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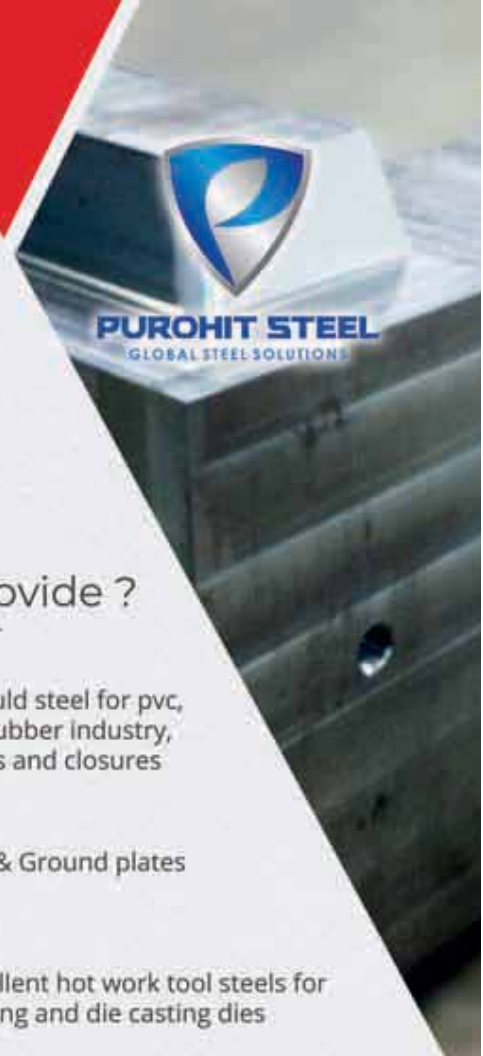
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Budget
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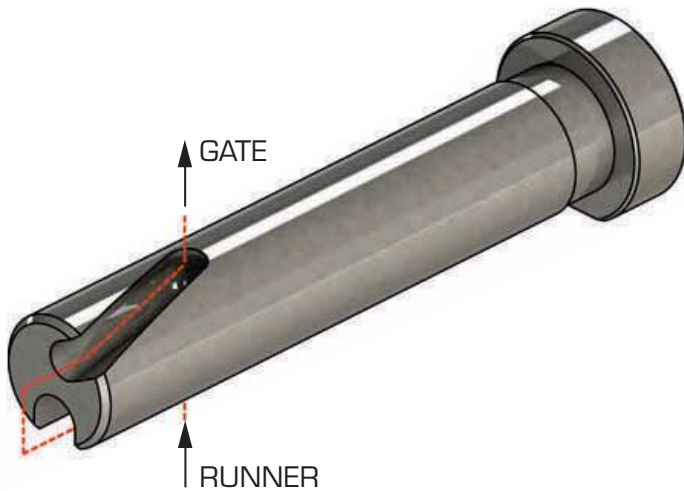
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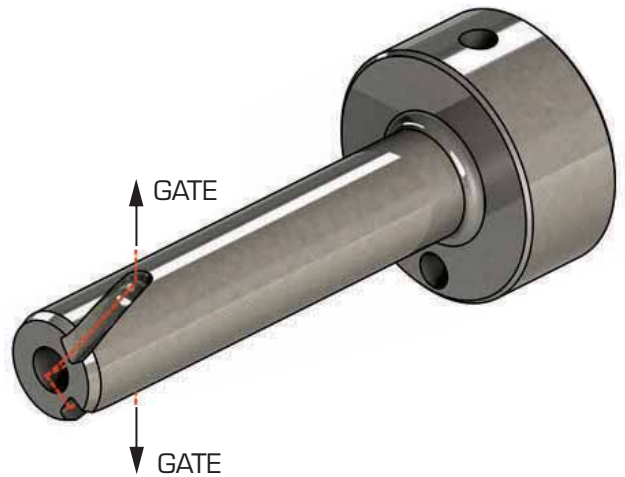
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The Budget Impact

As elections in some of the major states were scheduled for early 2022, many were expecting a Budget with an agenda to lure votes. However, to everyone's surprise, when Finance Minister Smt. Nirmala Sitharaman presented the Union Budget 2022 on February 1, it was all about future-oriented growth focussing on key aspects such as inclusive development, productivity enhancement, energy transition, and climate action.

With the aim to increase the share of the manufacturing industry in the country's GDP, the government introduced many schemes and allocated funds to help MSMEs and boost domestic manufacturing. To push the agenda for domestic manufacturing, the Finance Minister, in her Budget speech, announced the withdrawal of customs exemption on over 350 tariff items, which include mostly raw materials and consumables used in the manufacture of final goods.

Another highlight of the Budget speech was the importance given to boost India's digital economy, such as the launch of a digital rupee in 2022. 2021 was a remarkable year for India's tech industry, with a record 42 unicorns (\$1 billion valued tech-based start-ups) added to the burgeoning digital economy. And, new initiatives, such as the digital rupee, will further propel India's start-up and tech ecosystem.

Our Honourable Prime Minister said on microblogging site Twitter, "Today's Budget brings with it new energy and strength to our development trajectory, especially at a time when we are courageously fighting a once-in-a-lifetime global pandemic. This Budget brings more infra, more investment, more growth and more jobs." Budget 2022 is indeed growth oriented, futuristic, and will further boost India's position in the world economy.

Do read our 'In Focus' and 'Management Mantra' sections to know what the Budget has in store for the manufacturing industry and MSMEs. If you would like to share your views on Budget 2022 and tell us how it's impacting you, do get in touch with us and we will be happy to feature you.

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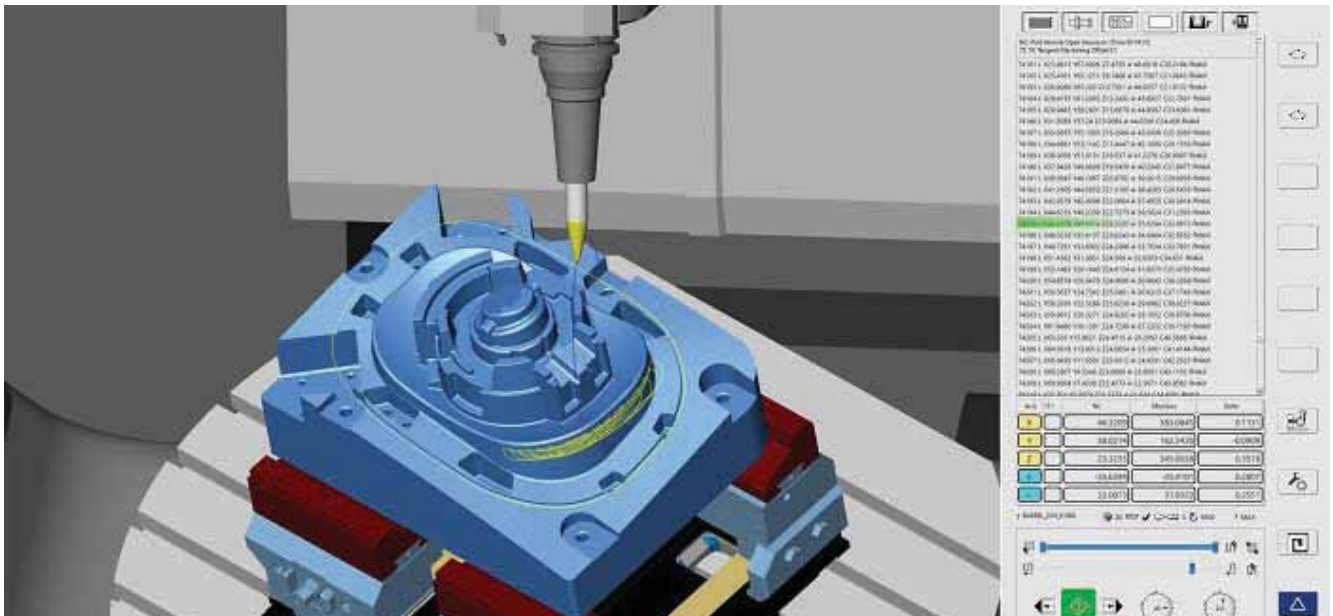
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OPEN MIND Offers Integrated Software Solution for CNC Manufacturing



OPEN MIND closes the gap between CAM systems and physical machine environments with its hyperMILL VIRTUAL Machining solution – an integrated all-in-one system that eliminates the need for various software solutions. It maps all steps virtually, thus giving manufacturers absolute control over the machining process. This includes programming, NC code generation and optimization, simulation of the NC code, and networking with the machine.

At OPEN MIND, the development of a safe simulation solution starts long before the NC code. The CAD/CAM developer relies on in-house innovative solutions to build an integrated system where NC code generation and simulation are closely interlinked. The generated NC code is tested extensively, taking into account machine limitations. It is guaranteed to run on the respective machines. All process-relevant data is available in the NC code simulation, delivering an unsurpassed level of accuracy and safety.

Three modules for merging the virtual and real world

OPEN MIND has equipped hyperMILL

VIRTUAL Machining with three modules for merging the virtual and real worlds. In the Center module, real machining situations are virtually mapped for the machine and controller. They are then simulated based on the NC code. The CONNECTED Machining module enables in-depth networking and synchronization with the machine. For example, the simulation software can detect deviations in the origin or tool positions.

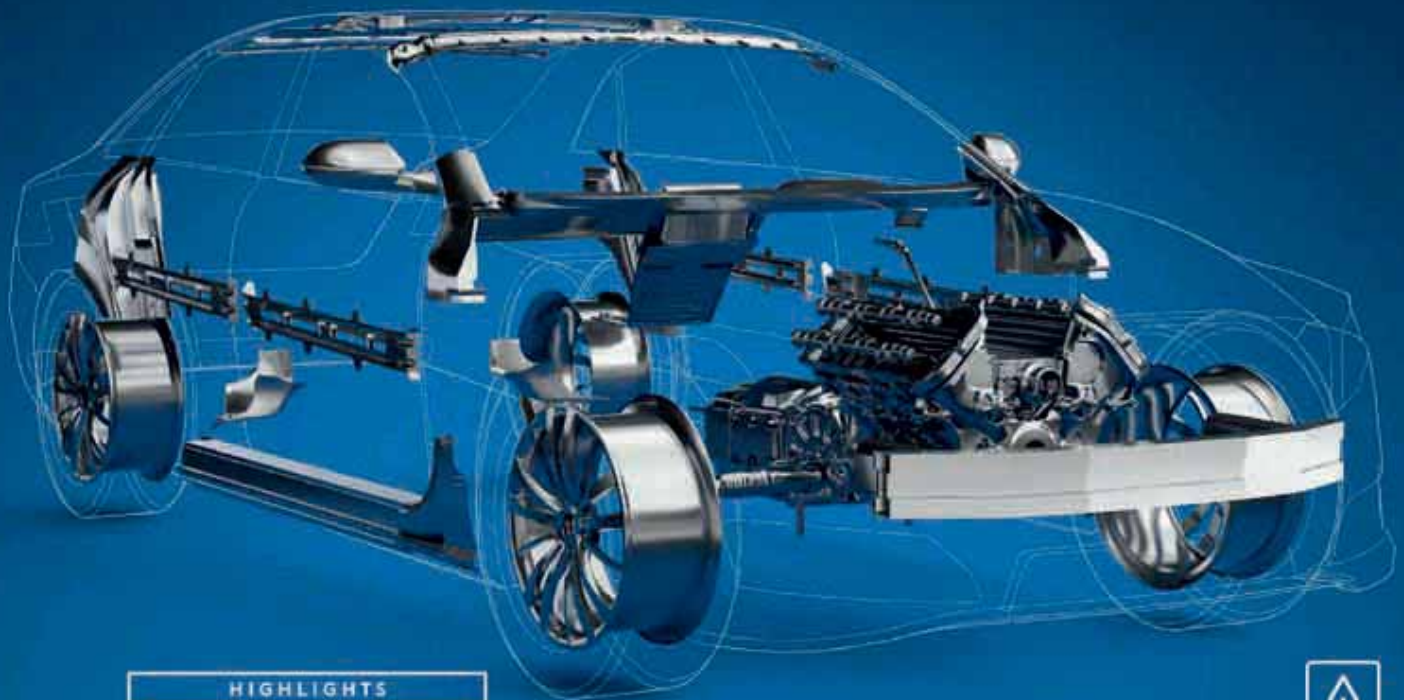
The Optimizer module provides powerful optimization algorithms that ensure efficient multi-axis machining. It also automatically identifies the best solution for top machining results. Moreover, users can write the CAM programs for portal milling machines in the same way as for 5-axis milling centers. The Optimizer automatically adds the rewinds necessitated by rotary and linear axis limits and by collision control based on the machine's digital twin. This eliminates unnecessary retract movements to safety positions between two machining steps with the same tool. When combining jobs with the same tool (linking), 2D and 3D machining steps are transformed into smooth

movements. The Optimizer can also distinguish between roughing and finishing operations.

Intelligent part alignment at the push of a button

Another tool for ensuring greater efficiency and cost-effectiveness in machining is the intelligent component alignment in CAM in real-time using hyperMILL BEST FIT. The unaligned part is probed on the machine using 3D probing, and the probing points are sent back to the CAM system as a measurement log. hyperMILL BEST FIT then precisely adjusts the NC code to the actual part position. The adapted NC code is subsequently simulated in the virtual machine on the actual clamping setup and optimized automatically.

To ensure safe and accurate machining, the machine operator performs a final verification measurement. After that, he can start machining without having to align the part on the machine beforehand. The advantages include immense time savings, safe machining, and well-planned processes.



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PCD tools: The design makes the difference



PCD bell tool from LMT Tools for machining thin-walled aluminum housings. Image Credit: LMT Tools

THE design of PCD tools is a special challenge. As a proven expert in the development and production of precision tools, LMT Tools has mastered this art perfectly and implements high-tech solutions that optimally meet customer requirements.

When it comes to finding the right PCD tool for the customer's specific needs, LMT Tools is without question the expert. With its decades of experience, broad application knowledge and comprehensive tool expertise, the tool expert regularly sets the tone in the market. The hallmark of the innovation drivers: maximum performance with optimum cost-effectiveness. The difference is made by the holistic approach, the technical know-how and the consistent customer orientation.

Increased efficiency in the production process

With PCD tools in particular, it is important to think outside the box because the special charm lies not only in the advantages in terms of machining time and surface quality, but also in

the combination of several machining steps in one tool solution. If machining operations with different lengths and diameters or even drilling and milling are bundled in one tool solution, this leads to reduced machining and tool replacement as well as saving space in the tool magazine. This is where special expertise and creativity are required. The engineers at LMT Tools know their trade perfectly and find the best technical and economical solution even for demanding requirements.

Optimum cutting results in record time

Thanks to the optimum combination of cutting material and geometry of the cutting edges, PCD tools from LMT Tools achieve ideal processes and thus meet the highest demands when machining components such as gearbox housings, cylinder blocks, pumps or engine housings. They enable very high cutting speeds and guarantee the highest geometric quality as well as dimensional accuracy with first-class surface quality. The high wear resistance also ensures long tool life. Whether as milling cutters,

single or multi-stage drilling or fine boring tools or reamers, the customized PCD tools guarantee maximum performance, cost savings and process reliability. This makes them an ideal partner for the automotive industry, the energy sector, general mechanical engineering or aircraft construction – even for small batch sizes.

Use of the latest manufacturing technologies

Production is carried out according to the latest standards and relies on innovative technologies and processes. In this context, lightweight tooling is becoming increasingly important due to large component diameters – one example being drive and stator housings in the field of e-mobility. With different base body variants (structural design) as well as the use of 3D printing, LMT Tools manufactures stable, weight-reduced tools that ensure precise and low-vibration machining. The pre- and finish-machining of the PCD cutting edges by laser as well as laser chip grooves or chip breakers ensure process-reliable chip control.



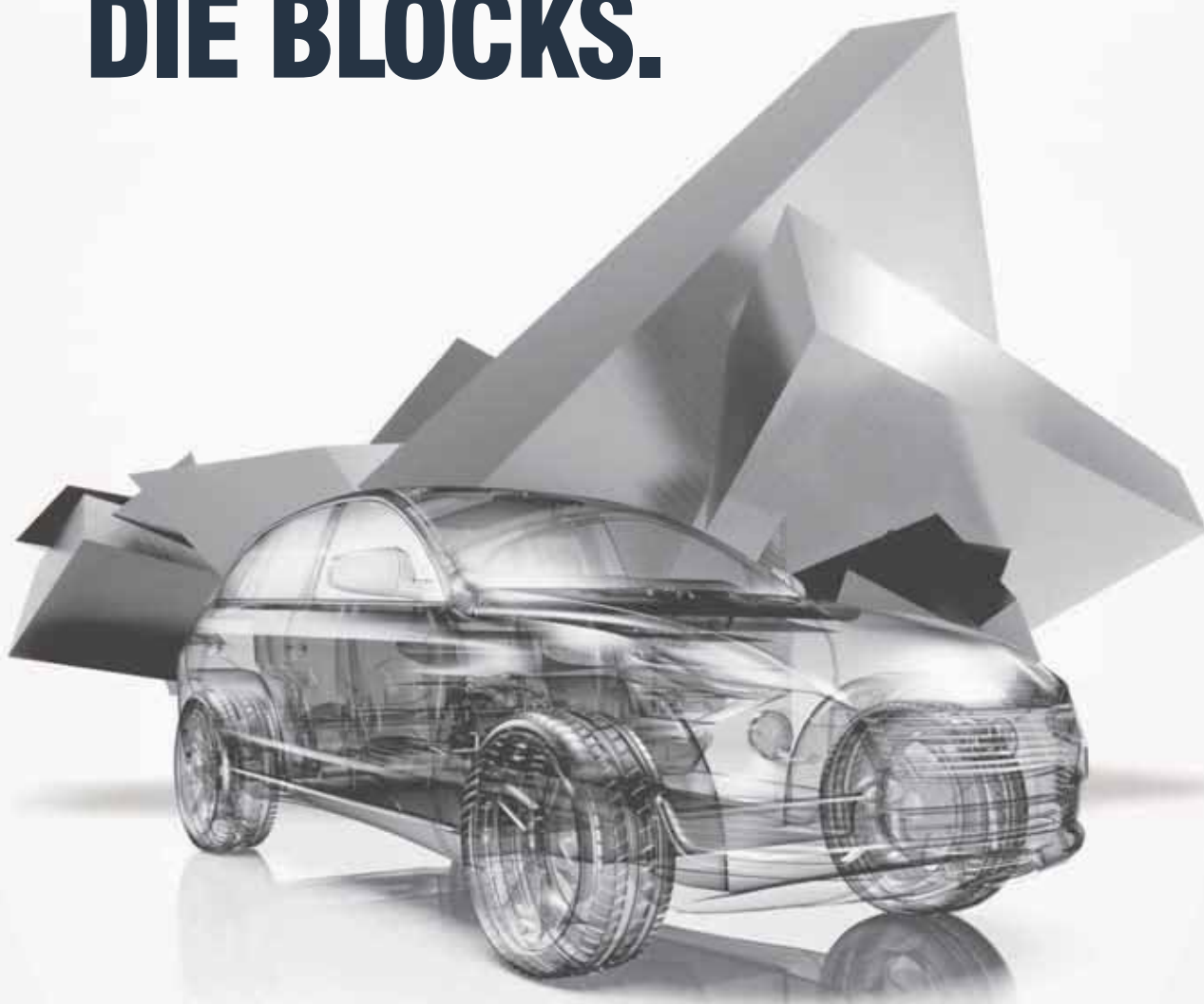
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Govt expects INR34,090-crore investment under PLI scheme for electronics manufacturing

THE government is expecting an investment of INR34,090 crore under the PLI scheme for large-scale electronics manufacturing, mainly mobile phones and electronic components, by 2025, Parliament was recently informed. The government has approved proposals of 20 companies under the Scheme for Promotion of Manufacturing of Electronic Components and Semiconductors (SPECs), including that of Tata Electronics, till January 27.

Around INR20,000 crore is expected to come from electronic components and semiconductor companies and INR14,090 crore from 32 proposals approved under the production-linked incentive (PLI) scheme for large-scale electronics manufacturing, Minister of state for electronics and IT Rajeev Chandrasekhar said in a written reply to the Rajya Sabha.

"Under the SPECs Scheme, investment



to the tune of INR20,000 crore is expected. The total employment potential (both direct and indirect) of the scheme is approximately 6 lakh," the minister said.

Leading contract manufacturers of Apple – Foxconn, Pegatron and Wistron, South Korean electronics major Samsung, Indian companies Lava, Jio's Neolync, Optimus Electronics, etc. – have participated in PLI for large-scale electronics manufacturing.

"In the aforementioned PLI schemes for large-scale electronics

manufacturing and IT hardware, the amount of investment expected to be brought in by the approved applicants is INR14,090 crore. The total employment (both direct and indirect) expected to be generated during the tenure of the schemes is about 8.57 lakh," Chandrasekhar said.

The Ministry of Electronics and IT has approved 16 proposals under the second round of PLI for large-scale electronics manufacturing for electronic components which includes Vishay Components, Deki Electronics, Continental Device India, Salcomp Technologies, etc.

Meity has approved 14 proposals under PLI for IT hardware, which includes Dell, Foxconn subsidiary Rising Stars, Flextronics, Dixon Technologies, Panache Digilife, Netweb Technologies, Smile Electronics, etc.

Courtesy: The Economic Times

India's Q3 manufacturing outlook improves, cost of doing business remains cause for concern: FICCI

ACCORDING to the survey, the manufacturing outlook seems to have improved for the sector in Q3 after some revival in the first half of 2021-22.

FICCI's latest quarterly survey on manufacturing reveals that the outlook seems to have improved for the sector in Q3 (October-December 2021-22) after some revival in the first half of 2021-22. Also, the manufacturers are looking forward to the budget to enhance growth and investments in the sector.

FICCI's latest quarterly survey assessed the performance/sentiments of manufacturers for Q3 (October-December 2021-22) for twelve major

sectors, namely, automotive, capital goods, cement, chemicals, fertilisers and pharmaceuticals, electronics and electricals, medical devices, metal and metal products, paper products, textiles, textiles machinery and miscellaneous.

Data analysis shows that companies are bullish on growth, as compared to a year ago. Last year only 33% companies reported higher production in the third quarter of 2020-21 (October-December 2020-21). This has jumped to 63% companies reporting higher production in the third quarter of 2021-22 (October-December 2021-22).



According to FICCI, 50% of the companies expect exports to rise this year. The outlook for exports continues to indicate the expansion path as around 50% of the participants are expecting a rise in their exports for Q-3 2021-22 vis-a-vis same quarter (Q-3 2020-21) last year.

The hiring outlook for the manufacturing sector remains subdued as around 75% of the respondents mentioned that they are not likely to hire additional workforce in the next three months.

Courtesy: Business Standard

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Faurecia and HELLA announce the name of the world's seventh largest automotive supplier

FAURECIA and **HELLA** are very pleased to introduce **FORVIA**, the newly combined Group's name, following the successful completion of the acquisition of a controlling stake in **HELLA** by **Faurecia** on January 31, 2022.

Resolutely looking **FORward** and committed to drive the mobility transition on roads or **VIA**s, **FORVIA** is about the movement and the necessary agility as well as the newly combined Group's commitment, confidence and action.

FORVIA is uniquely positioned to grow and benefit from strategic drivers transforming the automotive industry. Its vision for the future is built on four pillars: safety, sustainability, advanced solutions and customized experiences.

Patrick Koller, Chief Executive Officer



of **Faurecia**, declared: "We are **FORVIA**! This new name reflects core elements of our **Faurecia** and **HELLA** brands, as well giving a good translation of our shared purpose – inspiring mobility. This new Group represents 150,000 talented individuals across more than 40 countries inspired by one vision, speaking with one voice and working as one team. As **FORVIA**, we are shaping safe, sustainable, advanced and customized mobility for today's and tomorrow's generations."

Rolf Breidenbach, Chief Executive Officer of **HELLA**, added: "FORVIA captures the close cooperation between **Faurecia** and **HELLA** excellently. The

name embodies essential core aspects that have always distinguished both companies – such as dynamism, vision, passion, solution orientation, customer proximity and community spirit. At the same time, **FORVIA** is a clear signal of a new start into a common future."

Faurecia and **HELLA** will continue to operate as two independent legal companies, closely collaborating to create sustainable value for all stakeholders through technology solutions and synergies generated in the best interest of both companies.

Under **FORVIA**, both companies will keep their legal names as **Faurecia SE** and **HELLA GmbH & Co. KGaA**. They will communicate under **FORVIA** used as an umbrella name. Products will continue to be marketed and distributed under their current brands.

Toyota heading to moon with lunar cruiser featuring robotic arms

TOYOTA is working with Japan's space agency on a vehicle to explore the lunar surface, with ambitions to help people live on the moon by 2040 and then go live on Mars, company officials said.

The vehicle being developed with the Japan Aerospace Exploration Agency is called **Lunar Cruiser**, whose name pays homage to the **Toyota Land Cruiser** sport utility vehicle. Its launch is set for the late 2020's.

The vehicle is based on the idea that people eat, work, sleep and communicate with others safely in cars, and the same can be done in outer space, said Takao Sato, who heads the **Lunar Cruiser** project at **Toyota Motor Corp**.

"We see space as an area for our once-in-a-century transformation. By going to space, we may be able to develop telecommunications and other technology that will prove valuable to



A robotic arm developed by Toyota for a vehicle called "Lunar Cruiser" to explore the lunar surface. TOYOTA MOTOR CORP. VIA AP

human life," Sato told The Associated Press.

Gitai Japan Inc., a venture contracted with **Toyota**, has developed a robotic arm for the **Lunar Cruiser**, designed to perform tasks such as inspection and maintenance. Its "grapple fixture" allows the arm's end to be changed so it can work like different tools, scooping, lifting and sweeping.

Gitai Chief Executive **Sho Nakanose** said

he felt the challenge of blasting off into space has basically been met but working in space entails big costs and hazards for astronauts. That's where robots would come in handy, he said.

Since its founding in the 1930s, **Toyota** has fretted about losing a core business because of changing times. It has ventured into housing, boats, jets and robots. Its net-connected sustainable living quarters near Mount Fuji, called **Woven City**, are set to open later this year. Japanese fascination with the moon has been growing.

A private Japanese venture called **ispace Inc.** is working on lunar rovers, landing and orbiting, and is scheduled for a moon landing later this year. Businessman **Yusaku Maezawa**, who recently took videos of himself floating around in the International Space Station, has booked an orbit around the moon aboard **Tesla** CEO **Elon Musk's Starship**.

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Aidrivers and Ashok Leyland: combining expertise in the development of clean, greener autonomous vehicles

AIDRIVERS, the global specialist in AI-enabled autonomous solutions across industrial mobility, and Ashok Leyland, a leading multinational automotive manufacturer, have set up an exciting new collaboration designed to invigorate and inspire the development of AI-enabled autonomous vehicles to meet industry's needs for a sustainable future.

The two companies have signed a Memorandum of Understanding (MoU) for a long-term collaboration, which will combine their specialist knowledge and experience to push forward together in this rapidly advancing field.

In the agreement, signed early in January 2022, Aidrivers will provide AI-enabled autonomous solutions and Ashok Leyland will provide vehicle platforms; the partners will work together to explore target markets and opportunities for cooperation.

"This MoU provides the foundations for joint innovation and inspiration," said Dr. Rafiq Swash, founder and CEO of Aidrivers. "There are clear opportunities where the



skills, resources, reputation and technical knowhow of both Aidrivers and Ashok Leyland can complement each other, particularly in meeting the needs of industry for a sustainable future. We are excited about the possibilities and look forward to working together to create innovative, ground-breaking autonomous solutions for a range of industrial applications."

The agreement foresees the development of autonomous vehicles, industrial mobility equipment and other autonomous industrial automation solutions that can deliver significant value to fleet operators, logistics providers and others. As well as specific project opportunities, the MoU encompasses joint marketing and joint market access as appropriate.

Dr. N. Saravanan, President and Chief Technology Officer of Ashok Leyland, said: "Ashok Leyland has a well-established record as a pioneer in the commercial vehicle sector, having developed many concepts that have become industry benchmarks and norms over the years. For example, we launched India's first electric bus and India's first Euro 6 compliant truck. We are proud of our reputation for innovation. We are delighted to be collaborating with Aidrivers and look forward to working together to create and develop the innovative autonomous solutions that will drive industry forward in the coming years."

Dr Swash added: "Across all sectors, industry is seeking innovative ways to deliver the best efficiency, minimise carbon and environmental impact and reduce costs. AI-enabled autonomous solutions and the true benefits they provide are at the centre of these transformative times. By combining strengths, Aidrivers and Ashok Leyland are confident of delivering exceptional value and innovation in applications across industry."

Bosch to invest INR2,000 cr. in India in next five years

TECHNOLOGY and services supplier Bosch said it would invest a total of INR2,000 crore in India, in the next five years, in addition to the INR8,000 crore it had already pumped into the country over the past decade.

The company would invest INR1,000 crore towards the localisation of advanced automotive technologies while an equal amount of investment would be made in building digital platforms like Mobility Marketplace and Mobility Cloud Platform, it recently said.

"We will continue our contribution by investing over INR1,000 crore for the localisation of advanced automotive technologies in the next five years," said Soumitra Bhattacharya, MD, Bosch Ltd. and

President, Bosch Group in India.

"We will also invest an additional INR1,000 crore towards expanding digital platforms," he added. Bosch posted third-quarter net profit of INR235 crore, a 26.3% increase from INR186 crore in the year-earlier period. Revenue from operations rose 2.6% to INR3,109 crore, a year-on-year increase of 2.6%. The increase was largely attributed to growth in the aftermarket business, although the overall automotive market production in India (excluding 2W) declined by 12%, said the company said.

In Q3, Bosch's product sales increased by 3.6%, with the aftermarket division witnessing an increase of 29% due to high demand for diesel products. Mobility Solutions business grew 11%. Bosch

predicts that by 2030, every third new vehicle in India will be an EV. The company is currently in the process of evaluating multiple opportunities arising from electrification developments.

"The government's plans to promote electrification in pursuit of incurring required Capex in this domain will spur a robust ecosystem for electric vehicles in India," Mr. Bhattacharya stated. This year, Bosch is celebrating its 100th anniversary in India. The company opened its first local sales agency in Kolkata in 1922. It currently has 18 manufacturing sites, and seven development and application centers across the country and employs 31,500 people in the country.

Courtesy: The Hindu



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Image Courtesy: Press Information Bureau

Union Minister for Finance and Corporate Affairs Smt. Nirmala Sitharaman departs from North Block to Rashtrapati Bhavan and Parliament House, along with the Ministers of State for Finance Shri Pankaj Chaudhary; Dr. Bhagwat Kishanrao Karad; and senior officials to present the Union Budget 2022-23, in New Delhi, on February 01, 2022.

A step towards 'aatmanirbharta'?

Stating the expectations from Union Budget 2022-23, a Deloitte report had said, "The Union Budget is expected to put the economy on an accelerated growth path after the impact caused by the pandemic. Amendments in the tax law to bring about sustainable growth, infrastructure investment, focus on R&D spending, nurturing incentives to the core sectors including manufacturing and services, tapping the huge experience of running captive centres are some of the priority items on the agenda of the Government... Ease of tax compliances, simplification and digitisation are the cornerstones to enhance the ease of doing business in India." Has the Union Budget succeeded in doing this? Here's what the experts have to say...

Kimberley D'Mello

Union Budget in Focus

Finance Minister Nirmala Sitharaman presented Union Budget 2022-23 in New Delhi on February 1, 2022. "The overall, sharp rebound and recovery of the economy is reflective of our country's strong resilience. India's economic growth in the current year is estimated to be 9.2 per cent, highest among all large economies. I recognise we are in the midst of an Omicron wave, with high incidence, but milder symptoms. Further, the speed and coverage of our vaccination campaign has helped greatly. With the accelerated improvement of health infrastructure in the past two years, we are in a strong position to withstand challenges. I am confident that with Sabka Prayas, we will continue our journey of strong growth," www.indiabudget.gov.in, a website whose content is managed and owned by Ministry of Finance, Government of India, quoted the Finance Minister.



Key Highlights of Union Budget 2022-23

- ▶ India's economic growth is predicted to be the highest among all large economies, at 9.2%.
- ▶ Under the productivity-linked incentive scheme (PLI scheme), 6 million new jobs will be created in 14 different industries.
- ▶ PLI Schemes have the potential to generate an additional INR 30,00,000 crore (US\$ 401.24 billion) in revenue.
- ▶ The 'One Station-One Product' concept will be adopted in the railway sector to assist local businesses and supply chains.
- ▶ The government wants to promote a digital economy, fintech, technology-enabled development, energy transition, and climate action.
- ▶ The Budget encourages growth with the following priorities: PM Gati Shakti, Inclusive Development, Productivity Enhancement and Investments, Sunrise opportunities, Energy Transition, Climate Action, and Financing of Investments as India enters Amrit Kaal, the 25-year countdown to India's 100th independence anniversary.
- ▶ Green Bonds will be issued by the government to raise funds for green infrastructure. The proceeds will be used to fund public-sector programmes that reduce the economy's carbon intensity.
- ▶ The government is pushing the blending of fuel by levying additional differential excise duty on unblended fuel.
- ▶ The government plans to rely on a virtuous cycle starting from private investment, and the help of public capital investment to crowd-in private investment.

Source: ibef.org





Provisions for the manufacturing industry

According to various media reports, Union Budget 2022-23 focuses on promoting India as a manufacturing hub and on making certain sectors self-reliant. The Budget, which also focuses on the promotion of exports, intends to replace the Special Economic Zone (SEZ) policy with a new regulation to offer SEZs the much-needed push. Here's what the industry has to say:

// “The Budget presented by FM Nirmala Sitharaman builds on the excellent Budget last year, continuing the trend towards more productive expenditure. The Budget is consistent with our PM Narendra Modi’s vision of making India Aatmanirbhar: a digital superpower, a sustainability leader and a healthy nation. This statement of intent is clearly supported by a plan for the future, and backed by allocations — specifically in the areas of infrastructure, digital transition, planet resilience, education and health — to support Indian ambitions. Continuing down this path, it isn’t hard to imagine India becoming a digitally-forward, sustainable global superpower by the end of this decade.” //

N. Chandrasekaran,
Chairman, Tata Sons,
as quoted by several news reports

“

“Union Budget 2022 sets the pace for the Indian Economy’s growth trajectory amidst the challenges brought forth by the pandemic. The big boost to capital expenditure is welcome and it would give a fillip to the Indian economy. For the automobile sector, we welcome the ‘PM Gati Shakti Master Plan’ focusing on building world-class infrastructure and improved connectivity for commuters. The strong push towards augmenting agricultural productivity should help enable buoyant rural demand. We appreciate the Government’s vision of building the skilling ecosystem for youth in India, which will play a critical role in driving innovation in the industry.”

Venu Srinivasan, Chairman, TVS Motor Company, on LinkedIn

”

Union Budget in Focus

“We welcome the Union Budget 2022, which spells seamless growth for the Auto & Auto Ancillary industry in India. The government's focus on 'Aatmanirbharta' will continue to provide impetus to build domestic capacities and push the agenda of 'Vocal for Local'. The government's focus on Battery Swapping policy to be brought with inter-operability standards and push for clean tech and electric vehicles will create the right ambient environment for EV introduction and overall harmonisation of the electric mobility aspiration of the nation. This move will prove to a giant leap for the nation in advocating introduction of cleaner propulsion technologies and will improve air quality and reduce consumption of conventional fossil fuels. The government has laid emphasis for the development of the infrastructure within the country that will further help build capacities for the resurgence of the automotive sector in India and envisages INR20K Crore investment outlay in infrastructure projects, under the auspices of PM's Gati Shakti that focuses on 7 engines of growth, including building the road transport network in the country. The National Highways network will be expanded by 25,000 km in 2022-23. Better roads will have a certain positive impact on the automotive sector. Finally, the government's decision of strengthening the rural economy through a MSP payment of INR2.73 lakh crore along with other benefits with an objective of aiding the farming sector, will help increase the disposable income, improving the sentiment in rural areas and further improving the demand & aspirations of rural and semi-urban markets of India for personal mobility.”

Venkatram Mamillapalle, Country CEO and MD, Renault India, as quoted by several news reports

“This Budget is overall growth-oriented with a clear focus on digitisation, electrification, infrastructure development and ease of doing business; aiming to propel a long-term growth of the Indian economy. The battery-swapping announcement is in the right direction and will be helpful to a limited segment. We however need a broader holistic view on the strategy around developing electric mobility for the passenger vehicle segment. A mid-to-long term planning for demand creation is needed and we hope the fine prints will have a ripple effect and passively stimulate growth for the auto industry.”

Martin Schwenk, Managing Director & CEO, Mercedes-Benz India, as quoted by several news reports

“The Finance Minister has presented a growth-oriented and pro-development Budget for 2022-23 by focusing on sustainable planning & development, energy transition for a cleaner tomorrow and inclusive growth through a tech-enabled economy. Also, investment-led growth strategy and the sizeable capital investment for sustained and speedy economic revival are reflected in the sharp increase in capital expenditure for FY23. The special focus on education, digital and clean mobility is laudable. The Battery Swapping policy and special EV mobility zones will help in the smooth transition to electric vehicles. The budget has laid the roadmap for long-term development over the next 25 years and areas like artificial intelligence, drones, semiconductors, space economy, genomics, green energy, and clean mobility systems will collectively lead the future growth of the economy. This budget echoes our sentiment and commitment to indigenous mobility solutions for a cleaner tomorrow.”

Dheeraj Hinduja, Executive Chairman, Ashok Leyland Limited, as quoted by several news reports

“Brevity has always been a virtue. @nsitharaman's shortest budget address may prove to be the most impactful...”

Anand Mahindra, Chairman, Mahindra Group, on Twitter

“Overall the Union Budget 2022 has been very positive, with growth as the main objective. Inspiring energy transition and a mindful utilisation of resources; giving an impetus to solar power, fuel blending, encouraging energy efficiency, biomass waste to energy, gasification of coal to chemicals are areas that are important to the country and to Thermax.”

Meher Pudumjee, Chairperson, Thermax Limited

“The digitisation of manufacturing is a key enabler for 'Make in India' and 'Aatmanirbhar Bharat', and the thrust is evident in the budget. The budget focusses on efficiency improvement & growth of MSMEs, which will give a boost to MSMEs & startups working for digital technology adoption in industries. This has also emphasised building digital skills and accelerating the deployment of solutions that can help industries become more efficient & competitive.”

Amit Saluja, Senior Director and Centre Head, NASSCOM CoE

What the Associations have to say?



Various associations have praised the government for the Union Budget. They have lauded the government “for the focus on inclusive growth, development of infrastructure and logistics, ease of doing business, enhanced outlay for capital expenditure, impetus to growth & development of MSMEs, and skilling & education”, reports reveal. Here’s what some of them have to say:

“The blueprint of a digitally enabled ‘Aatmanirbhar Bharat’ coupled with measures that will drive sustainable yet inclusive growth at a rapid pace for the next twenty-five years. These are the bedrock of the proposals announced in the Union Budget 2022-23, as we redefine our economy in a post-pandemic world. Setting the direction for creation of urban fossil-fuel-free zones, policy for battery swapping and energy as service and incentives for creating a vibrant start-up ecosystem, India could soon emerge as a forerunner of green mobility solutions for the world.”

Sunjay J. Kapur,
President, ACMA

“We compliment the Finance Minister for presenting a forward-looking and growth-oriented budget that strengthens the drivers of long-term development. It builds on last year’s budget and scores high on several counts – consistency, capex-led growth, transparency in numbers, energizing many of the stressed sectors and continues the focus on simplifying the taxation policy. FICCI is pleased with the set of announcements that were made, and we look forward to the implementation of the same by the central government in close coordination with the states... With a huge thrust on renewables, initiatives like a battery swapping policy and issuance of sovereign green bonds, PLI policy for solar modules the budget takes us a step forward towards decarbonising the economy.”

Sanjiv Mehta,
President, FICCI

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Union Budget in Focus

"Union Budget 2022 seeks to lay the foundation for the next 25 years, from India@75 to India@100. With PM's 'Gati Shakti National Master Plan', a INR100-lakh crore project for building comprehensive infrastructure in India, it will be a significant step towards the path to development. The Budget has attempted to focus on each of the sectors and has also tried to stimulate the economy after the pandemic slowdown. FADA welcomes and supports the Government's efforts & initiatives towards Electric Mobility. There is a clear emphasis on creative, sustainable & innovative business models. Battery Swapping & Energy as a Service (EAAS) will surely help accelerate the transition towards Clean Mobility. The development of special mobility zones for electric vehicles and promoting clean technology for public transport validate government commitment to E-mobility, which would boost confidence in the EV industry in terms of manufacturing, sales, and create a sense of assurance among customers. The government's plans for developing 25,000 kilometres of new highways will result in a push for infrastructure spending, which will result in an increase in Commercial Vehicle sales, as well as an addition of 2,000 kilometres of road under a new scheme known as 'Kavach' will be an additional benefit to the revival of this segment. With the extension of the ECLG scheme, it is a remarkable move by the government to support the MSME sector coming out of the slowdown caused by pandemic."

Vinkesh Gulati, President, FADA

"SIAM welcomes a growth-oriented budget focused on Building Long Term Strength using Investment as the growth lever while maintaining policy stability and inclusivity. The 35% increased Capex outlay, major infrastructure projects like 25,000 km road construction, 100 Cargo terminals, Project Gati Shakti, 5G network, optic fibre cable laying and the recent PLI schemes are major positives. Leveraging Biomass and support to ethanol blending for both environment and economy gains could unlock the power of India's rural economy. Steel price cooling off measures will help the entire manufacturing sector. Impetus to charging infrastructure and energy storage systems and government support in R&D for clean energy, green mobility and semiconductors will help the auto sector. We will work with the government for policy on green mobility, special mobility zones and battery swapping. We welcome the message on Ease of Doing Business and look forward to this being observed in spirit by all departments."

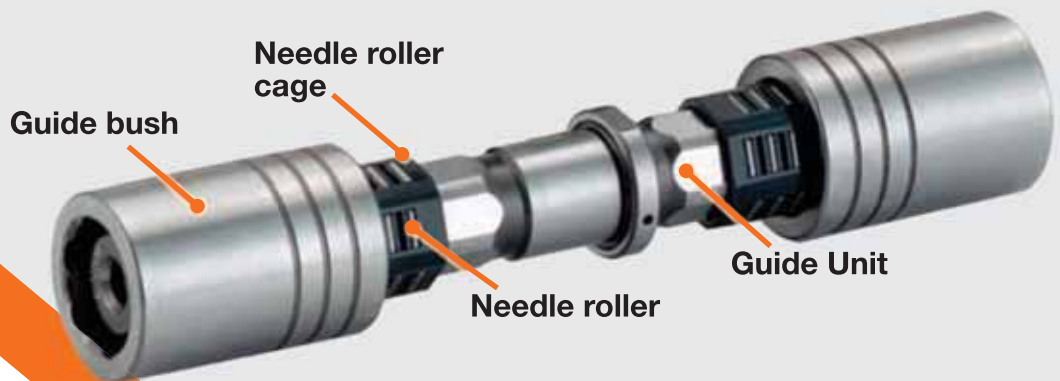
Kenichi Ayukawa, President, SIAM

"The Union Budget 2022 will have a multiplier effect on several sectors and keep the country's recovery momentum going. The Finance Ministry's increased focus on infrastructure development aligned with the PM Gati Shakti programme will help accelerate the process of economic revival and create employment. We are also hopeful that the increased infrastructure development will reduce logistic costs and make India's manufacturing sector more competitive. Some of the measures announced in the budget will also boost public investments and help provide impetus to economic growth."

Vineet Agarwal, President, ASSOCHAM

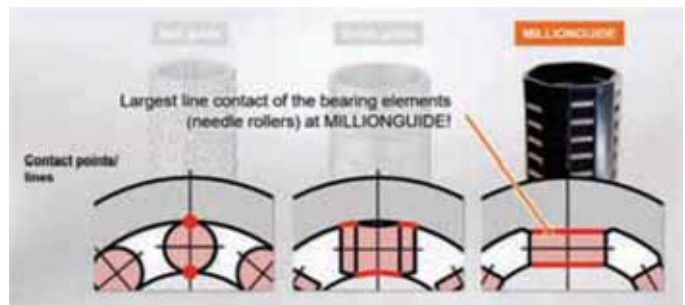
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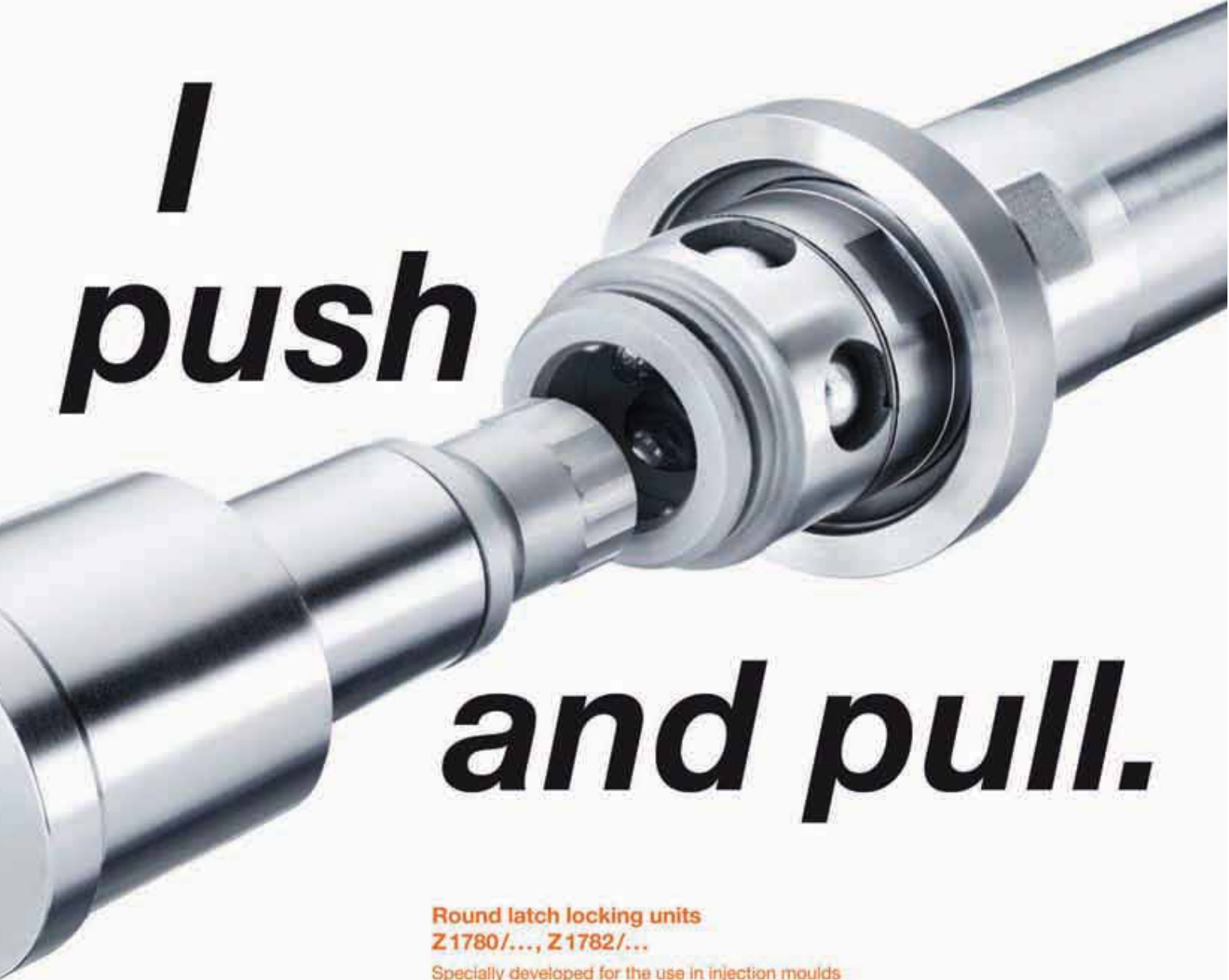


Provisions for MSMEs

The manufacturing industry and various associations have applauded the Union Budget 2022-23, which has provisions in place for Micro, Small & Medium Enterprises (MSMEs). MSMEs have been contributing immensely to the economic and social evolution of India. "The Union Budget 2022-23 highlights the MSME sector, a vital sector that makes up for about 45 per cent of the country's total manufacturing output, 40 per cent of exports, and almost 30 per cent of the national GDP," stated Invest India, a national investment promotion and facilitation agency.

According to Invest India, the budget covered the following points with regards to the MSMEs:

- ▶ Udyam, e-Shram, National Career Service (NCS) and Aatmanirbhar Skilled Employee Employer Mapping (ASEEM) portals will be interlinked, and their spectrum will be broadened. They will now serve as portals with live, organic databases, delivering G2C, B2C, and B2B services. These services will relate to credit facilitation, skilling, and recruitment to formalise the economy and improve entrepreneurial opportunities.
- ▶ Emergency Credit Line Guarantee Scheme (ECLGS) has delivered the much required additional credit to more than 130 lakh MSMEs. This has allowed them to mitigate the unfavourable influence of the pandemic. The hospitality and corresponding services, especially those by Micro and Small Enterprises (MSEs), are yet to regain their pre-pandemic business level. Regarding these factors, the ECLGS will be extended up to March 2023, and INR 50,000 crores will expand its guarantee cover to a total of INR 5 lakh crore, with the additional amount reserved exclusively for hospitality-related enterprises.
- ▶ Credit Guarantee Trust for Micro and Small Enterprises (CGTMSE) scheme will be revamped with funds infusion. This will stimulate additional credit of INR 2 lakh crore for MSEs and boost employment opportunities.
- ▶ Raising and Accelerating MSME Performance (RAMP) programme with an outlay of INR 6,000 crore over five years will be rolled out. This will enable the MSME sector to become more resilient, competitive and efficient.



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Union Budget in Focus

"The government has been doing wonderful work in relation to assisting manufacturing growth, and particularly for MSMEs, who are the backbone of this manufacturing ecosystem. I had expressed my views before the Budget came out this year, and one of the top suggestions I had was to improve the credit facility made available to MSMEs. I'm very glad that the government has put great focus on MSME revival as well as nurturing them over the next 5 years. The credit guarantee trust announced in this Budget is likely to help many deserving MSMEs to grow further. The initiative of rating MSMEs will also be undertaken in the coming years and this should allow timely help to the MSMEs without delays and extensive paperwork. Digitisation on the governance front will also help MSMEs receive payments and funding with much more ease than before. The announcement of 6000 crores for the above initiatives goes to show that the government is focusing on the need of the hour and beyond, with the goal of helping MSMEs succeed."

Vineet Seth, Managing Director, Mastercam India Private Limited

"Union Budget 2022-23 is very encouraging and growth-oriented. It offers a strong handholding to various sectors of the economy. The enhanced Capex outlay of 35% over last year will have a multiplier effect on the core infrastructure projects, viz., road construction, railways, and ports. Also, the opening up to 5G and its derivatives will prove to be positive for the economy. Inclusive development, concessional tax rate for newly incorporated manufacturing companies, the PLI scheme to encourage manufacturing in new sectors is also a positive move towards promoting the 'Make in India' initiative and creating more skilled jobs as well. A welcomed budget for a brighter future!"

Parveen Satija, Managing Director, Stitch Overseas Private Limited

"Union Budget 2022-23 is a promising budget for the industry. Extension of the ECLGS and its guarantee cover, revamping and infusing funds into the CGTMSE scheme and aspiring to make the MSME sector more resilient, competitive and efficient through the RAMP... all these provisions will help MSMEs stay relevant and become more competitive. Pushing for digital initiatives to skill up, reskill and upskill via online training and encouraging start-ups to facilitate Drone-as-a-Service (DrAAS) are incredible announcements. The PM Gati Shakti programme is a transformative approach for economic growth and sustainable development. India needs such programmes to ensure holistic development."

Ravindra Moolya, CEO, Speroni India Pvt. Ltd.

The Analysis

Union Budget 2022-23 aims to complement macroeconomic growth. The Finance Minister, in her Budget speech, announced policies for specific sectors to support their recovery and boost their growth. In the words of Vivek Prasad, Markets Leader, PwC: "Budget 2022 highlights the government's thrust on building a robust foundation for a pro-development, growth-oriented economy and provides a blueprint for a #FitForFuture India."

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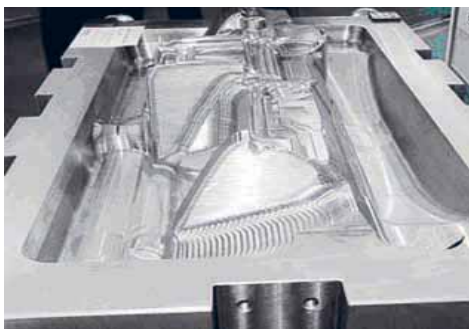
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Union Budget 2022-23:

A stepping stone for Indian manufacturing

The Indian manufacturing sector is poised to grow and Union Budget 2022-23 has laid the foundation for it. But merely making provisions will not be sufficient. The manufacturing sector needs government support at the policy level in order to flourish.



Image Courtesy: Press Information Bureau

Union Minister for Finance and Corporate Affairs Smt. Nirmala Sitharaman addressing a Post Budget Press Conference, in New Delhi, on February 01, 2022.

Honourable Finance Minister Smt. Nirmala Sitharaman presented her fourth consecutive Budget on February 1, 2022. Union Budget 2022-23 is distinctive for the following reasons:

1. Smt. Nirmala Sitharaman is the first woman to present four consecutive Union Budgets.
2. Budget 2022-23 proposed the highest Capex outlay ever and increased by 35.4% compared to the previous year.

3. This Budget laid the foundation for 'Amrit Kal', i.e., India@75 to India@100.

Union Budget 2022 focuses on the revival of the economy and ensuring sustained growth. However, such revival is possible only when the manufacturing sector is adequately supported. The measures announced in the Union Budget 2022 undoubtedly encourage the manufacturing sector and are expected to bolster its growth.

The four priorities emphasized in the Budget indicate

Management Mantra

a clear thrust on the manufacturing sector. They are aimed at the manufacturing sector reaching USD1 trillion. The four priorities are:

- ▶ PM GatiShakti - is driven by seven engines, namely, roads, railways, airports, ports, mass transport, waterways, and logistics infrastructure.
- ▶ Inclusive development - agriculture, food, education, health and welfare.
- ▶ Productivity enhancement & investment, sunrise opportunities, energy transition, and climate action - ease of doing business and ease of living.
- ▶ Financing of investments - prioritising capital expenditure.

Ease of doing business 2.0

To enhance ease of doing business in India and increase productive efficiency, Budget 2022 has relied on 'trust-based governance'. As a result, the number of compliances for a business is reduced significantly. Further, the government's thrust on 'minimum government and maximum governance' would help the industries effectively utilise human capital and funds in the business.

Extension of Emergency Credit Lending Guarantee Scheme (ECLGS)

This scheme was launched to support MSMEs facing the brunt of the pandemic. Budget 2022 has earmarked an additional outlay towards this scheme, and the Scheme is extended up to March 2023. The extension of ECLGS is a welcome measure and provides more borrowing opportunities to the manufacturing sector.

Revamping of CGTMSE

The manufacturing sector, particularly MSMEs, will have additional credits with the revamping of the CGTMSE Scheme and additional outlay announced in the Budget.

National Skills Qualifications Framework (NSQF)

The new-age businesses are dynamic. There is a need for one to skill, upskill, reskill constantly. The Budget proposed to align the National Skills Qualifications Framework (NSQF) to the industry's needs. The alignment of NSQF with the industry needs will provide a better skilled workforce to the manufacturing sector.

Drones

The Budget announced the promotion of drones, deployment of drones in agriculture - Kisan Drones, offering Drones-As-A-Service (DrAAS). Drones, as an industry, provide enormous manufacturing opportunities. The relevant laws on the operation of drones in India are already in place, and India can truly be 'aatmanirbhar' in drones.

Design-led manufacturing scheme and Production-Linked Incentive (PLI) Scheme

To create a robust ecosystem for 5G technology, the Budget has announced a design-led manufacturing scheme as part of PLI scheme. In addition to the above, the allocation towards the PLI scheme is enhanced for local manufacturers. The PLI scheme has enhanced manufacturing opportunities in India and is expected to increase fourfold in the coming year.

Reduced rate of tax

Any manufacturing company established on or before March 31, 2023 shall enjoy a reduced rate of corporate tax, i.e., 15%. This provides substantial cash savings and working capital benefits to the manufacturing sector. The regular rate of tax is 25%.

Start-ups

One of the eligibility requirements for a start-ups to get recognised as a start-ups was that the company was required to be incorporated on or before March 31, 2022. This condition has been relaxed, and the timeline has been extended by a year to March 31, 2023, in the Budget. This move was a much required one considering the tax exemption a start-ups can enjoy. The manufacturing sector can take a larger share in this.

Capex outlay

The outlay for capital expenditure in the Union Budget is being stepped up sharply by 35.4% - from INR 5.54 lakh crore in the previous year to INR 7.50 lakh crore in 2022-23. This has increased to more than 2.2 times the expenditure of 2019-20. This outlay in 2022-23 will be 2.9% of GDP. The CAPEX enables increased demand from large manufacturers, percolating into business to MSMEs and the services sector.

Conclusion

The Indian manufacturing sector is poised for growth. With the trust deficit in China, India has excellent chances to replace China and be a world leader in manufacturing if India makes the right move. Union Budget 2022 has laid the foundation for that. However, this is not sufficient. The manufacturing sector needs a lot more support at the policy level. The government must strengthen the ecosystem by enabling easy credit, more incentives, fostering innovation, research, and appropriate infrastructure. 🌈

About the Author

Ms. Kavitha P. is a Partner at T. Sriram, Mehta & Tadimalla Chartered Accountants.

‘The tooling requirement for toys is tremendous’



“A majority of toys, especially plastic toys, need moulds. And, no toy is made with just one mould. If I remember correctly, in January 2020, we had a meeting with the ministry during which we had told them that about 400 thousand toys are introduced in India every year. Now, if we do the math, we are looking at 1.5 million tools every year,” says Manish Kukreja, President, The All India Toy Manufacturers Association (TAITMA) and CEO, Min Toy Pvt. Ltd.

Q There has been significant development in the Indian toy making industry in recent years. For instance, India’s first SEZ for toymakers was inaugurated in Karnataka and about 14 toy clusters across the country have been approved. What are your views on the emerging trends in the global toy making industry vs the Indian toy making industry?

If you read history books, you will realise that India’s history with toys dates back to the Harappa civilisation. So, toys have been an integral part of our culture.

Around the early 70s, China took the lead. It formulated a toy policy and supported many domestic players. I think one of the reasons it did

that was because toys are considered a stepping stone for the modernization of any country. If we look back at history, our modern toys used to come from Germany, the US, the UK, and Japan, among others, which are all industrialised nations.

After going through a study conducted over 10 years, we realised toys were given a lot of importance in China because manufacturing toys requires managing a lot of small components. This, in turn, results in skill development. What China did in the 1970s, the Government of India is now aiming to achieve with the Skill India Program.

Today, China is earning the dividends. Of the 100-billion-dollar global toy industry, India doesn’t even have 1% of the market, whereas China has about 80%. India has so much to catch up on. China’s technological advances are high.

But all said and done, I still feel the toy industry is a sunrise industry in India. We are not even at the tip of the iceberg. However, we have the potential to grow at least 100 times the current size; it’s a huge industry. But for this we need a lot of government support.

Tool Talk

In the last two or three years, ever since the Prime Minister spoke about toys, the industry has come under the limelight. Toys used to be at number 19 on India's top-20 list of imports, which includes oil, gold, and telephones, among other products. Today, thanks to the Prime Minister, we are above the champion sector.

The toy industry needs auxiliary units just like in the automobile industry. Maruti gave a completely new concept of how the industry should function. It roped in suppliers for engines parts, headlights, brake pads, seats, and tyres, among others. Over the years, these companies, along with Maruti, have grown and become experts in their field. This is something the toy industry needs today.

Q According to a survey conducted by FICCI-KPMG, the Indian toy market, which is currently estimated at \$1 billion, has the potential to double itself by 2025. As a toy manufacturer, what do you think will die and toolmakers have to contribute to support this growth?

As a toy manufacturer, I would say we need a lot of support from the tooling industry. Let me give you an example. In 2019, we needed moulds for a new product range, but the moulds were delayed by more than 18 months. I finally managed to get it done only by 2021. Such delays are very common in the toy industry. This is probably because in India, we still do not have that kind of demand and so, toolmakers are not very focussed on the toy industry. Secondly, I think it's a low-ticket product. I mean, you're looking at a product that sells anywhere between INR 5 to INR 20,000. Most of our sale happens in the range of INR 500. After that, the sales start falling because of the ticket size of the product.

We are a little hesitant to reach out to the good, organised players because of their mould and the tool cost involved. Also, there is a fear of someone copying the product. If we conceptualise any product and spend a good amount on tools, we are not sure if we will be able to enjoy the market, as there are chances it will get copied. It just kills the product for us. So, we have asked the government regarding patent support to protect the originality. We have given an entire game plan for that and are seeking the inclusion of NID and IITs in it.

“With improved quality, we can definitely compete with China. In fact, there are many manufacturers in the country who are now exporting toys from India to China. I think that ever since the government took up toys as a major industry, we've had a lot of registrations.”

Q Recently, it was reported that India declined toy imports for the first time in the last three years. Also, a significant number of MSMEs have registered as toy manufacturers. How do you foresee the future of the Indian toy manufacturing industry?

Our market is spread out as 15% domestic and 85% international imports. I think the main reason for the fall in toy imports this year was because the pandemic impacted international trade. Also, because of the pandemic, with most of us working from home, parents understood the importance of toys in a child's life. If children couldn't play with other kids and had to stay indoors, how does one keep them busy? Consequently, domestic sales started picking up as toy imports were affected. So, definitely the domestic toy market witnessed growth.

The government also played a role here. In 2015-16, the government set standards for about 255 products, toys being one of these products. We wholeheartedly welcomed the move. Now, thanks to the government, everyone has to comply with the set standards if they want the quality of their products to go up. With improved quality, we can definitely compete with China. In fact, there are many manufacturers in the country who are now exporting toys from India to China. I think that ever since the government took up toys as a major industry, we've had a lot of registrations. There are probably about 5000 to 6000 newly registered companies. But we are not sure about how many have obtained a BIS licence, which is required to manufacture toys in the country. However, I have come across many companies that became component suppliers because they are too small to obtain a BIS licence.

All in all, there's so much to learn and the future is definitely bright for the Indian toy manufacturing industry. And, with China drifting away from manufacturing low-cost toys, I see a huge opportunity for Indian toy manufacturers. We need to step up.

Q What are the various types of toys in the market? What kinds of tooling would be required for the same?

The variety of toys is enormous. A toy shop will have toys made of wood, metal, plastic, etc. Foam toys are big hit too! Besides, you will also find paper mesh toys. Nowadays, do-it-yourself (DIY) toys are also finding many takers. Many children are showing interest in Science, Technology, Engineering, and Math (STEM) as well as Science, Technology, Engineering, Art and Math (STEAM) toys. They provide children with creative activities to keep them busy during the lockdown. So, you see, it's a huge variety we roll out.

The tooling requirement for these toys is tremendous. A majority of toys, especially plastic toys, need moulds. And, no toy is made with just one mould. If I remember correctly, in January 2020, we had a meeting with the ministry during which we had told them that about 400 thousand toys are introduced in India every year. Now, if we do the math, we are looking at 1.5 million tools every year.

Q That's a high figure! Where are Indian toolmakers currently sourcing tools from? Do you think Indian toolmakers are competent enough to serve the growing demands of the toy manufacturing industry?

Definitely! Indian toolmakers are competent enough to serve the needs of the toy manufacturing industry. I visited TAGMA India's flagship exhibition, Die & Mould India, where I also met one of my tooling vendors. At the exhibition, I saw some critical tools on display. I also met many good toolmakers. So, I am confident that we have enough toolmakers in India, who can serve the demands of the toy manufacturing industry.

I will give you my own example. A toolmaker I finalised for my project promised to deliver the tool within 45 days. I was ready to wait for the 90-day period, as is the norm. However, to my surprise, he delivered the tool within 41 days. He even said, "I could have finished it in 37 days." He also apologised for the four-day delay. I was taken aback because I was not prepared for this with finance, etc. That's the kind of improvement we have seen in the quality and delivery of Indian toolmakers.

So, the capabilities are definitely there. It's the will we are looking at. That's the thing. Yet, so

many new toy manufacturers are importing second-hand moulds from China because:

1. It's cheaper.
2. It's a tried-and-tested product, so they don't have to invest in R&D.
3. And, the third is there's no lead time as such. It's a readymade product.

Within 3 weeks you get the mould in your factory and start manufacturing toys. It's that simple. But a majority of us are looking at Indian mould makers for tools. However, I believe many toolmakers are not considering the toy manufacturing industry as their major customer because our tools are very small and they mostly deal with more complex and bigger tools.

Q What percentage of tools required for the Indian toy manufacturing industry is met by domestic players and how much does it import?

With the registered members that we currently have, I would say close to 80% are from domestic players and 20% are imports. But with the new players, I have seen most of them are importing used tools from China.

Q Do toymakers consider making tools in-house?

In my opinion, toy manufacturers usually prefer to outsource moulds to a tool room. It's always better to let the experts handle it. As a toy manufacturer, I could design a new product, or even introduce some innovation in my toys. But I would rather not attempt somebody else's job, because they will definitely do a better job than I could.

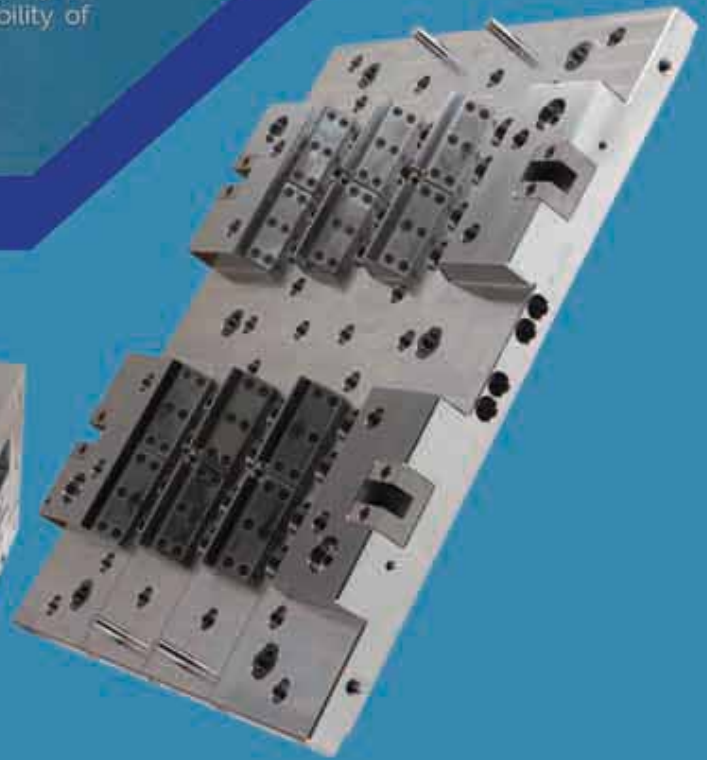
However, I know a few companies that have their own tool rooms, but they are mostly for maintenance or preventive work rather than making new moulds. So, if a toy manufacturer, with a product range of 400 or 500, has about 4000 moulds, he can have a small tool room in-house. So, if, for example, an ejector pin breaks or a spring gets damaged, he can get the repairs done in-house, rather than sending it back to the tool room.

In the past, I have seen a lot of toy manufacturers, who invested heavily in tool rooms, fail miserably. So, the general trend is that toy manufacturers don't want to invest in the tools in-house; they would rather get it done by expert toolmakers.

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Q What matters the most when selecting a tooling partner?

Apart from quality and delivery, the cost of the mould matters the most. Our ticket size is very small and it's not like a basket or a tray that's going out in bulk. For about 5000 pieces of one particular toy, I spent about INR 10 lakh on a mould for it. A week later, when I'm yet to reap the benefits of this particular toy, my client calls me asking, "What else have you got?" So, price is definitely the most important factor.

Q According to you, how could TAITMA and TAGMA work together for the benefit of their members?

Our industry depends on tools. With TAGMA being at the forefront of the Indian tooling fraternity, I see lots of synergies between the two associations. Our members are always looking out for a good tool manufacturer and probably need some forums to interact with toolmakers.

I think TAGMA can play a prominent role here. We can have a pilot project or start off small, build confidence and help members from both the fraternity. As the President of TAITMA,

I am very much looking forward to working with TAGMA for the betterment of our members.

Q Any suggestions for Indian toolmakers?

Yes, of course! But with the suggestions, I'll give my requirements too.

Our first priority is timely delivery because we are competing with China, which can innovate and release products in the market in no time. They have massive factories and a developed ecosystem. So, I think timely delivery of moulds is critical.

Another factor is accuracy. I don't think I need to speak much about accuracy because I have seen some moulds with high accuracy. Unfortunately, many believe you don't need accuracy for toys. But that's a very incorrect notion. In fact, toys need more accuracy because they have tiny components that have to fit in perfectly. The final product should look even. The assembly should be simple too.

Back-end support is required. If a tool is damaged, our production schedule gets stuck. In such a scenario, we need toolmakers' support for maintenance and repair. 🇮🇳

The graphic is a promotional poster for TAGMA India. At the top left, it says 'TAGMA INDIA' in large blue letters. To its right, in smaller black text, is 'TOOL AND GAUGE MANUFACTURERS ASSOCIATION - INDIA'. Below this, the heading 'Become a TAGMA Member' is written in bold. Underneath, it says 'Enrol now, to be part of the Tooling Fraternity by following simple procedure:' followed by a numbered list: '1) Fill the online Membership Application' and '2) Pay requisite fees depending on your company's turnover slab (NEFT details available online)'. Below the list, it says 'For any further details (if any) please feel free to contact us on:' followed by 'Email: tagma.mumbai@tagmaindia.org; tagma.diemould@tagmaindia.org' and 'Mobile: 9769407809 / 9653427396'. On the right side of the graphic, there are several logos and illustrations. At the top right is the 'TAGMA DIEMOULD INDIA-2022' logo. Below it is the 'TAGMA TIMES' logo. Further down is the 'TAGMA INTERNATIONAL Tooling SUMMIT' logo. At the bottom right is the 'TAGMA CET' logo, which is a circular seal with text around the border. In the center-right, there is an illustration of a modern office or factory interior with people working at desks and machines.

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‘The Indian die and mould industry is now rapidly expanding’

“A little over a decade ago, we (CAD/CAM technology professionals) were among the very first to ask the tooling industry to look at the upcoming aerospace market as a domain to expand into – and the success of this is already visible. Similarly, the time is ripe for the die and mould industry in the country to continue to adopt newer technologies and foray into niche, high-precision markets, like in the past,” says Vineet Seth, Managing Director, Mastercam India Private Limited.

Q What are your views on the Indian tooling industry and expectations from 2022?

In the past two years, because of the pandemic, a slowdown was witnessed across the globe. But I believe that this year will be instrumental in restoring growth rates across domains. I expect that we should be back to pre-COVID normalcy before the end of this year, if not earlier. In India particularly, 2022 is important from the point of occupying opportunities created as a result of the pandemic and establishing manufacturing excellence across these new opportunities.

Further, travel is bound to pick up pace in the coming months. This means that there will be an uptake in the transport and hospitality domains. Consequently, consumer growth will also pick up, thereby increasing the demand for consumer goods. Interestingly, computers and computer accessories have been in high demand during the pandemic, and there may possibly be a small correction in this domain this year.

On our business front, we expect to grow in double digits in 2022 and our team is ready to meet people and help them grow in double digits too.

Q What are the trends shaping the Indian die and mould industry?

The Indian die and mould industry has always been a frontrunner when it comes to adopting the latest technology. It is therefore natural that modern manufacturing methods are being adopted across this industry with technologies such as multi-tasking machining, metal additive manufacturing, industry 4.0 practices, robotic automation & handling as well as modern metrology systems.

The Indian die and mould industry is now rapidly expanding into toy making, medical tooling and also defence manufacturing. There is enough potential in the domestic market alone for the above, and it will go a long way in shaping the die and mould industry in the country.

Leaders Speak

A little over a decade ago, we (CAD/CAM technology professionals) were among the very first to ask the tooling industry to look at the upcoming aerospace market as a domain to expand into – and the success of this is already visible. Similarly, the time is ripe for the die and mould industry in the country to continue to adopt newer technologies and foray into niche, high-precision markets, like in the past.

Q What are the challenges faced by the Indian tooling industry?

One of the most important challenges faced by toolmakers in our country is the high raw material (steel) prices. In addition to these, certain imported parts are also seen as a challenge due to the high lead times these present. I reiterate that there are also challenges with making the right investment as far as technology goes. Many tool rooms make a short-term or myopic investment, which does not carry them far and long. A forum to address this “decision-making” gap should probably also exist – as a part of local manufacturing clusters or centres of excellence in manufacturing.

Q What will you be showcasing at the upcoming Die & Mould India exhibition?

We will be demonstrating the latest version of Mastercam – Mastercam 2022, alongside a preview of Mastercam 2023, which is due for release later this year. Both the releases feature new functionality focused on delivering speed and efficiency in programming and machining. This release is also special, as it has seen the maximum amount of customer and industry input that have shaped this release. The enhancements include – OptiRough Toolpath for 2D users, faster and more flexible multi-axis programming, advancements in modelling and enhanced intelligence, and automation in the software.

Q What role do you think does Die & Mould India play in the Indian die and mould industry? How has this event helped you over the years?

I have always maintained that Die & Mould

India is a flagship event, and, over the years, has become an irreplaceable part of the Indian die and mould industry. A focused event for everything related to tool and die making, this event gathers specialists in the business under one roof for four days to facilitate collaboration, trade, innovation, and fraternity.

Some of the best minds in the industry work with each other thanks to this event and the result of which is progress, as we have come to see in our die and mould segment. Visits by leading industrialists, policy makers and media further allow the tooling industry to have a common voice for the domain’s achievement and needs.

We have been a part of Die & Mould India events from nearly the beginning and we continue to be a part of it today. As someone who has seen this industry grow and transform over the past 25 years, very closely, I give the well deserved credit, to the founding members of TAGMA and the office bearers and officers over the past many years, who brought in recognition, growth, respect and most of all unity within the tooling industry in the country. We have been a part of this community for over two decades and have been enablers in our own respect by offering globally acclaimed solutions and local expertise to the tooling industry at an affordable cost, while constantly ensuring high availability of technical support.

We are therefore recognised as reliable solution providers, who look beyond just commercials, to ensure that success is ongoing for this domain.

Q How would you describe the business outlook of the Indian tooling industry?

Overall, I think that the coming years will be very important for the tooling industry to spread its wings into profitable and high-demand domains. Medical tooling, toys and devices, and aero-defence tooling are now picking up pace. This should impact the domain positively and propel young as well as established companies on the upward curve. 🌈



Abhijith Bhat N.,
Managing Principal, Manleo Designs

About the Indian tooling industry

Relying on crude, conventional methods in processes can lead to lower productivity, reduce ability to scale and accept a bigger share of high-precision, as compared to other countries that are adopting technology and doing this competitively. But I believe that 2022 will be a very positive year for the Indian tooling industry. All the data and reports point towards increased machining. This is further accentuated by the impetus given by the government encouraging more and more people to become entrepreneurs. Besides, the forecast of most of the top MTBs indicate that they are looking at manufacturing and also exporting more; they are investing heavily in newer, bigger infra and tech centers. The trends that we see for the industry include: key stakeholders like MTBs, tooling companies wanting to be one-stop solution providers to customers, digital marketing as a powerful tool to connect and expand businesses, and lastly, more and more companies viewing automation, and technology as an investment, and an enabler rather than as a cost.

About Die & Mould India

The die and mould industry is witnessing contracts from customers, who are demanding quality and precision. As a result, we are seeing more and more people willing to adopt automation, technology, and innovation to help them meet the customers' revised standards. I believe that affordable, reliable probes and tool setters can help die and mould industry reduce their rework and rejection cases by more than 75%. This will be our first time as an exhibitor at Die & Mould India and we are looking forward to meeting newer clients. Our customer profile has a substantial share of die and mould customers. We have already met more than 2000 customers in last 2-plus years and are aware of their problems and challenges. Through our affordable solutions, which we will showcase at Die & Mould India, we are excited to be able to contribute.



Anubhab Hazra,
Managing Director, ZWINDIA

About the Indian tooling industry

The pandemic has made the Indian die and mould industry realise that it's not very wise to depend on one sector. As a result, now, apart from the automotive sector, they have expanded their horizons and are exploring sectors such as packaging consumer goods, home appliances and the medical field. Besides, because of curtailment in imports, there is a huge scope for these abovementioned sectors. The Indian market is self-sustaining, and so, post-COVID, the Indian tooling industry is bound to grow. The industry, however, faces challenges in terms of adaption of new technology and availability of skilled manpower.

About Die & Mould India

Die & Mould India gives everyone a platform to meet other fellow toolmakers and technology providers across India. Over the years, the event has helped the members to grow their business. In the upcoming Die & Mould India exhibition, we will be showcasing complete solutions from concept design to prototyping, product, mould & electrode design, mould flow, simulation, machining, CAM programming, 3D collaboration tools and additive manufacturing. At the exhibition, we look forward to meeting clients and collaborating with new partners.



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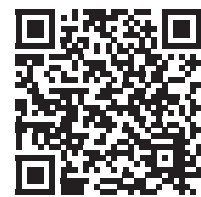
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A.R. Bhujbal,
Sales Manager, Nakashi CNC

About the Indian tooling industry

The Indian tooling industry has certainly come a long way. It is now contributing significantly to the manufacturing GDP. Over the years, its technology adoption rate has also improved. For instance, earlier, only a few components were manufactured using CNC machines. But now, the industry is increasingly switching over to CNC to gain a competitive edge. I feel that in the coming days, the industry will invest more on high-end automated technologies to enhance efficiency and accuracy. However, to play a more prominent role in the global tooling industry, we need to work on some of the challenges that we still face, such as trial and error approach, inability to invest, and unavailability of trained manpower, to name a few.

About Die & Mould India

Die & Mould India has been a great experience for us. It not only gives us a platform to learn about various solutions but also helps us understand the expectations of our customers. So, if you're looking to gain more knowledge about the industry, Die & Mould India is the place to be. Also, I can definitely say that it's an ideal exhibition if you're looking to promote your solutions and increase your customer base. At the upcoming show, we will be showcasing our latest 5-axis CNC machine.



Nadir Khan,
Manager, NCBrain India

About the Indian tooling industry

The Indian tooling industry is poised for growth. Toolmakers have understood that customers now give more importance to quality rather than only quantity. That's why a lot of toolmakers are using good quality machines and tools to get the machining jobs done. Investing in advanced technologies will not only help toolmakers achieve their target, but will also help them enhance their efficiency and improve their accuracy. However, to be at par with their global counterparts, they will need to focus on redressing issues related to infrastructure, availability of skilled manpower, etc.

About Die & Mould India

When we started our business in India, we found it difficult to reach out to every customer to show our technology. But participating in Die & Mould India over the years made this possible for us. At the exhibition, we have been able to reach out to customers all over India under one roof. This year, we plan to connect with more customers and showcase our latest AICAM software for CNC machining for die and mould machining to them.

Exhibitors' Views



Pradeep Singh Marwaha,
Partner, Liba Enterprise

About the Indian tooling industry

The Indian tooling industry shows promising potential for growth in 2022. I see the Indian die and mould industry moving towards adopting more and more advanced technologies. The industry is highly focussed on reducing the time and costs, while enhancing its efficiency and accuracy. Gauging from the kind of demand we have, I feel the business outlook for the Indian tooling industry is definitely positive. It is most likely going to grow at 20% YOY in the coming years. However, there are some challenges it faces, especially with regard to finding skilled manpower. We need people, who are not only passionate about the job but are also skilled enough to carry out some of the complex tooling operations.

About Die & Mould India

We have been regularly participating in the Die & Mould India exhibition for years. This flagship event has helped us understand the customers' expectations as well as given us a glimpse of the trends in the industry. At the Die & Mould India exhibition, we learn about the advanced machineries and precision tools available in the market. At this year's show, we will be showcasing our mould designing, mould manufacturing capabilities related to various consumer durables products, and also industrial moulding for telecom companies.



Raktim Baruah,
General Manager, Mersen India Pvt. Ltd.

About the Indian tooling industry

The Indian tooling industry is a significant contributor to the country's manufacturing GDP and will remain vital to the nation's progress and prosperity. The Indian die and mould making industry has evolved over the years and today, competes on a global stage. However, there are still some challenges it faces in terms of achieving a high degree of sophistication and technological precision. I believe the growth of the automotive industry and rising industrial automation in India will offer immense growth opportunities to the tooling industry.

About Die & Mould India

We will be showcasing our range of premium Graphite EDM electrodes at the upcoming Die & Mould India. It will be a great opportunity for us to demonstrate our solutions in front of a wider and more focussed audience during the show. DMI is a big stage to bring the best in the industry together. For us, this event has always been a brand enhancer.

Exhibitors' List

Member Name	Stall No.
3S PLASTOCRAFT LLP	E20
A.G. INDUSTRIES PVT LTD	G07
ABBOTT TOOLFAST PVT LTD	A26
ABHIJEET DIES & TOOLS PVT LTD	G13
ABHINITEE INDIA	A51
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ACME TOOLINGS	G44
ADROIT CONTROL ENGINEERS PVT LTD	B37
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AMPCO METALS INDIA PVT LTD	H03
ANAND MOULD STEELS PVT LTD	F04
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APM TECHNOLOGIES	D50
ASHNA ENTERPRISES	A21
ASIAN LASER	A31
ATQ METRO	H13
AUTOFORM ENGINEERING INDIA PVT LTD	E75
AUTOMAC SERVICES	B11
AVI SALES CORPORATION	A32
B. S. STEEL CORPORATION.	C11
BALAJI ENGINEERING	H14
BALAJI METALS	E22
BANGALORE BHAT METALS	G20
BHARAT TECHNOPLAST PRIVATE LTD	D13
BLUECHIP INFOCORP PRIVATE LIMITED	A49
BLUM NOVOTEST MEASURING AND TESTING TECHNOLOGY PVT LTD	G01
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BRAHMAND SOLUTIONS	A34
CAD CAM GALAXY	A36
CAD MACRO DESIGN & SOLUTIONS (P) LTD	A13
CADBRO INDIA	B40
CAM TOOLS INDUSTRIES PVT LTD	E11
CAPARO ENGINEERING INDIA LIMITED	C18
CAUTONI SWASTIK INSTRUMENTS INDIA PVT LTD	G23
CHETOCORPORATION, S.A	D10
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CORETECH SYSTEM CO.LTD	A54
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DESIGN TECH SYSTEMS PVT LTD	C29
DEVU TOOLS PVT LTD	F05
DIETECH INDIA (P) LIMITED	B12
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DIJET INDUSTRIAL COMPANY LIMITED	G08
DME INDIA PVT LTD	A50
DMG MORI INDIA PVT LTD	C01
DRIVES & DRIVES	E28
DYNAMIC DIES AND MOULDS LLP	C04
DYNASCAN INSPECTION SYSTEM CO	G17
EASTMAN PRECI TOOLING	A41
EIGEN	E29
ELECTRONICA HITECH MACHINE TOOLS PVT. LTD	H1-2
ELECTRONICA INDIA LTD	B06
ELIN ELECTRONICS LIMITED	H07
ELTEC ENGINEERING	B14
EMPIRE MACHINE TOOLS	B24

Member Name	Stall No.
ESCHMANN TEXTURES INDIA P LTD	C25
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GIRDHARILAL AGRAWAL & CO	E09
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GOEL STEEL COMPANY	D05
GPY MACHINE TOOLS PVT LTD	D45
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HASCO INDIA PVT LTD	D43
HELLI MOULDS	A14
HEXAGON MANUFACTURING INTELLIGENCE	E67
HIRAOKA HYPER TOOLS INC	A17
HITACHI METALS INDIA PVT LTD	B02(b)
HITECH TOOLS	E27
HONGADA HIBOOTOLS INDIA PVT LTD	H11
HOTMOLD ENGINEERING INDIA PVT LTD	E12
HTS HOT RUNNER SYSTEMS	B39
HURCO INDIA PRIVATE LIMITED	D01(a)
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HWACHEON MACHINE TOOLS INDIA PVT LTD	B04
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INDO GERMAN TOOL ROOM	C12
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IONBOND COATINGS PRIVATE LIMITED	C27
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JISAN TRADE	E78
JUPITER TOOLING	C24
JYOTI CNC AUTOMATION LTD	E02
JYOTI SOLUTIONSWORKS PVT LTD	B25
KALYANI MOULD BASE PVT LTD	E03
KAMDAR BROTHERS OVERSEAS PVT LTD	B30
KEN ICHI MACHINES CO.LTD	G09
KINEMATICS MACHINES PVT LTD	D04(a)
KISCO CASTINGS (INDIA) LIMITED	D40
KISHORE INDUSTRIES PVT LTD	A08
KORLOY INDIA TOOLING PVT LTD	B07
KRISHNA INTERNATIONAL	A39
KUSHAL METAL & STEEL INDUSTRIES PVT LTD	D09
LAKSHMI LIFE SCIENCE LIMITED	C14
LAKSHMI MACHINE WORKS LTD	D01
LAKSHMI VACUUM TECHNOLOGIES PVT LTD	B28
LASER TECHNOLOGIES PVT LTD	A16
LAXMI ELECTRONICS MOULDS & PRECISION ENGG PVT LTD	D42
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MADHU MACHINES & SYSTEMS PVT LTD	D04
MAG INDIA INDUSTRIAL AUTOMATION SYSTEMS PVT. LTD.	G12
MAHARASHTRA SCOOTERS LTD	G11
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MARPOSS INDIA PRIVATE LIMITED	C07
MASTERCAM INDIA PVT LTD	G06
MASTERCRAFT ENGINEERS PVT LTD	B09
MAXEFF ENGINEERING PVT LTD	A59

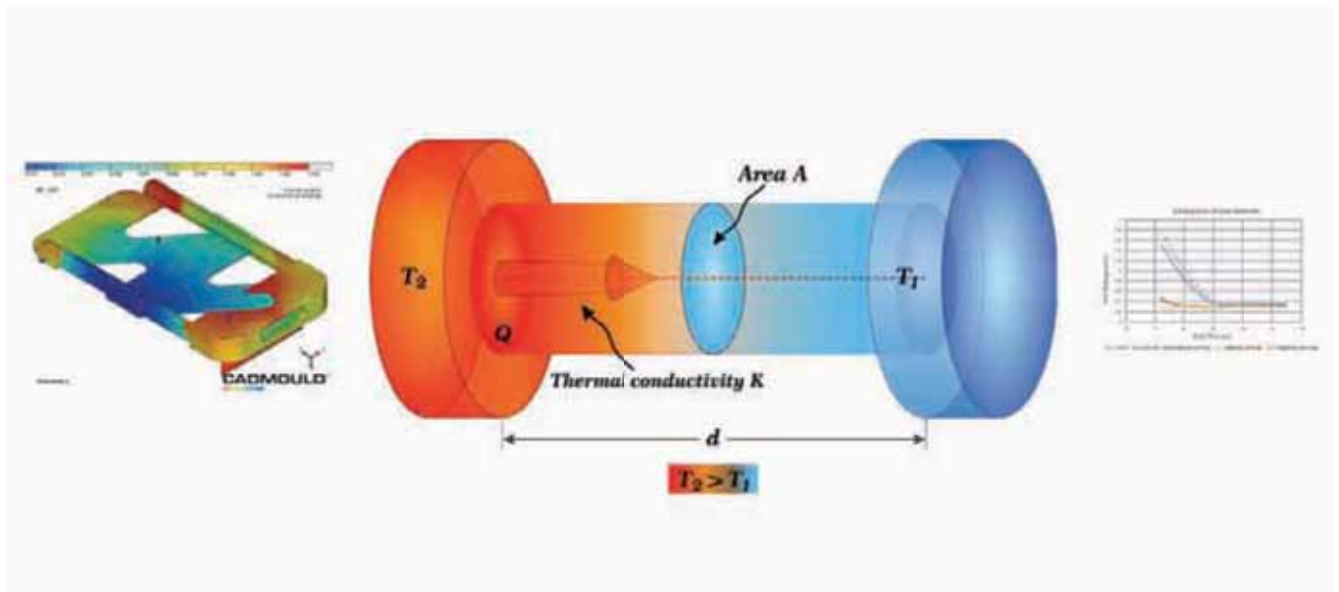
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MC MACHINERY SYSTEMS INDIA PRIVATE LIMITED	D02
MECHANITE ENGINEERING SOLUTIONS	B17
MECHASOFT	B27
MECHMATRIX	H15
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MISUMI INDIA PVT LTD	C19
MITUTOYO SOUTH ASIA PVT LTD	B29
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MOHINDER AGENCIES	C11
MOLDWELL PRODUCTS INDIA PVT LTD	E71
MULTIPLE SPECIAL STEEL PVT LTD	C03
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N S PRECISION WORKS PVT LTD	A15
NAGATA INDIA PRIVATE LIMITED	F08
NAKASHI CNC	A55
NAMBANG CNA	C33
NCBRAIN INDIA SOFTWARE PVT LTD	D49
N-GRAVETEK	F15
NICKUNJ EXIMP ENTP P LTD	G30
NINGYUAN MACHINE TOOLS PVT LTD	B49
NRB - IBC BEARINGS PVT. LTD.	E37
NTTF	F12
OERLIKON HRSFLOW INDIA	D53
OILMAX SYSTEMS PVT LTD	H10
OM ENTERPRISES	G38
OM STEEL ENTERPRISES	E13
OM-SAI MOULDS & PLASTICS	E73
ONS ENGINEERS & CONSULTANTS	A37
OPEN MIND CAD/CAM TECHNOLOGIES INDIA PVT LTD	F13
OPPTUM ENGINEERING SOLUTIONS PVT LTD	A44
ORANGE CITY ALLOYS PVT LTD	G02
OTTO BILZ INDIA PRIVATE LIMITED	G24
PAHWA METAL TECH PVT LTD	A19
PARAM MACHINING TECHNOLOGIES PVT LTD	C28
PAWAN INTERNATIONAL	A30
PCK BUDERUS (INDIA) SPECIAL STEELS PVT LTD	E05
PERFECT ENGINEERS	F19
PHILLIPS MACHINE TOOLS INDIA PVT LTD	F02 & H2-3
PI-TECH SERVICES	A18
PLANETTO TOOLTECH PVT LTD	B19
PLASSTEZE	B08
PLASTIPACK INDUSTRIES	G18
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RIGHT ANGLE DIES	E34
RIYA ELECTRODES PVT. LTD.	H02
ROBIN PRECISION PRODUCTS PVT. LTD.	B18
RONCH ABSOLUTE TOOLS PVT. LTD.	B26

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RONTEGEN METALWORKING SOLUTIONS PVT. LTD.	A09
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SAHAS SOFTECH LLP	B44
SAKSHI STEEL N ALLOYS	B10
SANDEEP ENTERPRISES (A UNIT OF VISION VANIJYA PVT. LTD.)	F06
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SETCO SPINDLES INDIA PVT. LTD.	C30
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SHIVAM TOOLS & STEELS	H3-3
SHREEDA ENTERPRISES	C31
SIDDHI TOOLS	A48
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STITCH OVERSEAS PRIVATE LIMITED	A01
STORE SUPPLY (INDIA) AGENCY	D39
SUBROS LIMITED	B48
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SWIT	A04
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SYSTEM LEVEL SOLUTIONS (INDIA) PVT. LTD.	H3-1
TARA TOOLS	A56
TECHNOCART ONLINE SERVICES PVT. LTD.	H1-3
TGK SPECIAL STEEL PVT. LTD.	D09
TITAN COMPANY LIMITED (WATCHES DIVISION)	G41
TOPSOLID INDIA	G46
TROKUT SOLUTIONS PRIVATE LIMITED	A42
TRUCUT PRECISION TOOLS PVT. LTD.	H06
TRUCUT TOOLS INDIA PVT. LTD.	A40
TTB TOOLING	H1-7
USBCO STEELS PVT. LTD.	E08
VANTO INDUSTRIES PVT. LTD.	G03
VARDHAMAN ENTERPRISES	H09
VASA SPECIALITY STEELS PRIVATE LIMITED	G53
VASANTHA TOOLS CRAFTS PVT. LTD.	C08
VEM TOOLING INDIA PVT. LTD.	D56
VENUS DIES & MOULDS PVT. LTD.	G28
VIJAYDEEP MOULD ACCESSORIES PVT. LTD.	G05
VINPAK MACHINES PVT. LTD.	A25
VISHAL PRECISION PRODUCTS PRIVATE LIMITED	C34
VOESTALPINE HIGH PERFORMANCE METALS INDIA PVT. LTD.	C05
WIMI INDUSTRIES PVT. LTD.	A05 & G14
Y N J INDUSTRIES	A35
YAMAZAKI MAZAK INDIA PRIVATE LIMITED	B01
YASH TOOLS (I) PVT. LTD.	G49
YUDO HOT RUNNER INDIA PVT. LTD.	E06
ZAHOBRANSKY MOULDS AND MACHINES PVT. LTD.	H3-2
ZECHA PRECISION TOOLS LIMITED	B15
ZONAP ENGINEERING	B34
ZOOM TECHNOLOGIES	E17
ZWINDIA SOFTWARE SOLUTION PVT. LTD.	G56

Copper: The secret weapon of injection moulding

When it comes to injection moulding, a main characteristic you want to be looking for in materials is thermal conductivity. If plastic objects are to be manufactured, the molten plastic needs to cool down as quickly as possible to increase productivity. It turns out that there is a prime candidate for industrial heat exchanging among metals, and it is called copper.



The reddish-gold metal we call copper is the first metal that humans ever worked on. Primarily found in minerals, copper is malleable. It was first hardened by adding tin to create the alloy we call bronze, after which an entire historical period is named. Nowadays, copper is used mainly in electrical equipment, such as wiring and motors. When it comes to industrial machinery, heat exchangers are the main use of copper. Why exactly is that?

Copper used for injection moulds

Machinery parts involved in heat exchange, like injection moulds, need to be highly conductive, machinable, and resistant to corrosion. Copper has a notable thermal conductivity of almost 400 (W/(m*K)), and a great electrical conductivity of 5.96×10^7 σ (S/m) at 20° Celsius. Thanks to its excellent thermal conductivity combined with its malleability, copper is the best choice for injection moulds. It can increase

production speed by 15-40% because it can be heated and cooled very quickly. The only problem is that with its great malleability comes a slight deficit in hardness. Therefore, copper is often mixed with other materials to make it stronger for different kinds of industrial uses, which results in considerably useful materials. These materials are not only highly conductive, they also do not produce sparks, are nonmagnetic, and resistant to corrosion, which make them usable for many different purposes.




What are the special applications in the plastics industry?

80% of the beryllium used in Europe is used in beryllium-copper alloys (0.1%-2.0%), which are used to exploit an unsurpassed combination of physical properties to produce highly reliable components of systems. Beryllium-copper has established itself in the plastics industry and is mainly used in the manufacture



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 Makino India Pvt. Ltd.

Date: 27th - 30th April

Hall No: 1, Stall No: E01

Venue: Goregaon, Mumbai

of inserts in steel and aluminium moulds for higher cooling rates in critical areas, sealing tools, cooling inserts, nozzles and needles for hot-runner systems, injection moulds and blow moulds in the high-pressure range, and many more such areas requiring higher thermal conductivity and wear resistance for faster cooling and longer life.

The advantages of beryllium-copper in the plastics industry are:

- ▶ It is known to produce the highest quality plastic parts, and minimum total production costs compared to other competing moulding materials.
- ▶ Optimal combination of hardness, wear resistance, thermal fatigue, and thermal conductivity.
- ▶ High thermal conductivity compared to steel, which leads to significant advantages in minimising the distortion of the part, spatial control and cycle time.
- ▶ Longer tool life and less downtime due to slow thermal fatigue.
- ▶ Higher productivity and efficiency.
- ▶ Excellent resistance to the corrosive by-products of moulding operations, such as hydrochloric acid.
- ▶ High strength and wear resistance offer superior performance in neck, thread, and bottom areas when combined with other materials.
- ▶ Beryllium-copper inserts and moulds can be joined together and repaired by resistance welding, TIG and MIG welding. However, precautions must be taken against softening and oxidation of the material. Additive metal of the same alloy should be used, and oxides, oil and dust should be removed from the parts before welding.
- ▶ Overall, it can be said that beryllium is a very useful material that has to be handled with some care. Its health hazard should be taken into account, but most of the time, beryllium is not dangerous, and if the right measures and precautions are taken, working with and using beryllium is not problematic. Nevertheless, there are alternatives to it if you prefer not to.

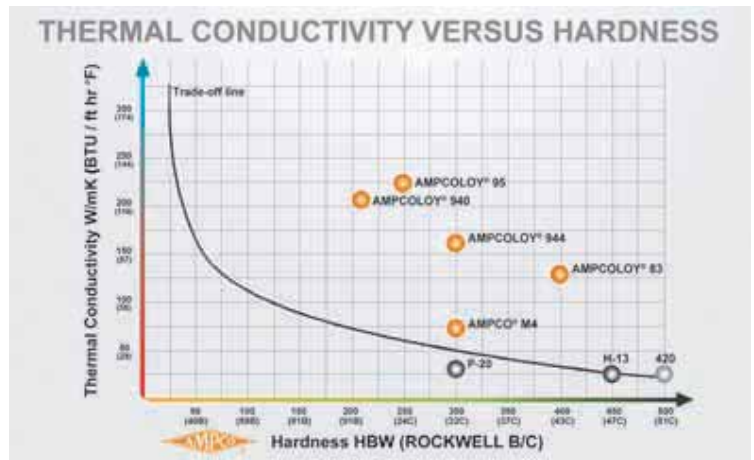
Are there alternatives to beryllium-copper?

AMPCO METAL introduces copper-nickel-silicone-chromium alloy developed as an alternative to beryllium-copper for industrial applications requiring

Did you know?

- ▶ **Annealed copper (H040) has a minimum hardness of 40HV and a minimum tensile strength 200 N/mm² (R200).**
- ▶ **Fully cold worked copper (H110) has a hardness of 110HV minimum and a tensile strength of 360 N/mm² (R360) minimum.**

a combination of strength and high thermal conductivity. These unique properties of AMPCOLOY® 944 are attained through specially developed and proprietary manufacturing processes and complex alloy compositions. This new copper alloy, AMPCOLOY® 944, provides the right balance between an average hardness of 28 HRC and a thermal conductivity of 150 W/m*K, 4 to 5 times greater than P20 tool steel, and electrical conductivity of app. 35% IACS.



Copper saves resources and is environmentally friendly

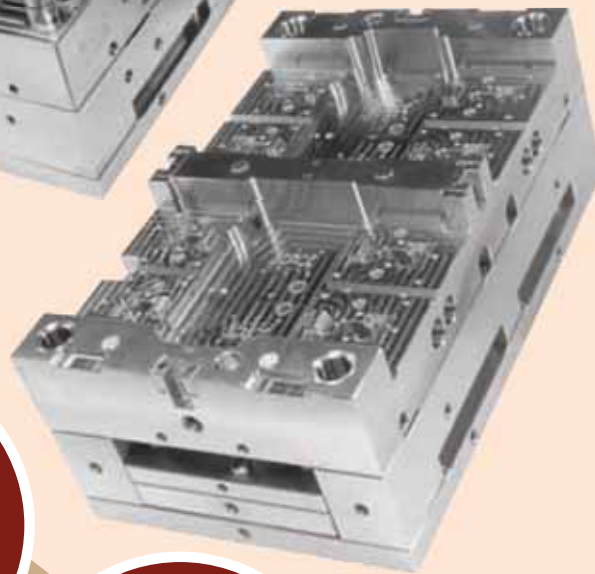
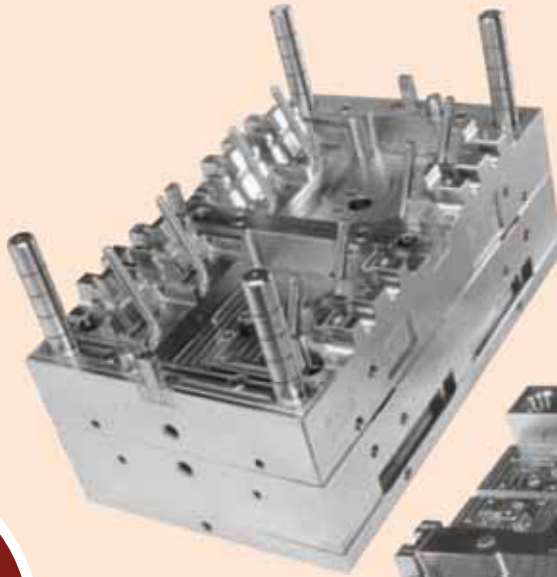
Copper is not only the ideal material for heat exchange and many other uses, but also the material of the future, partly because it is used so frequently in renewable energy systems. According to the European Copper Institute, copper consumption will rise by more than 40% until 2035. It also helps that copper can be recycled without any loss of performance, which requires up to 85% less energy than primary production. In conclusion, it seems obvious that if you work in the industrial sector, copper should definitely be on your radar, especially if you work in the plastics industry. 🌱

Article and Images Courtesy AMPCO India

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National:

DIE & MOULD INDIA 2022

The Tool And Gauge Manufacturers Association (TAGMA) – India is organising the Die & Mould India 2022 Exhibition. Started in 1998, this event has helped tooling companies showcase their state-of-the-art technology, engaging a wider audience. It is India's largest exhibition for the tool and die fraternity and provides opportunities for all the associated businesses to display and market their products/services.

Date: April 27-30, 2022
Venue: Bombay Exhibition Centre, Goregaon, Mumbai.

Contact Details:

TAGMA INDIA

A-33, NandJyot Industrial Estate, Safed Pool, Andheri-Kurla Road, Mumbai - 400072.

Tel: +91-22 28526876, 28508976
 +91-22-28503273

Email: tagma.diemould@tagmaindia.org

Web: www.diemouldindia.org

IMTEX 2022

Imtex Forming 2022 is organised by the Indian Machine Tool Manufacturers' Association, which serves as an important platform for the machine tool industry by showcasing the latest technologies in metal

forming such as innovations in metal forming technologies, robotics and automation and so on. Tooltech 2022, a concurrent event of dies & moulds, forming tools, machine tool accessories, metrology and CAD/CAM will be held simultaneously.

Date: June 16-21, 2022

Venue: Bangalore International Exhibition Centre (BIEC), Bengaluru.

Contact Details:

Indian Machine Tool Manufacturers' Association

10th Mile, Tumkur Road
 Madavara Post,
 Bengaluru.

Tel: +91 - 80 - 6624 6600

Email: info@imtex.in

Web: www.imtex.in

Asian Machine Tool Exhibition (AMTEX) 2022

The Asian Machine Tool Exhibition (AMTEX) 2022 is dedicated to exploring the technological innovations and opportunities of the global machine tool sector, on a single platform. The highlight of the event will be the unique experience created for the exhibitors and business visitors, through sessions of Networking and Knowledge sharing.

Date: July 22-25, 2022

Venue: Pragati Maidan, New Delhi.

Contact Details:

RX Triune

#25, 3rd Floor, 8th Main Road,
 Vasanthnager, Bangalore, 560052.

Tel: +91 999 092 0490

Email: vicky.kumar@rxglobal.com

Web: www.amtex-expo.com

Rajkot Machine Tool Show (RMTS) 2022

The Rajkot Machine Tool Show (RMTS) 2022 shall unveil the latest manufacturing technologies and machine tools solutions, which would enable large industries and other Small and Medium Enterprises (SMEs) to leverage and enhance their manufacturing capabilities. The expo will cover the entire gamut of machine tools, ancillary industries and other technologies essential for tomorrow's manufacturing.

Date: September 21-24, 2022

Venue: NSIC Ground, AJI GIDC, Rajkot, Gujarat.

Contact Details:

K and D Communication Limited

206, 2nd Floor, Harmony Icon, Near Baghban Party Plot, Thaltej-Hebatpur road, Thaltej, Ahmedabad 380059, Gujarat.

Tel: +91 990-904 1613 / 18

Email: info@kdcglobal.com

Web: www.kdcglobal.com

International:

INTERMOLD OSAKA (2022) / Die & Mold Asia OSAKA (2022)

The INTERMOLD OSAKA (2022) / Die & Mold Asia OSAKA (2022) international is an exhibition for the die & mould and associated industries. The event provides an ideal platform to explore business opportunities in the Japanese market.

Date: April 20-23, 2022

Venue: Port Messe Nagoya, Tokyo.

Contact Details:

INTERMOLD Development Association
 1-2-15, Otemae, Chuo-ku,

Osaka 540-0008, Japan.

Tel: +81-6-6944-9911

+81-6-6944-9912

Web: www.intermold.jp

SIMTOS 2022

THE 19th Seoul International Manufacturing Technology Show (SIMTOS) is organised by the Korea Machine Tool Manufacturers Association (KOMMA). In the show, the exhibited items will cover the full range of the industry, from metal processing machinery to process control & processing technologies, automation, tools & peripheral devices, SW, element parts, etc.

Date: May 23-27, 2022

Venue: Korea International Exhibition Center, South Korea.

Contact Details:

Korea Machine Tool Manufacturers Association

6 Fl., 13, Iljik-ro 12beon-gil,
 Gwangmyeong-si,
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4	BRAKES INDIA PRIVATE LIMITED	Chennai
5	CRAFTSMAN AUTOMATION LIMITED	Coimbatore
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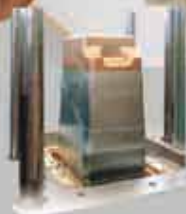
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Yield strength Rp 0.5	MPa	517	725	750-1000
Elongation A5	%	13	5	3
Brinell hardness	HBW 10/3000	210	294	270-320
Rockwell hardness	HRB	95	106	103-107
Modulus of elasticity	GPa	131	135	127
Density ρ	g / cm³	8.71	8.7	8.7
Coefficient of expansion α	10⁻⁶ / K	17.5	17.5	18.1
Thermal conductivity λ	W / m · K	208	156	100
Electrical conductivity	% I.A.C.S.	48	30	17

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