its growth from 2.3 million before COVID to an impressive 4.1 million, with a projected rise to 6-6.5 million by 2030. He attributed this success to the expanding middle class and easy access to finance, propelling the Indian auto industry to become the third-largest globally. As a global OEM, Mr. Kulkarni emphasized the expectations from the tooling industry: quality and commitment. In closing, he





ZECHA and Sumitomo announced technical collaboration

ZECHA, a prestige precision cutting tool company, and Sumitomo, renowned as one of the top precision cutting tool organisations in the world, announced their technical collaboration for regrinding operations in Maharashtra, at DMI 2024.

ZECHA and Sumitomo have been technically collaborating for a long time globally, and both companies were confident about the mutual integrity as well as technical level and direction even before the start of Sumitomo's operation in India in 2023.

To maximise the performance that Sumitomo cutting tools can deliver, the high-quality regrinding-recoating capability is a must to eventually realise the cost per piece for customers, especially for precision round tools. Besides, quick delivery, which customers expect, is a key factor.

The official start of the regrinding service will be April 1, 2024. The details shall be communicated through SHIN's respective authorised distributors in the region.



'B2B PAVILLION' advantage for toolmakers, Tier-1s, and OEMs

Recognising the pivotal role of communication in forging successful partnerships, TAGMA organised the 'B2B PAVILLION', a ground-breaking forum aimed at facilitating direct dialogue between toolmakers, OEMs, and tier-1 firms.

The 'B2B PAVILLION'—the brainchild of TAGMA's management—successfully bridged the communication chasm by enabling face-to-face interactions between toolmakers, OEMs, and tier-1 firms. At DMI 2024, the 'B2B PAVILLION' facilitated over ten prominent OEMs and tier-1 companies who were actively seeking partnerships with over 30 toolmakers.

The participating delegates included industry giants such as

Ather Energy, ABB, Tata Electronics, TAFE, IAC Group, Siemens, and others, representing a diverse spectrum of manufacturing sectors.

Mr. B. K. Das, Manager – Tooling (South Asia/ Europe), SMR Automotive Systems India Limited, said: "I participated in the 'B2B Pavillion' for the second time. The 'B2B Pavillion' is an excellent initiative undertaken by TAGMA India."

Ultimately, the overarching goal of the 'B2B PAVILLION' is to catalyse the growth of the Indian manufacturing sector by fostering a conducive environment for toolmakers and companies to converge, collaborate, and drive innovation forward.

expressed "the need for continued support from the tooling fraternity, acknowledging their pivotal role in sustaining and advancing India's automotive growth story".

Mr. Walsh shed light on India's matured automotive sector and the burgeoning electronic sector, emphasising the need for a focused approach. He said: "India's Electronic Manufacturing Services (EMS) industry is growing rapidly and the companies are on the lookout for vendors. The geopolitical shifts are driving EMS to Southeast Asia and India. The world is looking towards India

with hope; but companies moving their operations to India have four key expectations — speed, accuracy, innovation, and capacity. Unfortunately, Indian toolmakers are not prepared to cater to the kinds of demands they have. I urge Indian toolmakers to rise to the occasion and focus on skill development for their employees, enhance the capacity of their shop floor, focus on manufacturing accuracy and meet delivery timelines, among other aspects. India needs to seize the opportunity and bridge the existing gap."

Mr. Shanmugasundaram

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Mould making

Single nozzle easyFILL EH 4010

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

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subsequently delved into some of the trends shaping the industry. He said: "The tooling industry is diversifying beyond the automotive sector into emerging industries such as toy making, consumer durables, and aerospace, defence, and space. These sectors present lucrative opportunities for expansion and risk mitigation. The pandemic highlighted the importance of digital solutions, leading tooling companies to adopt advanced technologies for enhanced efficiency and productivity. Besides, with global customers demanding high precision and fast turnaround, the adoption of cutting-edge technologies is imperative for Indian companies to remain competitive. Also, to meet the evolving customer demands, continuous skill development is essential for tooling professionals to stay updated with the latest



Trumould Team



Korean Pavilion debuts at DMI 2024

For the first time, Die & Mould India featured a dedicated Korean Pavilion at its 13th edition, highlighting the technological prowess of 12 leading Korean companies.

These esteemed Korean firms leveraged DMI as a platform to showcase their advanced capabilities, sought strategic partnerships, and explored growth opportunities in the Indian market. With a wealth of experience and technical expertise in tool and die-making, these companies were eager

to engage with potential customers and business partners, with a particular focus on meeting Indian OEMs.

The Korean Pavilion, a hub of innovation and collaboration, offered visitors a first-hand glimpse into the latest advancements in tooling solutions. Here, attendees interacted with industry experts, explored cutting-edge technologies, and forged mutually beneficial relationships with Korean manufacturers.

technologies and practices."

He urged: "Together, let us navigate these trends, capitalise on opportunities, and collectively contribute to the growth and evolution of the tooling industry in India."

Products launches galore

The four-day event showcased various technological developments for the booming die and mould industry. Here's a glimpse into a few such launches:

• TruMould 30-second Quote Generator:

The inaugural day of Die & Mould India (DMI) 2024 witnessed a

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13th DIE & MOULD INDIA INTERNATIONAL EXHIBITION

Feb 14-17, 2024

Bombay Exhibition Centre, Mumbai, India

Hall 01, Stall D06



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DTC 400XL-20 Launch Ceremony

ground-breaking moment. TAGMA President Mr. Devaraya M. Sheregar unveiled the TruMould Instant Quote Generator. It is the first time in the history of India that such a tool was made available in the public domain for free. Disrupting the quoting process, TruMould promises to revolutionise the tooling business with its innovative technology.

TruMould simplifies the quoting process into two easy steps:

Step 1: Upload the 3D Step file.

Step 2: Select the material, quantity, and surface finish.

Leveraging advanced algorithms and Generative AI, the platform



instantly generates accurate quotations for various applications, including insert moulding, thin-wall injection moulding, and over moulding.

TruMould's debut at DMI 2024 underscores the industry's commitment to embracing digital transformation and driving innovation. As the tooling landscape evolves, TruMould has bought an innovative solution for Proto Tooling as well.

- **STM's VFX400 5-Axis Vertical Machining Centre:**

Exhibitor Seminar During DMI 2024

February 15, 2024

15:00 to 15:45	"Future trends and challenges in die casting from a tool steel producer's view" - Ingolf Schruoff, Kind&Co, Edelstahlwerk, GmbH & Co. KG, Wiehl, Germany.
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February 16, 2024

12:15 to 13:00	"DynaFlow Hot runner systems" by Sunil Parol - Vasantha Tools Crafts Pvt Ltd
15:00 to 15:45	"Multi Cavity Hot Runners" by Mr. Davide Albertazzi, Thermoplay India Pvt. Ltd

PRODUCT ON DISPLAY

Toolholding System



powRgrip, a toolholding system by REGO-FIX, delivers excellent

runout, high vibration dampening, and easy and secure handling for demanding high-speed milling and drilling applications. The powRgrip system by REGO-FIX, a revolutionary toolholding solution, is designed to optimize machining performance and efficiency. Utilizing a unique collet and clamping method, powRgrip delivers unparalleled gripping force, precision, and vibration damping ensuring superior tool stability and surface finish quality. With its simple and quick tool change process, powRgrip enhances productivity while minimizing downtime, making it an ideal choice for high-speed machining applications. Engineered with precision and reliability in mind, the powRgrip system provides manufacturers with a cost-effective and versatile solution for achieving optimal machining results in various industries, from aerospace and automotive to medical and mould making.

REGO-FIX India Pvt. Ltd.

Hot Runner Temperature Controller



The Meusburger profiTEMP+ hot runner temperature controller impresses with its state-of-the-art technology and space-saving design. It features intelligent functions such as Smart Power Limitation (SPL) and MoldCheck, which ensure optimal temperature control and early detection of leak via process monitoring. The user-friendly touch screen interface, available in 15 languages, displays all the relevant information and settings. With data interfaces like RS485, CAN, Ethernet, and industry 4.0 readiness, profiTEMP+ can handle up to 192 zones, each with 230 VAC/15 A. Its modular design with pairing mode facilitates easy expansion and maintenance, making profiTEMP+ the ideal solution for precise and reliable hot runner controller across various applications.

Meusburger India Pvt. Ltd.

Mould Track



Mould Track is a smart system by HASCO that enables precise indoor

localisation of injection moulding tools. It uses ultra-broadband radio modules and intelligent software to track the location and status of your moulds in real time. With Mould Track, you can optimize your production planning, reduce superfluous downtimes, increase efficiency and productivity. Mould Track enables fast setting up of injection moulding machines because the exact tracking and localisation of the moulds are known. Mould Track is compatible with any mould size and type, and can be easily integrated into your existing infrastructure. HASCO offers an intelligent pioneering solution with increasing digitalisation in the world of mouldmaking, and Mould Track is the innovative fix for the injection moulding industry.

HASCO India Pvt. Ltd.

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from conception to production. Harnessing the power of design, simulation, and manufacturing, ZW3D helps you build better products faster at less cost. Whether you need to mill, turn, drill, or cut, ZW3D can handle it all with speed, efficiency, and reliability. ZW3D offers complete, powerful features including solid-surface hybrid modeling, structural simulation, 2-5 axis machining and specialized tools for sheet metal, moulds and more. ZW3D is the result of customer and industry feedback, and it delivers the best machining experience ever.

CADbro India

3D Printer



The Fuse 1+ 30W from Formlabs is a compact selective laser sintering (SLS) 3D printer that delivers industrial-grade performance and quality on your benchtop. With a powerful 30W laser, it can print high-precision parts in a variety of materials, including nylon and carbon fiber, in less than 24 hours. The Fuse 1+ 30W features a modular build chamber that can be easily swapped to enable continuous printing, and an active powder handling system that recycles up to 80% of used powder, reducing waste and cost. The Fuse 1+ 30W also comes with a complete post-processing ecosystem that automates the extraction, cleaning, and polishing of your parts, making them ready to use in as little as 15 minutes. Whether you need functional prototypes, small series of end-use parts, or complex designs, the Fuse 1+ 30W can handle it all with speed, efficiency, and reliability.

Phillips Machine Tools India Pvt. Ltd.



TAGMA President Mr. Devaraya M. Sheregar unveiled STM's latest innovation, the STM VFX400 5-Axis Vertical Machining Center (VMC), at Die & Mould India 2024. STM is a leader in machining solutions.

The VFX400 sets a new standard in precision manufacturing, offering ground-breaking capabilities designed to elevate machining benchmarks.

Engineered for complexity, the STM VFX400 excels at intricate tasks on diverse surfaces, revolutionising modern machining benchmarks. Its multi-sided machining capability significantly reduces setup times, eliminating the need for multiple repositionings and streamlining production processes.

Industries with the highest precision demands, including aerospace, medical, automotive, die & mould, and consumer electronics, find a perfect ally in the VFX400, which can craft high-strength components, intricate medical devices, fuel-efficient vehicle parts, and sleek consumer electronics with unmatched precision.

The VFX400 aligns seamlessly with the manufacturers' pursuit of efficiency in the era of automation. Continuous technological advancements, including improved

control systems and cutting-edge toolpath optimisation software, ensure accessibility and user-friendliness for operators.

• **AMS DTC 400XL-20 for Graphite component machining:**

Ace Designers – Machining Center Division from Ace Micromatic Group – showcased the DTC 400XL-20, a machine tailored for graphite component machining, featuring a high-end Mitsubishi controller. This precise, compact, and cost-competitive machine is equipped with features ideal for high-precision graphite machining. With a spindle speed of 20,000 rpm, it boasts special telescopic covers, ball screws, LM guideways, and a spindle air curtain to guard against dust. Additionally, it includes a die and mould kit for seamless operation, twin arm ATC with magazine isolation door, and an air gun suitable for graphite machining.

The DTC 400 XL-20 Graphite is a high-speed drill tap center equipped with high-precision special ball screws, LM guideways, and telescopic covers, enhancing user-friendliness and tailored for graphite applications. ♦

DMI 2024 ended on a high note

The 13th edition of Die & Mould India had approximately 38,000 visitors from the automotive, aerospace, electronics, die & mould, machine tools, heavy engineering, plastics, packaging, consumer goods, toy making and medical, among other industries. This diverse participation provided valuable insights for toolmakers, helping them to understand the demand trends and expectations across various sectors. Of the 38,000, 48% comprised decision-makers. This edition of Die & Mould India also saw a 15% increment in floor space and exhibitor count.

Delighted with the response, Mr. Sheregar said: "As the Die & Mould India exhibition concluded on a resounding note, we're thrilled to witness the overwhelming response from exhibitors and attendees alike. It's a testament to the potential of India's tooling industry. We're proud to have facilitated this platform for industry growth and collaboration."



Kushal Metal & Steel Industries Pvt. Ltd.

Success comes from Harmony.....
and win comes from Innovation



13th DIE & MOULD INDIA
INTERNATIONAL EXHIBITION
Bombay
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Goregaon, Mumbai



SSAB

Toolox 33
Toolox 40
Toolox 44

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High Speed Steel &
Die Steel in PM

2% Beryllium Copper C17200

Value Added Services for Machining & Ground service



Hot Work Steel

H10, H11, H11 Mod
H13, H13 Mod, H21,
1.2714, 1.2367, 1.2767,
KDA1,
TGGP13 (ORVAR SUP Equiv.)

Plastic Mould Steel

1.2311, 1.2738,
1.2738 HH, 1.2316,
1.2085, 1.2083,
PHX-SUPRA,
TGP-80 (NAK80 Equiv.)

Cold Work Steel

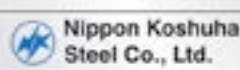
D2, D3, O1, S7, S1,
A2, A8M,
8% Cr (DC-53 Equiv.) NOGA

High Speed Steel

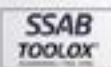
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Saving your shop's best practices



Your shop's intellectual labour is valuable. Protect it. By saving your best practices in a digital database, you streamline your production process and ensure that your hard work won't be forgotten or lost. One of the best ways to do this is by employing your CAD/CAM software's operations library. Mastercam's Operations Library is a virtual catalogue of your previously defined machining strategies: combinations of your toolpaths, tooling, and related parameters. Every strategy within the library is user-editable and applicable to new parts. Follow along to learn why and how to put your operations library to use.

Shop Consistency

Experimenting with different toolpaths and cutting approaches is critical during exploratory



programming. It allows the user to see exactly which combination of tooling and toolpaths will remove material most efficiently. Once the final arrangement has been locked in, though, it is best to forego experimentation for consistency.

When your shop has a predefined,

successful plan of attack for a certain type of project, it should be saved to your operations library. From there, it can quickly be applied to future production runs of that part and even to the entire family of parts. All the parameters are there; the only tinkering the program should



need is to accommodate part-by-part variation. This accommodation usually consists only of selecting the new geometry or model and controlling for it. Using toolpath groups saved to your directory means that you are only using your best tried-and-true solutions.

Programming Speeds

Previously we discussed the consistency and safety that the operations library gives users. It also saves programming time. Rather than writing the entire machining code from scratch every time from the CAD model, the library offers prewritten programs. This is indispensable for those parts that are tricky to machine but have similar counterparts in a shop's production history. While it may only save a few minutes for simpler parts, any time saved will

snowball and increase overall yields.

According to one Mastercam user, "Ops libraries are the best. I import about 99% of my programming. Everything is set up just the way I want it. Even when I use a pocket cycle as a remachine, I've gone in and set those parameters the way I like it so it's already there when I select remachine. Pocketing, reaming, tapping, contouring, basic 3D machining...it's all in there!"

Teaching New Programmers

Finding new skilled workers is one of the biggest problems facing the manufacturing industry at the moment. When you do bring in new help, the last thing you want to be doing is wasting time teaching them software basics when they could be operating machines and programming parts.



Your operations library can act as a series of tutorials on how to program the most common parts that come through your shop. Having a suite of your own "best practices" and their applications can help new programmers learn both the software and your specific dialed-in processes.

Retaining Knowledge

A growing segment of our industry is considering retirement. Before they leave, ask your veterans to capture their knowledge as saved operations. They can record their approaches and make notes of what types of projects that particular setup is best for. When they leave, they will be passing along their skill and expertise to be used on future projects.

Bonus Library: Tool Library

Mastercam has partnered with world-renowned tool manufacturers like Sandvik Coromant, Kennametal, and Harvey Tool to provide comprehensive digital collections of machine tooling. This means that users can access manufacturer-compiled information via the Mastercam Tech Exchange and import it directly into their CAD/CAM software. In these libraries, users will find every tool's use parameters, measurements, and best machining strategies. ♦



*Article and Images Courtesy:
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Renishaw conformal cooling solutions prove a boost to moulding productivity

The use of cores incorporating conformal cooling in the moulds for its plastic casings has allowed Alfred Kärcher GmbH & Co.KG to reduce the cooling time for each part by 55%, giving a huge boost to the company's moulding productivity. The special cores, which were designed by Renishaw, were produced using metal additive manufacturing technology.



High-pressure washers from Alfred Kärcher GmbH & Co.KG, with their unmistakable bright yellow casings, have become a permanent fixture in many German homes and are growing in international popularity. The devices' power and reliability encourage people to use their "Kärcher" as part of their daily cleaning routine, both inside and outside the home.

To meet the increasing demand from around the world, Kärcher produces its compact washer by the million every year. More than two million K2 basic pressure washers alone leave the Obersontheim factory every year. However, even this level of production is unable to meet the global demand.

Challenge

One of the Kärcher washers' most recognisable features is their bright yellow casings. This was also one of the key bottlenecks in the manufacturing process. For example, the casings for the K2 series washer are produced on six injection moulding machines, each capable of moulding 1,496 casings a day. This was not enough for Kärcher, which has four assembly lines, operating three shifts per day, to give a production capacity of 12,000 assembled and packed K2 high-pressure washers each day.

Clearly, one option would be to add more moulding machines. However, Leopold Hoffer, the coordinator for injection moulding at Kärcher's Obersontheim factory,

believed that it should be possible to generate more productivity from the existing equipment. "Our aim was to reduce the cycle time from the original 52 seconds to between 40 and 42 seconds," he explained. He approached Pliezhausen-

The results were better than expected. Renishaw sold us a complete improvement package, with a holistic consideration and analysis of the mould used to achieve the best results.

- Kärcher (Germany)



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based LBC Engineering, which was acquired by Renishaw GmbH in May 2013, to work on improving the cooling time in the moulds.

Solution

"The first stage of the project was to obtain data for the existing moulds to determine whether Kärcher's goal was feasible," recalled Carlo Hüsken, who coordinated the project for Renishaw. The existing injection moulding process was mapped with thermographic images provided by Kärcher and simulated using Cadmould® 3D-F simulation software. This revealed that, within the 52-second cycle time, cooling accounted for 22 seconds, with melting at 220°C and de-moulding at 100°C. The mould tool temperature was controlled with water at a temperature of 35°C and a throughput of 10 litres/minute. Hotspots, detected by the thermography, were also modelled, as these areas were responsible for the extended cycle time and needed to be analysed in more detail. With this data, a simulation of 20 cycles was completed, including an analysis of the wall temperature.

Based on a suggestion from Mr. Hüsken, the temperature control on the nozzle side was improved for the second simulation run. The beryllium copper, threaded fitting dome, for the body cover was provided with additional cooling by inserting two conventional cooling channels into the mould plate on the nozzle side.



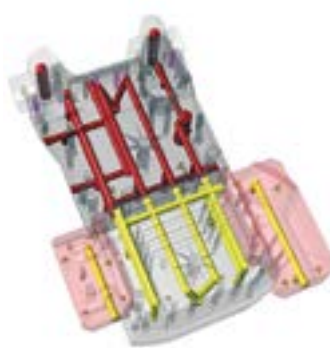
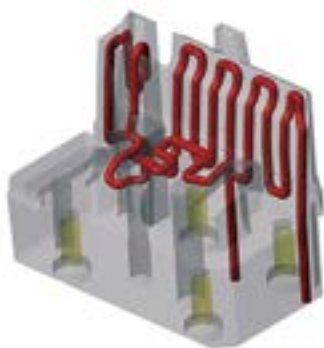
Two simulations were then run to assess potential improvements through the use of conformal cooling. Conventional mould cooling is made up of a network of drilled channels. Drilling the channels limits the geometries that can be produced so, while this is adequate for simpler moulds, it cannot provide the most efficient cooling in more complex examples. Conformal cooling is based on the use of metal additive manufacturing to produce the core of the mould. Additive manufacturing builds the cores in a series of thin layers. The flexibility of this approach means that cooling channels of almost unlimited complexity can be incorporated. Typically, conformal cooling is used to keep the channels at a more equal distance from the moulding, giving more even cooling, or to focus on areas where hotspots are known to exist to give more

rapid cooling in those areas.

The simulations showed that practically all of the hotspot areas could be improved through conformal cooling, with the wall temperatures reduced by up to 70°C.

Finally, in one area where there was insufficient space in the mould to incorporate conformal cooling, Kärcher made clever improvements to the product design in order to alleviate the problem.

Based on the results of the simulations, Renishaw presented a comprehensive improvement plan to Kärcher. This showed that conformal cooling could be used to improve the temperature control of the mould hotspots, thereby achieving a more uniform cooling rate and a reduced cooling time. A modified mould design was proposed that would incorporate two additively manufactured cores



to provide conformal cooling at the identified hotspots.

Results

The results from the modified mould design were checked by Renishaw, using thermographic images supplied. These confirmed that the wall temperatures could be reduced by 40°C to 70°C. The cooling time was reduced from 22 seconds to 10 seconds, a 55% reduction. Volker Neu, Technology and Plastics Group Leader at Kärcher, produced figures confirming that the new mould design, combined with the re-alignment of some peripheral components (material feed, handling systems, etc.), made it possible to reduce the cycle time from 52 seconds to 37 seconds. As a result, the daily capacity on one machine could be increased from 1,496 to 2,101 castings.

Kärcher then implemented the design changes for the other moulds. The additively manufactured hybrid inserts for these moulds were produced and supplied by Renishaw, with Mr. Hüsken actively supporting



the mould-maker during the manufacture of the tooling.

Having been sceptical about the project initially, Mr. Hoffer said, "At the end of the day, the results were better than expected. Renishaw sold us a complete improvement package, with a holistic consideration and analysis of the mould used to achieve the best results."

Renishaw always bases its client-specific solutions on a combination of technology. "In our case, this meant a mix of conventional cooling technology, project-specific cores produced using additive manufacturing, and vacuum-brazed cores," he added. "From these ingredients, we created the right recipe for the application."

From this project, Mr. Hoffer has gathered important knowledge and experience. "In future, we will give more attention to cooling in the design phase," he stated. "Cooling calculations will be an essential stage of each mould design at Kärcher. Using this information, we can then make the decision whether to work with conventional cooling or a conformal cooling solution."

"Renishaw's support was excellent. For this project, Renishaw was the right choice and the company will also be the right partner when we need close-contour temperature control in the future," concluded Mr. Hoffer. ♦

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Airbus signs MoU with IIT Kanpur to boost Indian aerospace talent



Airbus and Indian Institute of Technology in Kanpur (IIT Kanpur) have signed a Memorandum of Understanding (MoU) to facilitate increased collaboration in developing education programmes to foster talent development in the Indian aerospace sector.

The MoU was signed recently between Prof. Abhay Karandikar, then Director IIT Kanpur, and Rémi Maillard, President and Managing Director, Airbus India and South Asia. Under the collaboration, both the entities will promote research in advanced technologies and develop programmes and activities to enhance technical capabilities for aerospace students in India. Both the organisations will also explore collaboration opportunities with global institutes, where students will get to work on projects relevant to the sector. The partnership aims to build a collaborative culture that provides mentorship, exposure and invaluable experience to the students of IIT Kanpur. The synergies created through these cross-skilling opportunities will foster the growth of the aerospace industry in the country.

Speaking at the signing, Rémi Maillard, President and Managing Director, Airbus India and South

Asia, said, "At Airbus, we are firmly committed to developing the aerospace ecosystem in India. We continue to invest in education and skill development that will help in the creation of a competent workforce in the country. This MoU will harness Airbus' expertise and IIT Kanpur's capabilities in education, research and training to nurture the next generation of technology leaders and will unlock the potential of the fast-evolving aerospace landscape in the country."

Prof. S. Ganesh, Officiating Director, IIT Kanpur, stated, "IIT Kanpur has been relentlessly pursuing its vision to support innovation, research, and entrepreneurial activities in technology-based fields, and aerospace is one of the key thrust areas in this endeavour. This collaboration with Airbus Group indeed is a significant step. The collaboration is certain to enhance the industry experience of aerospace engineering students at the institute. With our Aerospace Department covering an expansive array of research and development in the field, we look forward to a mutually fulfilling engagement."

Prof. G. M. Kamath, Head of the Department of Aerospace Engineering at IIT Kanpur, mentioned, "The

aerospace engineering department of IIT Kanpur has historically been at the forefront with regard to building strong industry-academia connections, and leveraging our research to train our students to be more industry-ready. We are confident that this MoU will lead to impactful outcomes for not only Airbus and IIT Kanpur, but also for the aerospace ecosystem of India at large."

For Airbus, India is not just a market but a strategic resource hub. The company is expanding its industrial footprint, including aircraft assembly, manufacturing and design, as well as developing training and academic collaboration to mature all the building blocks required for an integrated aerospace ecosystem in the country. Airbus' local footprint in sourcing, engineering, innovation, maintenance and training services is a testament to its commitment to develop India's aerospace ecosystem. The C295 Final Assembly Line being built in Vadodara is another example of this commitment, as it is the first 'Make in India' aerospace programme in the private sector that involves the development of a complete industrial ecosystem in the country. ♦

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Digital Foam: A Revolutionary Polymer Solution Built with Your Design in Mind

The customizable design traits of Digital Foam introduce new possibilities for personalized products, light-but-strong components, superior protection, and individualized comfort. Read on to understand the Digital Foam process and how customers are leveraging it for increased customization and performance.

Organizations from a variety of industry sectors are now exploring how 3D printing enables never-before-produced product features like mass personalization and what benefits that may bring. EOS and its technology partners now offer Digital Foam™ to manufacturers seeking the expertise needed to quickly get their ideas off the whiteboard, to production, and into the market. Launched in 2019, Digital Foam gives access to critical design and additive manufacturing (AM) expertise and resources – streamlining product development, design engineering, and production, of clean-sheet applications that commonly leverage highly flexible polymer materials.

The 3D printing of materials is one key element, offering foam replacement options for industry-standard soft elastomers including EVA and VN, as well as rigid materials including EPP and EPS. Moreover, digital manufacturing allows for unprecedented fine-tuning of each voxel (volume pixel) for superior comfort, safety, and performance characteristics. The process is a sophisticated endeavour that historically requires complex engineering and long cycle times to fully unlock its value – and one that Digital Foam solves, getting ideas to reality faster and providing a fast-track to production. Digital Foam is:

- An innovative idea to leverage industrial 3D printing
- Engineering experts leveraging powerful design software

- Additive Manufacturing materials and technology – product and production development
- Application Production: Go To Market.

Today, historically commoditized applications are being reengineered and relaunched as high-value consumer offerings – many times tailored to the individual with customized (personalized) features, or with improved functionality (comfort, safety, performance) that traditional manufacturing simply cannot replicate or meet the requirements for cost-per-part.

While explaining Digital Foam is important to understanding the basis of its intended purpose and capabilities, let's explore our recent collaborative projects with companies such as Bauer Hockey and Wilson Sporting Goods that illustrate the use cases Digital Foam.

Bauer hockey MyBauer RAEKT hockey helmet

Ice hockey helmet liners are an optimal example of a historically traditional product – evolving for more than 50 years, but until now, with minimal overall design changes. With new 3D printing technologies opening up product development doors and allowing for design limitations to be stripped away, the MyBauer RAEKT hockey helmet with a Digital Foam insert was able to provide a new way of

producing a more customized and individually tailored helmet product.

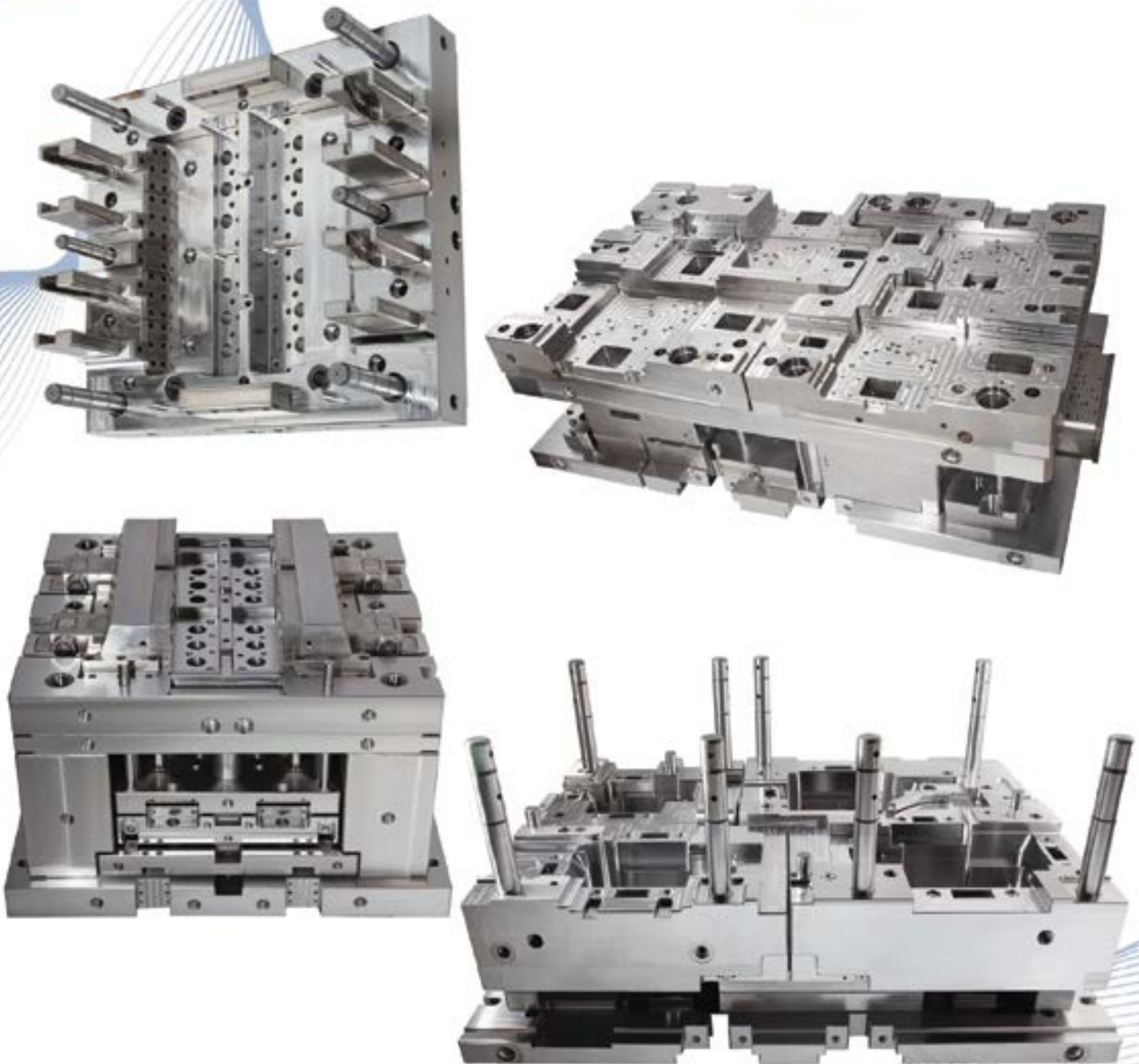
When global leader in hockey equipment innovation, Bauer, began investigating how to leverage and incorporate AM into their business, our Digital Foam approach to printing polymers stood to provide a distinct advantage for their product line and production. By leveraging Digital Foam, Bauer was able to bring initial prototyping of customized helmets to mass market for ice hockey – doing away with days of simply small, medium, or large offerings.

How it works

A player's head is scanned, creating a digital file, which is then brought to life by utilizing Selective Laser Sintering (SLS) to 3D print a helmet insert with Digital Foam – involving a complex, varying lattice that is both personalized for the wearer for improved comfort and lighter weight. The RAEKT helmet weighs in at 580 grams, while also providing greater breathability and a truly customized fit to increase protection. Once printed, the helmet inserts are



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Wilson Airless Prototype

Another product that has stood the test of time with minimal changes is the basketball. With known performance and relatively low production costs, the basketball is easily overlooked for design updates. The Wilson Innovation Center is constantly seeking ways to revolutionize the sports equipment we use and enjoy every day, which is why they turned to EOS and Digital Foam for the Airless Prototype. By leveraging Digital Foam and our network of partners, Wilson was able to successfully produce an Airless Prototype, nearly equal in performance to a traditional basketball, with customized Digital Foam material, a digitally optimized lattice structure, and industrial 3D printing solutions such as the EOS P 396.

How it works

The Airless Prototype leveraged expertise across members of the Digital Foam Architect Network – an overarching name for the company partners that worked with the EOS Additive Minds team to take the prototype from paper to product. While the material solution was optimized to meet process and performance targets, the Digital Foam Architect Network stepped

Whether elite athletes or pond hockey players, no two heads are alike. Bauer has now jumped in headlong into ‘mass customization’. Through our work with EOS and other partners, we are evolving MyBauer custom hockey equipment program to now include helmet inserts specific to the individual, but able to be produced at-scale. While Digital Foam is still relatively new, it keeps us out-front of product innovation while also bypassing other engineering and manufacturing limitations.

- Mathieu Dejardins,
Senior Brand Manager of Protective Equipment at Bauer Hockey

in for additional elements of the application:

Advanced Laser Materials (ALM): a polymer material development organization and sister company of EOS interpreted the performance goals of the ball and responded to further engineer the material and establish printing parameters to fit the Wilson innovation team’s specifications.



General Lattice: a computational design software company implemented precise lattice structure to mimic not only the visual aspects of a traditionally manufactured basketball, but the size, shape, and rebound.

EOS: Leveraging our own 3D printing technology, the EOS P 396 was able to take the design file from General Lattice and produce the prototype in a matter of a day, decreasing the time it takes to troubleshoot when prototyping and adjust based on performance testing.

DyeMansion: an AM post-processing technologies’ company provided the final appearance and haptics requirements of the ball via chemical vapour-smoothing and deep-dye colouring.

The Airless Prototype is the first of its kind in both the industrial 3D printing and sports equipment industries, showing the true innovation that is at our fingertips by leveraging additive manufacturing.

How to begin your Digital Foam journey

Has the capabilities of foam reached its maximum? The list of potential applications for Digital Foam is expanding in real-time. If mature applications, such as ice hockey helmets and basketballs, can be rethought, and re-engineered to create new market segments, Digital Foam can give engineers and product planners clean slates to transform an unlimited number of applications in ways never before possible. ♦

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MyBauer REAKT hockey helmet | Source: EOS, Bauer (2023)

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Bosch to use generative AI in manufacturing

Bosch is launching pilot projects in its plants. Generative AI is expected to reduce time needed for rollout and setup of AI solutions from several months to just a few weeks.

Dennis Christmann

Bosch is piloting generative AI and foundation models in manufacturing. In initial projects in two Bosch plants in Germany, generative AI creates synthetic images in order to develop and scale AI solutions for optical inspection and optimize existing AI models. Bosch expects that this will reduce the time needed for planning, launching, and ramping up AI applications from the current six to twelve months to just a few weeks. Following successful piloting, this service for generating synthetic data is to be offered to all Bosch locations.

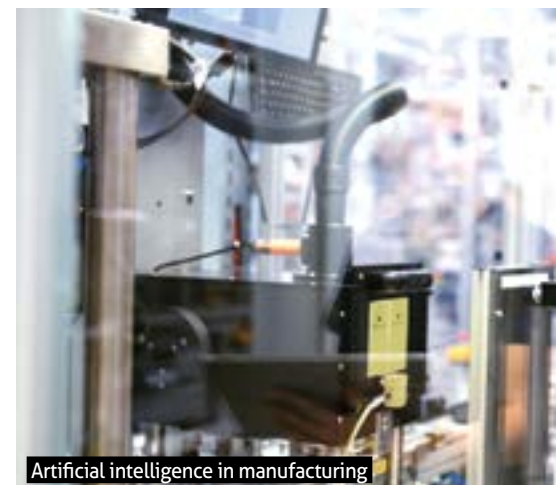
There are sound economic reasons for this move: depending on the size of the plant and type of production, artificial intelligence can be used to achieve productivity gains and six- to seven-figure cost savings – per year and plant. “AI has excellent potential for innovation and can make human work even more productive. As a manufacturing company, established factory outfitter, and Industry 4.0 trendsetter, Bosch aims to play a leading role in the development and application of industrial AI,” says Stefan Hartung, Chairman of the Board of Management of Robert Bosch GmbH.

AI in practice: Bosch projects deliver substantial benefit

Bosch pilot plants are already using AI in production scheduling, monitoring, and control. At the plant in Hildesheim, for example, AI-based data analysis has helped reduce cycle times during the production ramp-up of new lines by 15 percent. At the plant in Stuttgart-Feuerbach, new algorithms cut component-testing processes from three and a half to three minutes. “With generative AI, we’re now taking the next step in the evolution of artificial intelligence and advancing modern manufacturing to a new level,” says Tanja Rueckert, Member of the Bosch Board of Management and Chief Digital Officer. In this process, Bosch can build on its own expertise: the software models for generative AI were developed by Bosch research and are now being implemented in the field by Bosch factories. One plant uses an AI method of synthetically generated images to reliably inspect welds of copper wires in electric motor production, while another focuses on the quality assurance of high-pressure pumps.

AI boost: Generative AI pushes the boundaries of feasibility

For years, the Feuerbach plant inspected fuel-injection components manually. The nature and complexity of the products, as well as differences in the structure of the production lines, meant that neither rule-based nor AI-assisted optical inspection was possible. The new approach is a scalable generative AI that recognizes variants of a product and error patterns and takes into account different arrangements and



Artificial intelligence in manufacturing

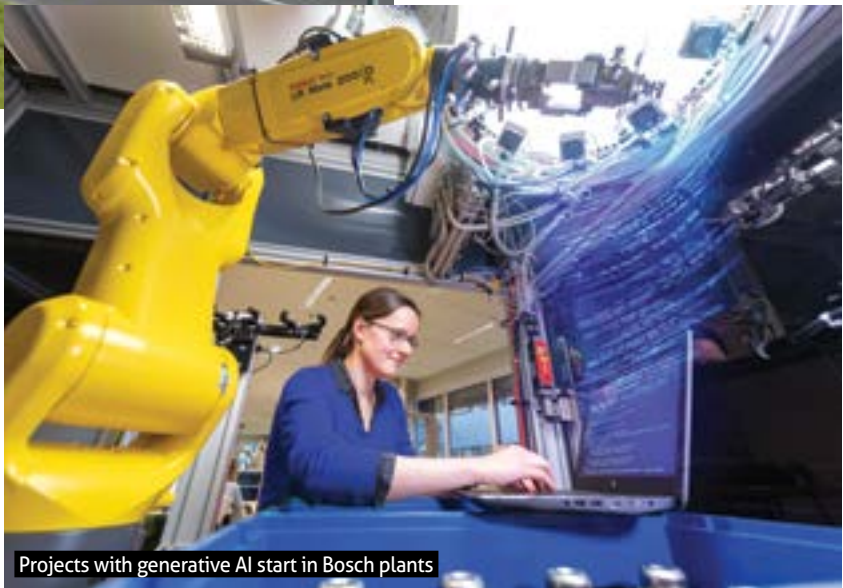


Nearly half of all Bosch plants are already using AI in their manufacturing operations. With the help of generative AI, we're not only improving existing AI solutions, but we're also laying the foundations for the optimum take-up of this future technology in our global manufacturing network.

- Stefan Hartung,
*Chairman of the Board of
Management of Robert
Bosch GmbH*

AI at the Bosch plant Stuttgart-Feuerbach

sequences in the production process. This is based on a foundation model developed by Bosch research and fed by large data sets from the Bosch manufacturing network. Synthetically generated data is used to refine the model and customize it for on-site applications. This is expected to make the AI capable of inspecting components independently, only submitting cases to visual inspectors where it is unsure. At the Hildesheim plant, synthetically generated images have already been successfully used



Projects with generative AI start in Bosch plants



Outstanding AI performance



for training purposes in the first standard systems in electric motor production. The human eye cannot distinguish the artificially generated images from real ones. The plant expects that project duration will be six months shorter with the new approach than with conventional methods, leading to annual productivity increases in the six figure euro range. Bosch plans to expand the AI approach to other locations. "In our work to develop AI solutions, we're unlocking the potential offered by the Bosch manufacturing network and its roughly 230 plants. And we are using new technologies. Generative AI helps to harmonize individualization and scaling – the technology gives us the best of both worlds," Rueckert says.

AI status: Widely used in Bosch plants

Many Bosch plants have one thing in common: not only are they AI pioneers, but they also focus consistently on Industry 4.0. "Bosch has been digitalizing and connecting its own plants and those of its customers for more than ten years. Now we're combining Industry 4.0 with artificial intelligence: connected manufacturing provides data and AI evaluates it," Rueckert says. Errors are detected at an early stage, machine downtimes are kept to a minimum, scrap is reduced, and energy is applied in a focused way. "The use of AI will make factories more efficient, more productive, and more eco-friendly," she adds. For example, Bosch research has

developed an AI-based system that identifies anomalies and malfunctions in the manufacturing process and improves product quality. This software is now in use in around 50 Bosch plants, with over 2,000 production lines connected. Many Bosch plants also use artificial intelligence in the optical inspection of components. For example, over 20 plants use Machine Vision AI, a solution designed by Bosch's special-purpose machinery unit that helps detect hard-to-identify features, such as scratches and chipping on surfaces and defects in weld seams.

AI pioneers: World Economic Forum commends Bosch plants

The Bosch plant in Bursa, Turkey, illustrates what AI can achieve in manufacturing. Starting from an already high level of technical expertise, the plant has used AI to further improve manufacturing quality: it has reduced water consumption by 30 percent, energy consumption by 6 percent, and scrap by 9 percent, while also increasing plant efficiency by almost 10 percent. This year, these achievements prompted the World Economic Forum (WEF) to single out the plant in Bursa as an Industry 4.0 lighthouse. This is the fourth time a Bosch plant has received such recognition from the World Economic Forum, and the second time specifically for developments in the field of artificial intelligence. All this shows that "AI's importance is historic. It will fundamentally change industrial production – for the better", Rueckert says. ♦

*Article and Images Courtesy:
© Robert Bosch GmbH*

About the Author

Dennis Christmann is the Spokesperson on Internet of things (industrial), Industry 4.0, Artificial Intelligence (industry), 5G at Bosch.



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'SUVs to drive passenger vehicle volume 5-7% next fiscal'

Capex to increase, yet healthy balance sheets and improving cash flows support credit profiles, according to CRISIL Ratings.

Passenger Vehicle (PV) volume will ascend to a new peak for the third straight time next fiscal, growing 5-7% on a high base of 6-8% estimated for the current fiscal, as sport utility vehicles (SUVs) race ahead even as demand for cars and exports remain muted.

Healthy volume growth of the SUV segment, which enjoys a higher margin, will steer an improvement in operating margin to 11.5-12.5% next fiscal. Better cash generation, along with a strong balance sheet and robust liquidity will support the funding of sizeable capital expenditure to set up additional capacity, obviating the need for material debt addition and keeping the credit profiles of PV makers stable.

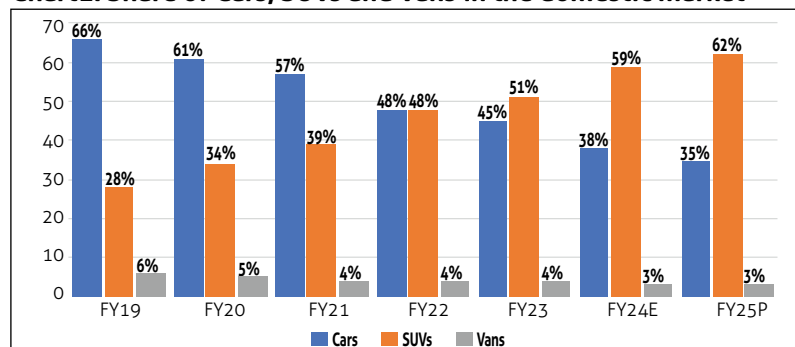
A CRISIL Ratings analysis of six PV makers, accounting for over 80% of the market, indicates as much.

A significant change in consumer preference has cranked up the demand for SUVs leading to its market share doubling to ~60% of the total domestic volume this fiscal from ~28% before the pandemic in fiscal 2019 (see Chart 1). This preference is expected to further grow backed by a healthy pipeline of new model launches across price points, including electric variants, and normalised availability of semiconductors after a prolonged period of short supply.

Says Anuj Sethi, Senior Director, CRISIL Ratings, "While the overall PV volume is seen rising 5-7% next fiscal, we expect the demand for SUVs to accelerate at twice the pace at over 12% driven by an array of feature-laden launches at competitive price points, varied technology options,

Annexure

Chart1: Share of Cars, SUVs and Vans in the domestic market



Source: CRISIL Ratings, Society of Indian Automobile Manufacturers (SIAM) based on dispatches by OEMs

including hybrid and electric, and increased access to credit."

In contrast, the demand for cars is seen slowing this fiscal too due to the ongoing weakness in the rural market and lower affordability at the entry level. The cost of vehicles has risen in the past 3-4 years, as manufacturers have been passing on higher commodity prices and have had to comply with more stringent regulations on safety and emissions.

The situation is similar on the exports front. The share of PV exports is estimated to have slowed to 14% this fiscal compared with ~17% in fiscal 2019, mainly due to inflationary headwinds and limited availability of foreign exchange in key export markets — Latin America, Southeast Asia and Africa — in the past two years. This trend is expected to continue next fiscal.

But the increasing share of SUVs with higher realisations, along with stable commodity prices and the full benefit of price hikes executed last fiscal have resulted in operating margin expansion of manufacturers by ~200 basis points to ~11.0% this fiscal. A further improvement in sales mix in favour of SUVs can take that

number to 11.5-12.5% next fiscal.

Says Naren Kartic K, Associate Director, CRISIL Ratings, "Capacity utilisation is expected to peak at ~85% this fiscal, and given that strong demand for SUVs is continuing, PV makers are incurring ~INR 44,000 crore capex in fiscals 2024 and 2025 — almost double compared with the past two fiscals. But healthy cash accrual and surplus will ensure reliance on external borrowings remaining low, keeping the credit profiles of manufacturers in the CRISIL Ratings portfolio stable."

We expect key debt metrics of CRISIL-rated manufacturers — debt to earnings before interest, tax, depreciation and amortisation and interest cover — to remain robust at less than 0.1 times and over 40 times, respectively, in this and the next fiscal.

In the road ahead, commodity price movements, changes in interest rates, impact of monsoon on rural demand, inventory level with dealers and global macroeconomic conditions will be monitorable. ♦

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Volvo Group implements a new Internet of Things network to make factories smarter

Reducing operational costs and improving maintenance service is a huge concern for automobile manufacturers, and for the Volvo Group manufacturing facility in Lyon, France, this is no exception.

Volvo Group produces engines for different purposes, for instance, for trucks, industrial power systems and boats, and the manufacturing process for these large, heavy engines relies on utilising Autonomous Guided Vehicles (AGVs).

AGVs enable more flexibility for the entire production chain, compared to a more traditional fixed production chain, but it also creates challenges in the manufacturing process. A 24V battery powers the AGVs, but when the voltage goes under 22V, the AGVs stop and simply block the production chain; stops which result in a production loss of approximately two engines per week.

To proactively monitor the health of the AGVs and prevent their shutdown, the IoT team at Volvo Group Digital & IT, supporting the factory in Lyon, envisioned a wireless system for predictive maintenance. The team initially looked at WIFI technology, but the WIFI 2.4GHz band was already being used for critical processes in the production line. Faced with this challenge, the IoT team looked toward LoRaWAN, a LPWAN protocol designed to connect battery-operated 'things' to the internet for powering the large fleet of AGVs. LoRaWAN is ideally suited to the manufacturing process, as it provides long-range capability, good resistance to interferences, and a secured and flexible network architecture.

The team also installed their own LoRaWAN sensor on every AVG to receive periodic voltage data of the battery levels (<23V) or battery



failures. With the new system, the maintenance team receives regular notifications, providing more time to move the AVGs to the charge point, without blocking the production line. They can also organise interventions in cases of battery failure.

"Implementing a radio infrastructure in our factory was a challenge, and we wanted to have a LoRaWAN network connected directly to our secure Ethernet network to avoid any cloud dependence. So, we have selected a Multitech industrial grade LoRa Gateway, with some edge computing capabilities and robust cybersecurity features to successfully qualify it through a complete IT audit," said Julien Bertolini, Principal Solution Architect IoT at Volvo Group Digital & IT.

The complete system for predictive maintenance now includes a LoRaWAN sensor installed on every AVG, a private LoRaWAN network, the maintenance platform on PTC Thingworx with its mobile application, and some screens dispersed throughout the factory to display the real-time status of any AVG.

The connected factory, with its LoRaWAN, has opened up new exciting opportunities for Volvo Group in Lyon: new sensors have been added for additional purposes, such as a temperature and humidity sensor designated for painting to improve the rendering quality and pressure difference sensors for monitoring filter clogging.

Thanks to recent advancements in cellular and IoT technologies, manufacturers can now unleash their network to take advantage of various performance and business benefits, such as improved operational cost, speed, and efficiency. ♦

Article and Images Courtesy: ©AB Volvo 2024

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Airbus partners with Tata Group to set up India's first helicopter Final Assembly Line in the private sector

Airbus Helicopters has announced that it is partnering with the Tata Group to establish a Final Assembly Line (FAL) for helicopters in the country. The FAL will produce Airbus' best-selling H125 helicopter from its civil range for India and export to some of the neighbouring countries.

The FAL will be the first instance of the private sector setting up a helicopter manufacturing facility in India. Under this partnership, Tata Advanced Systems Limited (TASL), a subsidiary of Tata Group, will set up the facility along with Airbus Helicopters.

The FAL in India will undertake the integration of the major component assemblies, avionics and mission systems, installation of electrical harnesses, hydraulic circuits, flight controls, dynamic components, fuel system and the engine. It will also do testing, qualification, and delivery of the H125 to customers in India and the region. The FAL will take 24 months to set up and deliveries of the first 'Made in India' H125s are



expected to commence in 2026. The location of the FAL will be jointly decided by Airbus and the Tata Group.

Guillaume Faury, CEO, Airbus, said, "This helicopter final assembly line, which we will build together with our trusted partner Tata, is a reaffirmation of Airbus' commitment to developing the full spectrum of the aerospace ecosystem in India. This will be the second final assembly line Airbus is building in India after the

'Make in India' C295 military aircraft manufacturing facility in Vadodara, Gujarat."

N. Chandrasekaran, Chairman, Tata Sons, said, "The Tata Group is delighted to set up India's first helicopter assembly facility in the private sector. This facility will have the final assembly line in partnership with Airbus for the world's bestselling Airbus H125 single engine helicopter for the Indian as well as export markets." ♦

Mastercam to acquire reseller, Cimquest

Sandvik has announced the signing of an agreement to acquire the American company, Cimquest, which will be part of Mastercam, the world's #1 CAM software. Cimquest is a Mastercam reseller located in New Jersey, United States.

"The addition of Cimquest continues Mastercam's ongoing investment into our Channel," says Mastercam Chief Market Officer, Sandy Moffat. "This signing of the agreement to acquire Cimquest ensures Mastercam's ecosystem of solutions remains connected to our customer base for years to come."



The signing of an agreement to acquire Cimquest adds talent, technology, and diversity to Mastercam's ecosystem of solutions. Cimquest's solutions and support are recognised as best-in-class in their region and will continue to be available. With the addition of Cimquest, Mastercam continues to ensure our solutions remain

connected to our customer base.

Rob Hassold, Owner of Cimquest, states, "We are very excited to sign this agreement of acquisition with Mastercam and Sandvik. Joining the Mastercam team will enable us to continue to focus on what we do best: serve our customers!"

Mastercam has no plans to change relationships with any external vendors, customers, or resellers as a result of this signing of an agreement to acquire. Mastercam is committed to expanding the tools available in the Mastercam ecosystem through organic growth and acquisitions. ♦

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Tata Advanced Systems Ltd., Mahindra Aerospace Structures Pvt. Ltd. bag Airbus manufacturing contracts

Airbus has signed contracts with Tata Advanced Systems Limited (TASL) and Mahindra Aerospace Structures Private Limited (MASPL) to procure commercial aircraft components. Under the contract, TASL and Mahindra Aerostructures will manufacture metallic detail parts, components and assemblies for Airbus' A320neo, A330neo and A350 programmes. The two companies are already among more than 100 India-based suppliers that provide components and engineering and digital services for various Airbus programmes.

"Airbus has made 'Make in India' front and centre of its strategy in the country. Our ambition is not only to support the growth of the Indian commercial fleet but also to grow the complete aerospace ecosystem here – and that includes developing and strengthening manufacturing and engineering capabilities from our Indian partners," said Rémi Maillard, President and Managing Director of Airbus India and South Asia. "Tata Advanced Systems and Mahindra Aerostructures already contribute



to our aircraft programmes, and the latest contracts increase our cooperation with them."

For Airbus, India is a strategic resource hub where the company is expanding its industrial footprint with aircraft assembly, component manufacturing, engineering design and development, MRO support, pilot and maintenance training as well as academic collaboration to foster human capital.

Today, every Airbus commercial aircraft has components and technologies made in India, including the A220 Escape Hatch

Door and the Flap Track Beams for the A320neo and A330neo aircraft. Currently, the company's procurement of components and services stands at about US\$750 million every year, and the latest round of contracts will add significantly to this.

Airbus' efforts to mature the wider Indian aerospace ecosystem includes the building of a Final Assembly Line for the C295 military aircraft in Vadodra under an industrial contract with TASL as well as training commercial pilots and maintenance crew. ♦

Samsung to start making laptops in India this year

Korean electronics major Samsung plans to start manufacturing laptops at its Noida factory in India this year, a senior company official has said.

Terming India as its important manufacturing base, Samsung Electronics President and Head of Mobile eXperience (MX) Business TM Roh told reporters that the preparation for the laptop manufacturing is in progress in India. "We will start manufacturing laptops this year at the Noida factory. Preparations are already underway," said the official.

Roh said India is an important



manufacturing base for the company, and it has received support at various levels from the state and central governments.

The company will continue to cooperate with the government to strengthen manufacturing in India, he added. The company has recently launched its flagship Galaxy S24 series smartphone with a key focus on artificial intelligence capability in

the device. Samsung has announced that it will also manufacture Galaxy S24 at its Noida factory.

"Noida is a very important production base for Samsung. It is the second-largest base for Samsung. There may be some changes at the plant to optimise it as per the global demand, but what remains unchanged is the fact that it is an important base for us," Roh said.

The Noida plant has started making feature phones, smartphones, wearable, and tablets, and now the company will start manufacturing laptops this year. ♦

Courtesy: PTI News

Maruti Suzuki plans more investments in Gujarat

In the Vibrant Gujarat Global Summit 2024, recently held under the auspices of the Honourable Prime Minister Shri Narendra Modi, the President of Suzuki Motor Corporation (SMC), Mr. Toshihiro Suzuki announced two major investments in the state of Gujarat.

In the first one, Maruti Suzuki India Ltd. has reached an understanding* with the State of Gujarat for the construction of a new automobile production plant. This new plant in Gujarat is aimed to start operation in FY2028-29. In the future, the annual production capacity is expected to become 1 million units with a total investment amount of INR 350 billion (excluding the land acquisition cost). Details of the location and the models to be produced will be shared in due course.



Maruti Suzuki also announced the establishment of a fourth production line in its wholly owned subsidiary Suzuki Motor Gujarat Private Limited (SMG) by investing INR 32 billion, in view of increasing production of electric vehicles in the future. The fourth line is expected to start operation from FY2026-27. With the completion of the fourth line, the annual production capacity of SMG will increase from the current 750,000 units to 1 million units. Combined with the new plant in Gujarat, the total

annual production capacity in the State of Gujarat will be 2 million units.

Maruti Suzuki plans to secure a production capacity of approximately 4 million units in India by FY2030-31 to prepare for future expansion of the automobile market in India. The new plant in Kharkhoda, Haryana, which is planned to start operation in 2025, the new plant in Gujarat and the fourth production line of SMG will help achieve the milestone of 4 million. Mr. Suzuki said, "In this ever-growing country, we will provide a variety of sustainable mobility options by focusing on Indian customers." ♦

** Non-binding Memorandum of Understanding subject to the approval of the Board of Maruti Suzuki.*



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Tata Group to invest INR 2,300 crore in Karnataka

Tata Group companies Air India and Tata Advanced Systems Ltd (TASL) are planning to invest INR 2,300 crore in Karnataka in projects that are expected to create employment for 1,650 people, the state government has announced. According to the MoU that has been signed, Air India will set up a facility to carry out maintenance, repairs, and overhaul of planes at the Bengaluru airport. The project entails an investment of around INR 1,300 crore.

Tata Advanced Systems, which makes doors for European giant Airbus's A320neo planes, will set up manufacturing and R&D facilities in the state. The company will invest in three projects near Bengaluru Airport and in Kolar with a total investment of INR 1,030 crore. These include a passenger-to-freighter aircraft conversion facility (INR 420 crore), a gun manufacturing facility (INR 310 crore) and aerospace & defence R&D in Karnataka (INR 300 crore).

Karnataka Chief Minister Siddaramaiah and state Large and



Image Courtesy: Tata Advanced Systems Ltd.

Medium Industries Minister M. B. Patil were among those present at the MoU signing ceremony. Saying such projects require streamlined support from the government in terms of clearances, approvals and interventions, Patil assured support in resolving any challenges pertaining to the grounding of the projects.

S. Selvakumar, Principal Secretary, Karnataka Industries Department and Nipun Agrawal, Chief Commercial Officer of Air India and Sukaran Singh, CEO of TASL exchanged the MoU.

Chief Secretary to Karnataka Government, Rajneesh Goyal; Additional Chief Secretary to Chief Minister L.K. Atiq; Commissioner

of Industries Department Gunjan Krishna; Air India top officials Manan Chauhan, Karthikeya Bhat, Atul Shukla, TASL top officials Guru Dattatreya, Arjun Maine, Bangalore International Airport Managing Director Hari Marar, COO Satyaki Raghunath, and CFO Bhaskar Ravindra were present on the occasion.

Tata's plan for Karnataka comes close on the heels of the group's announcement of an INR 15,000-crore investment in Telangana. The Tata Group has also drawn up plans to set up a semiconductor fabrication plant in Gujarat. ♦

Courtesy: IANS

VinFast officially breaks ground on its integrated electric vehicle facility in India

VinFast, Vietnam's electric vehicle manufacturer, officially broke ground on its first integrated electric vehicle (EV) manufacturing facility in Tamil Nadu. The groundbreaking ceremony was graced by Thiru M. K. Stalin, Honourable Chief Minister of Tamil Nadu; Thiru Dr. T. R. B. Rajaa, Honourable Minister for Industries, Government of Tamil Nadu; Thiru V. Arun Roy IAS, Industries Secretary, Member of Parliament – Thoothukudi constituency; Ministers of state, MLAs of Tamil Nadu, senior representatives from the State government and the VinFast India leadership team.

Spanning 400 acres within the State Industries Promotion Corporation of Tamil Nadu industrial



estate, the EV facility boasts a total initial investment of \$500 million over 5 years, with a projected capacity of 150,000 vehicles annually.

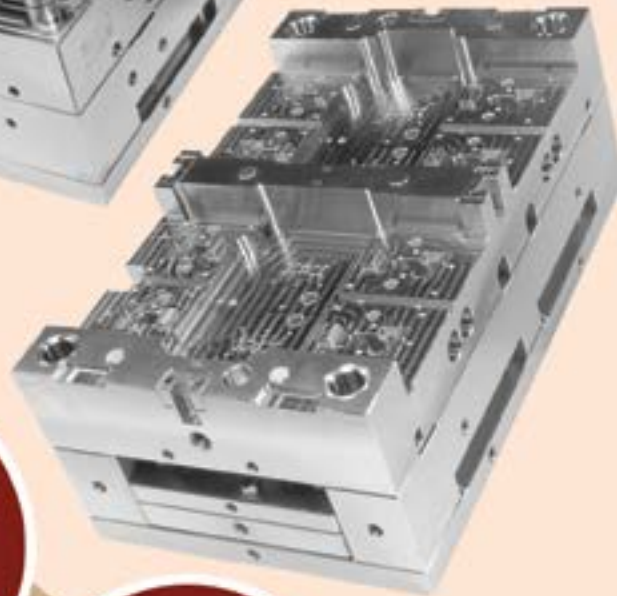
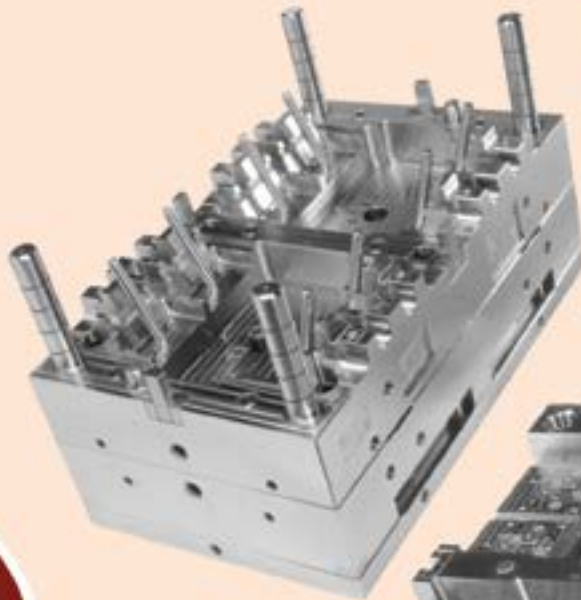
Mr. Pham Sanh Chau, CEO, VinFast India, stated: "VinFast's groundbreaking ceremony for its plant in Thoothukudi, Tamil Nadu,

is a significant stride towards sustainable and green mobility in India. By establishing an integrated electric vehicle facility, the company's commitment to job creation, green transportation, and strategic partnerships solidifies VinFast's position as a major player in the electric vehicle industry." ♦

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Reaching new manufacturing dimensions with the expanded DMF series

With the DMF 200|8, DMF 300|8 and DMF 300|11, which have been developed from scratch, DMG MORI has repeatedly demonstrated its innovative competence in recent years. Based on this pioneering moving column concept, the machine tool manufacturer is now also presenting the largest model in the series, the DMF 400|11. Compared to the previous model, the world premiere impresses with a 20% stiffer and 1.1 m³ larger working area. The stable construction results from the cast-iron machine bed, three linear guides and ground and cooled ball screws. In the double ball test, the DMF 400|11 achieves an accuracy of 5 µm. This makes the moving column machine the perfect companion for machining demanding large components – from structural parts and long beams to components for die and mould making.

The traveling column machines from DMG MORI have always been the right choice for machining long components. With travels of 4,000 x 1,100 x 1,050 mm,



the DMF 400|11 also offers plenty of space in the Y and Z axes. The optional partition wall also creates two separate workspaces, enabling set-up parallel to machining time through pendulum machining of the spindle. The fixed table is designed as standard for workpieces weighing up to 8,000 kg. DMG MORI can optionally

integrate one or two rotary tables for components weighing 1,200 kg each. An add-on table as an A-axis with a load capacity of 500 kg is also available. The modular system is supplemented by an FD rotary table for demanding milling-turning operations and larger tool magazines with currently up to 120 pockets. The standard magazine holds 40 tools with a length of up to 400 mm. The tool change is carried out behind the worktable – a special feature of the latest DMF generation from DMG MORI. This gives the DMF 400|11 a high level of process reliability. In addition, the linear guides are located outside the work area, which protects them from abrasive materials and contributes to the longevity of the components. ♦

Primezone H1281/... with OPC UA interface

HASCO's innovative range of Primezone H1281/... control units stands out with its exceptional control accuracy, its intuitive user interface, and its comprehensive diagnostic functions. The touchscreen display and latest software technologies enable simple and intuitive operation. With the three desktop versions, 6 to 48 zones can be precisely and reliably controlled and, with the floor-standing mobile version, 64 to 96 zones.

With the new software revision for the Primezone control unit, HASCO is now providing hot runner users with an OPC UA interface with EUROMAP82.2 protocol.

OPC UA is a service-oriented architecture and specifies the industrial M2M communication independently of both the producer and the platform. The communication is based on standardised Web technologies and is carried



out according to the server-client principle. The OPC UA server maps the data and processes by means of nodes and references in the address space. Which data and processes are mapped has been standardised by EUROMAP as the umbrella organisation for the plastics and rubber machinery manufacturers and published under the EUROMAP 82.2 specifications. The customer has three groups of data available: general information on the control unit, status information and process

data. The EUROMAP 82.2 for hot runner control units defines the OPC UA-based communication with injection moulding machines.

HASCO hot runner is, with the software revision of the Primezone control units, taking the next crucial step in the direction of process automation and M2M communication to meet the demands of Industry 4.0. ♦

Single nozzle easyFILL EH 4010

Meusburger has expanded its product range to include the single nozzle easyFILL EH 4010 for selected applications. It has been developed as a cost-effective alternative to the single nozzle smartFILL EH 4000 and is available with two flow channel diameters and in four lengths, respectively.



in the area of the nozzle housing and the sprue bush is not necessary. Different nozzle heads and contact radii in the sprue bush allow an individual selection of the nozzle to suit the injection situation on the item or in the mould and the connection to the machine nozzle.

Cost-effective alternative

The nozzle features a modular design and uses many components from the existing smartFILL nozzle series. The combination with new, cost-effective components has led to considerable cost savings. The one-piece, coated nozzle tip allows problem-free processing of most plastics, including technical ones. There are only restrictions for filled plastics. The single nozzle easyFILL is heated with just one control zone. The heat output distribution in the nozzle heater was adapted accordingly so that a second heater

Continuous availability

The single nozzle easyFILL can be selected and ordered around the clock in the Meusburger shop. Once the nozzle has been selected, the corresponding 3D CAD data including the installation space can be downloaded immediately. A large number of possible file formats are available for this purpose. The nozzle is then delivered within just two working days. The modular design of the nozzle allows individual nozzle components to be replaced at any time, so that repairs are efficient and economical. ♦

NS9530 and AT9530 cermet grade inserts with JP and JS chipbreakers improve chip control and surface quality

Tungaloy has introduced forty new NS9530 and AT9530 cermet grade inserts with JP and JS chipbreakers.

NS9530 and AT9530 cermet grades both provide the inserts with a good combination of wear and fracture resistance. Versatile NS9530 is the first choice grade for finishing to medium cutting of steel. The uncoated grade showcases wear and fracture resistance, delivering long tool life and superior surface



quality in a wide application range. The TiAlN-coated cermet grade, AT9530 demonstrates increased wear resistance with edge toughness in high-speed finishing of alloy steel. Enhanced post-treatment technology of the surface further improves its ability to minimise built-up edge formation and produce superior surface quality.

The JP chipbreaker is designed to control chips specifically in super fine finishing applications, while the JS chipbreaker, with its optimised

chipbreaker geometry and cutting-edge inclination angle, delivers excellent chip control in a wide application range. ♦

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Rockwell Hardness	HRB/HRC	95 HRB	30 HRC
Thermal Conductivity λ at 20 °C	W/m-K	208	156
Electrical Conductivity	% I.A.C.S.	48	30



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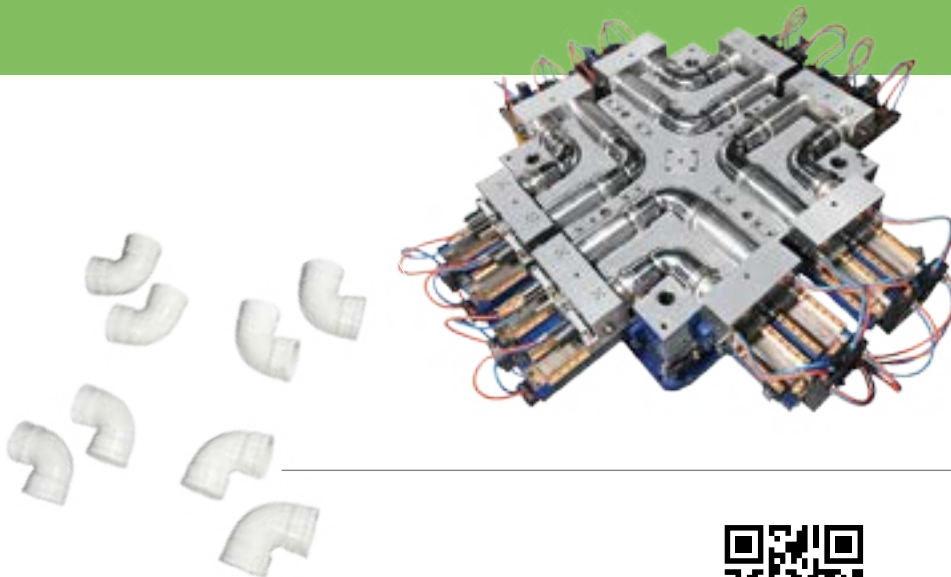
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