

# THE MACHINIST

RNI NO 71129/98  
www.themachinist.in

Volume 17 Issue 5 • May 2022 • Rs 75

## DATA PRIVACY

Exposing the vulnerable firewall of Indian manufacturing

## Industry Insight

How start-ups are setting back the growing EV two-wheeler market

## MANUFACTURING ROBOTICS

How cobots can change the face of Indian manufacturing

## “LEVERAGE INNOVATION TO BRING POSITIVE CHANGE TO ENVIRONMENT AND SOCIETY”

An exclusive interaction with **Rajeev Chaba**, President & Managing Director, MG Motor India, discusses his journey, the innovations made, covid-revival strategies and more.



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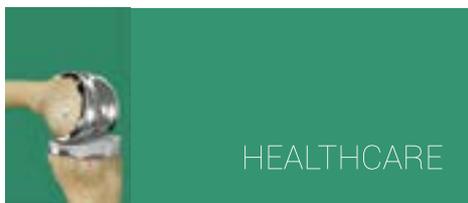
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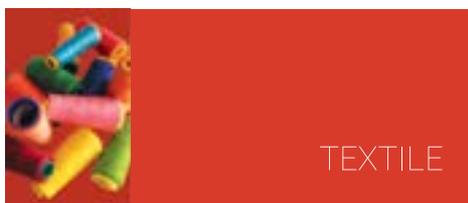
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## INDIA'S UNICORN BUBBLE!

**T**he '90s witnessed a "dotcom bubble" involving an influx of investments in internet-based businesses. Bubbles commonly occur when the price of an investment vastly outpaces its actual value—in this case, the value of internet-based businesses. Cut to the 21st century, the world is witnessing a similar situation but in a much-reformed way – the "Unicorn (start-ups valued at \$1 billion or more) Bubble". The sudden emergence of dotcom then and unicorns worldwide, including in India, have some stark similarities. Many investors poured money into these highly speculative companies despite showing little to no potential for profitability. And when the bubble burst (in the case of unicorns, it is yet to burst), it led to the economic recession in 2001.

In a recent report by Entrackr's data tracking platform Fintrackr, of the 100 unicorns in India, only 18 unicorns were profitable in FY21, and 57 are deep in losses. Interestingly, 60 per cent of these start-ups entered this coveted club of unicorns only in the last 17 months. Meanwhile, a few weeks back, the country witnessed the birth of its 100th unicorn when Google-backed neobank Open raised funds. These unicorns have raised over \$80 billion from investors to date, creating a total market value of more than \$300 billion. The data in possession with TM is significant because some unicorns that have been listed on the stock exchange have confronted an investor backlash for not managing to achieve company-level profitability. Analysts at many securities and research firms have criticised the high cash-burning models of these unicorns. For instance, in a note in February, Macquarie Group said profitability for Paytm remains a "distant reality" because of its pricey employee stock option plans (ESOPs) and a "sub-scale" loan distribution business.

In this edition, we have an in-depth story on why two-wheelers, from Indian start-ups particularly, caught fire? The report brings in various fake claims by fly-by-night EV players who were reckless about passenger safety despite non-disclosure agreements, putting on display passenger data, making a mockery of data privacy. What's more? Also covered in the edition is an exclusive interview with Rajeev Chaba, President & Managing Director, MG Motor India, as he talks about how the business has thrived despite the pandemic and other roadblocks.

To sum up, this edition covers various topics from agriculture innovation, sustainability, tooling & CNC to data privacy and I hope you enjoy this reading this edition as much as we enjoyed putting it together. Do share with us your opinions, comments and thoughts at [rahul.kamat@wwm.co.in](mailto:rahul.kamat@wwm.co.in)

*Rahul Kamat*  
Editor

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Printed and published by Sunil Wuthoo for and on behalf of owners Worldwide Media Pvt Ltd (CIN:U22120MH2003PTC142239), The Times of India Building, Dr DN Road, Mumbai 400001. Printed at Print Plus Pvt Ltd, 212, Swastik Chambers, S T Road, Chembur, Mumbai- 400 071.

Editor: Rahul Kamat. Published for April 2022.

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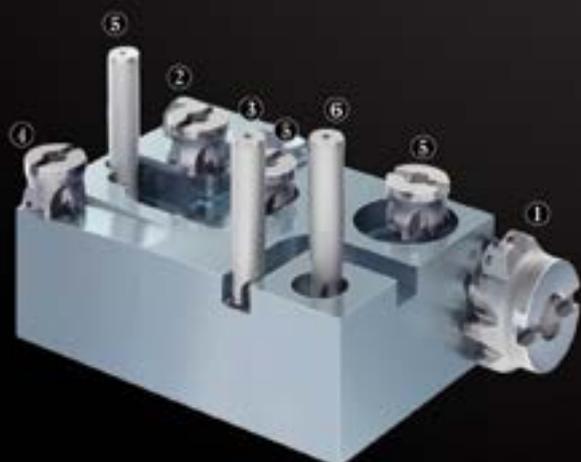
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## Continental Inaugurates Rs 200-Crore Greenfield Surface Solutions Plant in Pune

**TECHNOLOGY COMPANY CONTINENTAL** inaugurated its greenfield plant in Pune, India, manufacturing surface solutions materials mainly for the Indian automotive and two-wheeler market. With investments totalling about Rs 2 billion (more than 20 million Euro) covering facilities and machinery, Continental will produce premium surface materials for car interiors, including electric vehicles and two-wheeler seats, catering primarily to the domestic market and exports.

Continental offers a wide range of premium quality surface solutions to ensure that customers have various interior combinations options to attract car buyers. Compared to natural leather, the company's surface material products are durable, innovative, easy to maintain, and affordable.

The new location is Continental's 16th surface solutions plant globally, producing well-known surface materials like Acella Eco used by worldwide top car manufacturers and automotive brands.



The 149,000 square feet (approx. 14,000 square meters) manufacturing facility, with an initial annual capacity of five million square meters of surface material, can be scaled up to 10 million square meters. Landry Tchabda, head of the surface solutions plant management, explained, "The new plant features best-in-class energy efficiency standards, sustainable production processes, an ergonomic work environment, 100 per cent sewage and wastewater treatment as well, exhaust air treatment of all processes, and use of energy from a renewable source."

He also mentioned, "With a skilled

workforce and cutting-edge technology at our disposal, our production is world-class, to cater to the requirements of our customers. In addition to production, storage, logistics, purchasing, and sales, we have also scheduled resources and capacities for laboratories, design and product development. India is a promising market to grow."

The new surface solutions plant in Pune will primarily manufacture Acella Eco and Acella Lux materials, which add aesthetic value to vehicle interiors. Eco-friendly foam foil Yorn and Yorn Light will also be produced in the near future.

## ABB Inaugurates India's Largest Innovation Centre



**ABB HAS INAUGURATED** a new and expanded R&D and engineering facility, the ABB Innovation Center (AIC), in Bengaluru, India. This state-of-the-art facility is one of ABB's largest globally

and serves as the backbone for technology developments to accelerate innovation. It houses 2,500 diverse technologists, including engineers, principal and data scientists, architects, domain and analytics specialists, programmers, and developers.

The new AIC facility, spread over 3,30,000 sq. ft across eight floors, offers a work environment and eco-system for open and seamless collaboration. This facility aligns with ABB's sustainability commitment to enable a low-carbon emission society. More than 25,000 ABB products, including 3,000 IoT-enabled products used in the Building Management System (BMS), offer savings of 20 per cent in energy bills with a potential of saving 40 per cent on maintenance costs and up to 30 per cent on operational costs.

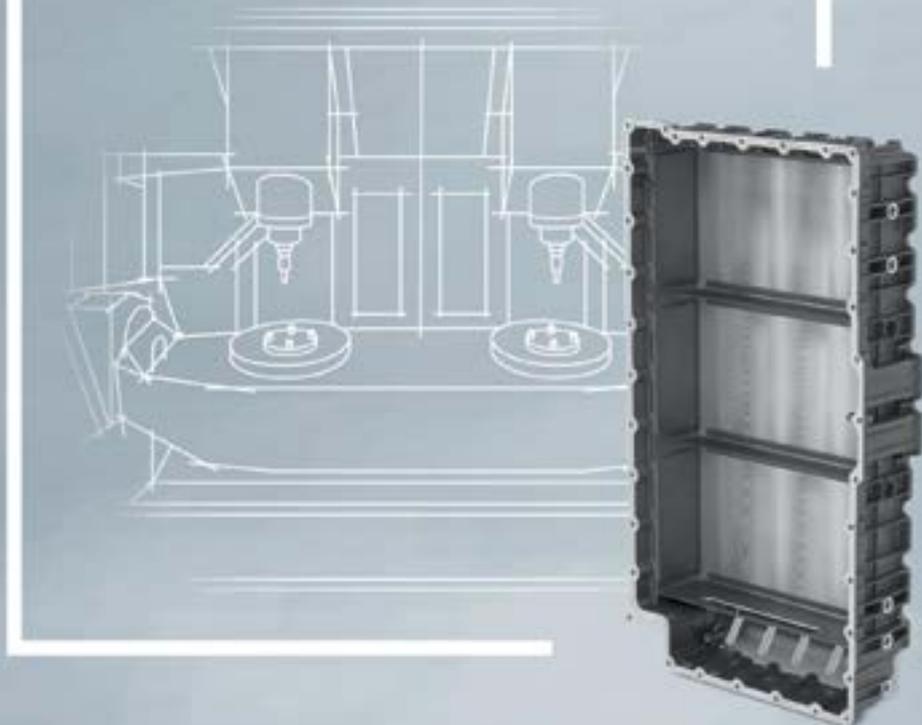
AIC's three strategic arms - the Corporate Technology

Center, India Operations Center and Process Automation Digital have been instrumental in: -

- Providing solutions with next-level AI, ML, data analytics, 3D and digital wins, multiphysics modelling & IIoT tech
- Industry-academic partnerships with top-rated Indian institutions
- Playing a key role in the development of ABB's global digital solutions like ABB Ability® Genix – the industrial analytics and AI suite
- Worked on innovations like the next generation of solar pump drives used across multiple geographies
- Remote condition monitoring of 8,500 robots across 42 countries & simulation software for multiple robotics applications
- High-quality engineering, operations, and services support process automation businesses globally
- Catering to ABB's Electrification (EL) and Motion (MO) business areas with Centers of Expertise in several critical streams

AIC has been designed at par with USGBC's mission to transform the way buildings and communities are designed, built, and operated to reduce contribution to global climate change and preserve resources.

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The Economic Times



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## CII EXCON To Aid India Become World's 2nd Largest CE Market



**EXCON 2022**, South Asia's largest construction equipment and technology trade fair, organised by the Confederation of Indian Industry (CII), is scheduled to be held from 17 - 21 May 2022 in Bangalore International Exhibition Centre (BIEC), Bengaluru.

EXCON 2022 will spread over 3,00,000 square meters of display area and is expected to attract over 1,000 exhibitors from India & abroad, including countries like the USA, UK, France, Germany, Italy, UAE, South Korea, Singapore and Sri Lanka. The five-day exhibition would attract over 40,000 business visitors from all over the world.

EXCON will exemplify the role of smart technologies and innovation in India's infrastructure development to achieve the vision of making India the global hub for construction equipment manufacturing by 2030.

Indian CE industry, being the third-largest market globally, currently holds a prominent position in the global CE landscape. The Government of India's ambitious INR 111 Lakh Crore National Infrastructure Pipeline would augur well for the Indian Construction Equipment industry to become the second-largest CE market globally, with a size of \$25 billion by 2030, said Kumar.

EXCON endeavours to build India's infrastructure ecologically sustainable, enabling projects on Smart Cities, supporting Swachh Bharat programs, promoting skill development and positioning 'Make in India' – as the national agenda for achieving holistic growth in the infrastructure and related sectors.

Some of the highlights of EXCON include an exclusive focus on alternate fuels, an AI pavilion, finance plaza, skills, women operating construction equipment and

machinery, equal opportunity awards for women, MSMEs, digital transformation, and sustainability & safety, among others.

Excon addresses both marketing and educational platform for all stakeholders. Government and senior bureaucrats capitalised on it as a knowledge platform for various departments (PWDs and civil engineering departments), private contractors, builders, road/ infrastructure developers, smart city/urban planning, army, border roads organisation, etc. to witness the latest technology, equipment and machinery display, which will enable accelerated Infrastructure development needs of the nation.

Leading construction equipment manufacturers at the exhibition would demonstrate the versatility of machines, sophistication in construction technologies and, more importantly, showcase the cost-effective solutions for builders and contractors for speedy implementation of projects with a focus on quality, safety and environmental sustainability. JCB, Volvo, Caterpillar, BEML, Kobelco, Puzzolana, Tata Hitachi, L & T, Schwing Stetter, Sany India, Ammann India, Case New Holland, Doosan, Mahindra, Terex, Wipro, Hyundai, Hailstone, Propel Industries, Manitowoc Cranes, KYB Conmat, Ajax Engineering, Everest Engineering, ICICI Bank, HDFC Bank, Tata Capital, BKT, ARX Mining, MRF, Escorts, Yuken India besides OEMs, Components manufacturer, Tyres, IT & Software, Lubricants, Attachments and other allied industry organisations are participating at the event.

Indian Construction Equipment Manufacturers' Association is the Sector Partner, and the National Highways Authority of India and Builders Association of India supports Partners for EXCON.

## HHV Bags Contract From GOI's Department Of Space

**HIND HIGH VACUUM (HHV)**, a global leader in vacuum and thin-film technology, has bagged a prestigious contract from the Physical Research Laboratory (PRL), a unit of the Department of Space,

Government of India, to manufacture and install dedicated mirror coating plant for PRL's upcoming 2.5-metre telescope. The telescope is a part of the Mount Abu Observatory, which is located at the Gurushikhar peak of Mount Abu, Rajasthan, at an altitude of 5,600 feet above mean sea level.

The mirrors of the telescopes are amongst the most important components to sense radiations from distant sources. These need to be coated with a reflective thin film that aids efficient light collection. The reflective coatings are prone to environmental degradation, which necessitates a re-coating. The existing coatings are stripped clean, and a fresh coating is then applied.

The vacuum deposition process applies these coatings to obtain the best properties in terms of reflectivity and durability. As the mirrors are sensitive and one of the most expensive components in the telescope assembly, the coatings are carried out on-site. Thus, a vacuum coater is stationed at on-site astronomical observatories for coating the mirror at regular intervals.

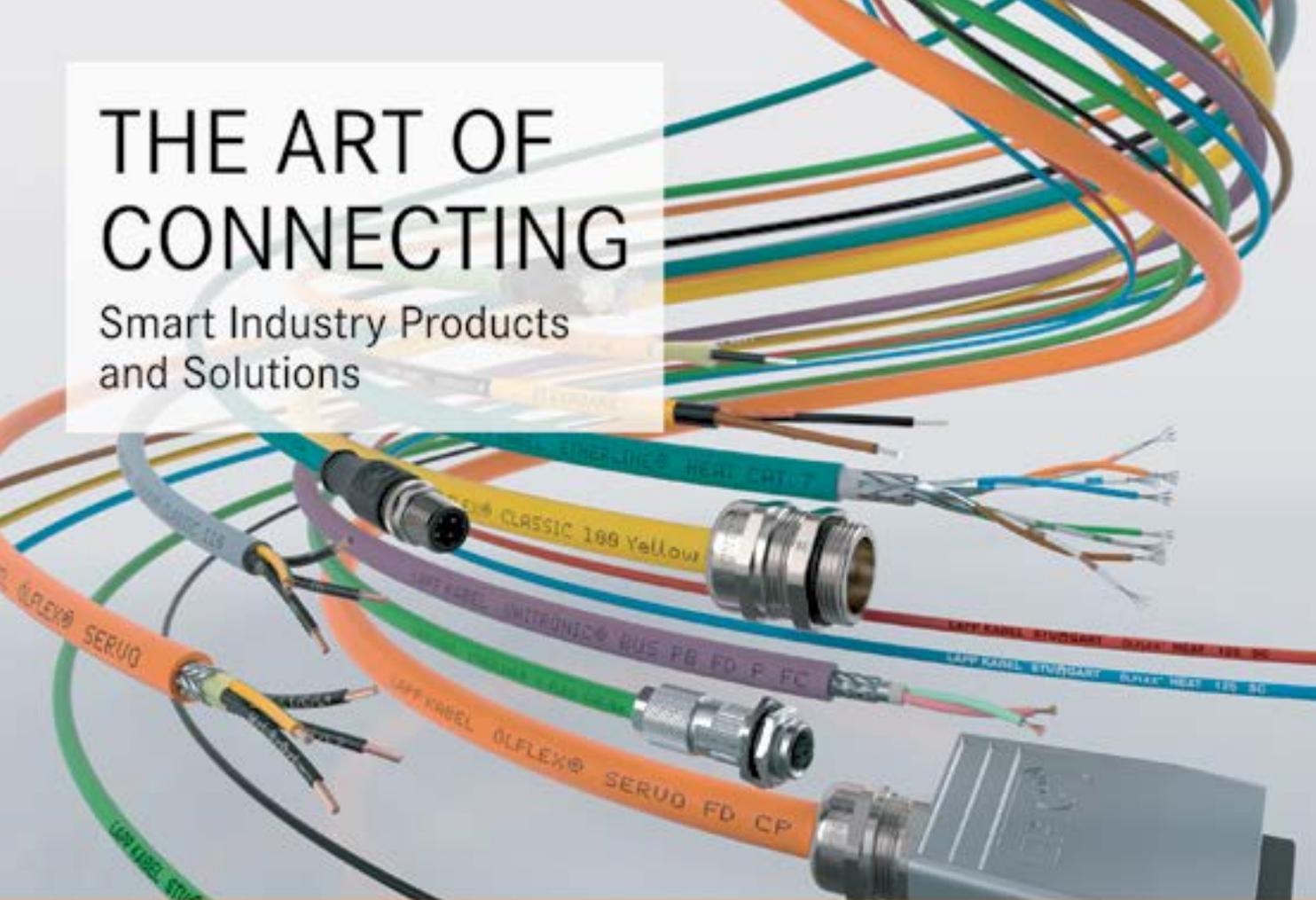
"The telescope mirrors the size of up to 3700 mm diameter and weighing more than 4,000 kg can be accommodated in HHV coating chambers with a maximum overall dimension of 4,000 × 2,100 mm. The coaters offer an automated and highly reliable process for coating mirrors with aluminium and/or silver-based coatings," said Prasanth Sakhamuri, Managing Director, HHV.

HHV is currently executing an order from PRL, Udaipur, to build a mirror coater for handling mirrors of different sizes going up to a maximum of 700 mm diameter.



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## Piaggio Delivers The First Lot Of Apé Elektrik To Customers Of The Switch Delhi Initiative



**PIAGGIO VEHICLES PVT LTD (PVPL)**, a 100 per cent subsidiary of the Italian Piaggio Group, along with the Government of Delhi handed over first batch of 11 Piaggio Ape' electric E-auto based on the exclusive permits issued by Government of Delhi to make Delhi the EV capital of India.

The event took place at IP Depot of Delhi Transport Corporation in presence of Arvind Kejriwal, Chief Minister of Delhi, Kailash Gahlot, Transport Minister, Government of Delhi, Manoj Sahai, Zonal Manager and Khushvir Sharma, Regional Manager, Piaggio India.

Speaking on the occasion, Saju Nair, EVP and Head Commercial Vehicle Business, Piaggio India said, "We are proud to be a part of Delhi's great initiative of controlling pollution and moving towards green mobility. The Delhi government has announced a lot of incentives for EV buyers like purchase incentive of Rs 30,000 per vehicle and subsidy of 5 per cent on interest for loans and/or hire purchase scheme."

The passenger vehicle, Apé E-City FX is the most profitable electric three-wheeler. Its superior features and comfortable ride ensure higher number of trips and best in class earnings. Ape' E-City comes with an easy home charging. The vehicle comes with warranty of three years / 1,00,000 km. Piaggio has set up exclusive Ape' Elektrik Centers across Delhi for sales & service support to its customers.

## TechNova Partners with Markforged To Offer 3D Printing Services

### ONE OF THE WORLD'S

leading suppliers of state-of-the-art solutions to the printing industry, TechNova Imaging Systems announced an alliance with U.S.-based Markforged, the creator of The Digital Forge, an integrated metal and carbon fibre industrial 3D printing platform.

Markforged offers an end-to-end 3D printing platform with its 3D printers, cloud-based software and a wide range of proprietary, manufacturing-ready materials. The Markforged solution helps manufacturers solve problems at the point of need by bringing mini-factories directly to the floor, shifting to digital inventory. Companies worldwide use Markforged's solution, The Digital Forge, in industries like aerospace, industrial automation, space exploration, military & defence and automotive to deliver mission-critical, end-use parts on-demand at the point of need.

In today's global market, this best-in-class additive manufacturing solution will empower Indian manufacturers and designers to rapidly bring composite and metal parts to market that are strong, lighter

than metal, easy to implement and operate, backed up by uncompromising service and support.

Ved Narayan, President, APAC, Markforged, said, "We're thrilled to be partnering with TechNova Imaging System to provide Indian manufacturers with the essential tools to unlock their manufacturing potential and help build the factories of the future. Our additive technology can solve critical manufacturing applications, and we are looking forward to spearheading improvement across India's manufacturing landscape. TechNova Imaging Systems has the experience, skills and ecosystem to help Markforged provide unprecedented access and support to the world's leading manufacturing providers."



Together transforming 3D Printing

## Honda India Power Products Forays Into Marine Outboard Business In India

**HONDA INDIA** Power Products has announced entry into the marine outboard business with its 4-stroke Marine Outboard Motors range in India from April 2022.

The Honda 4-stroke Marine Outboard Motor is the finest choice for boat operators participating in maritime border security, taxi boat operations in tourism & leisure applications, and workboat operators in commercial fishing. This cutting-edge, substantially superior technology aids in smooth and optimised performance and operation in both sea and inland river systems.

The marine industry is expected to rise to as high as Rs 1,400 crore, with HIPP aiming to capture a 10 per cent market share in the 4-stroke market in the first three years.



The announcement will strengthen a seamless voyage across India's vast coastline of over 8,000 km opening marketable opportunities in places like Kashmir, Andaman's, Goa, and Kerala to boost economic prosperity. The advanced hi-tech Honda 4-stroke OBM range is expected to emerge as a leading trade name in maritime activity in these areas.

Honda Marine Outboard Motors will be available for sales in India through our authorised Sales and Service Dealer, M/S Es Mario Exports Enterprises, having their head office at Secunderabad and over 15 service outlets along the coastline, and through M/S Bay Island Trading & Marine Services, Port Blair for sales in Andaman & Nicobar Islands.

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By Anvita Pillai

## “WE FOCUS MORE ON DEMONSTRATING PRODUCT ADVANTAGES TO OUR CUSTOMER BASE”

**Takahiro Ueda, CMD, President & CEO, Honda India Power Products**, in conversation with The Machinist, discusses the company’s game plan as they venture into a new business line, HIPPL’s growth projection for this year and more.



engines to the boats and OEM authorised service infrastructure with an assured supply of genuine spare parts for customers involved in maritime security, tourism & leisure and commercial fishing.

We will begin with targeting to establish ourselves in maritime security, tourism & leisure markets and then diversify into the vast and diversified fishing segment.

India’s marine market is estimated to be a little over 10,000 units annually, with 4 Strokes

**Honda is foraying into the marine business, which is quite distinct from what the organisation has done so far. What is your vision and plan for the market? Additionally, how do you plan on capturing the market share?**

India has a vast coastline of about 8,848 Kms; hence, our priority markets include the entire Coastline, Tourism Markets like Goa, Andamans, Kashmir, Kerala and all popular destinations along the rivers where boating is done.

We want to showcase Honda 4 Stroke Marine outboard motors’ Durability, reliability and Fuel efficiency for Maritime, Security, Coastal Patrolling, Interceptor Boats, and Leisure and tourism segments for passenger taxi boats and sports fishing segments.

With the launch of Honda 4 Stroke OBM’s, we aim to provide a complete solution covering rightly matched



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**DMG MORI**

comprising approximately 30 per cent of the total Marine Market. The 4 Stroke market is growing with increased consciousness for environment-friendly engines. We want to target 10 to 15 per cent of the total 4 Stroke market by the end of the third year.

**What products will you be launching for the marine sector? How does the product set itself apart from any existing products?**

With the launch of Honda 4 Stroke OBM's, we aim to provide a complete solution covering rightly matched engines to the boats along with OEM authorised service infrastructure with an assured supply of genuine spare parts for customers involved in maritime security, tourism & leisure and commercial fishing.

Honda 4 Stroke OBM's have proved their mettle in the global markets owing to their durability, fuel efficiency and reliable performance. As the only Marine OEM present in the Indian market, Honda is uniquely positioned to offer its Marine OBM Range backed up with trained service manpower and supporting infrastructure. We will provide quick and efficient service through our channel partners with an assured supply of genuine spare parts for our valued customers.

We will launch Outboard motors from 6ps to 250ps range catering to water mobility usage across all the three broad segments of maritime security, tourism & leisure and commercial fishing.

After having served the customers through our power products range comprising of portable generators for power backup to power tillers and brush cutters in the agricultural segment, as well as Advanced GX Engines powered construction machinery in the construction segment, we would now like to add joy to our customers who use outboard motors for applications mentioned above on the water.

**The Indian market is a tricky one. Are there any challenges that you anticipate in the way of you seize the market? How do you plan on overcoming them?**

Every market has its peculiarities, and India is no different. With increasing fuel prices and environmental consciousness, the demand for fuel-efficient 4 Stroke outboard motors has started to grow. India's marine market is estimated to be a little over 10,000 units annually, with 4 Stroke comprising approximately 30 per cent of the total Marine Market. We want to target



10 to 15 per cent of the total 4 Stroke market by the end of the third year.

We would like to further accelerate the shift towards 4 Stroke technology by clearly demonstrating to our customers the Honda advantage, just as we have done in the agriculture and construction segments in the Power product business in India.

**In this marine business, what are your revenue targets for this year? How do you plan on reaching the set goal?**

This being the first year of operation, we focus more on demonstrating the product advantages to our varied customer base. As already shared, we will target to acquire a 10-15 per cent share of the 4-stroke market over the next three years.

**For 2022, what is the sales and market share HIPP planning to capture?**

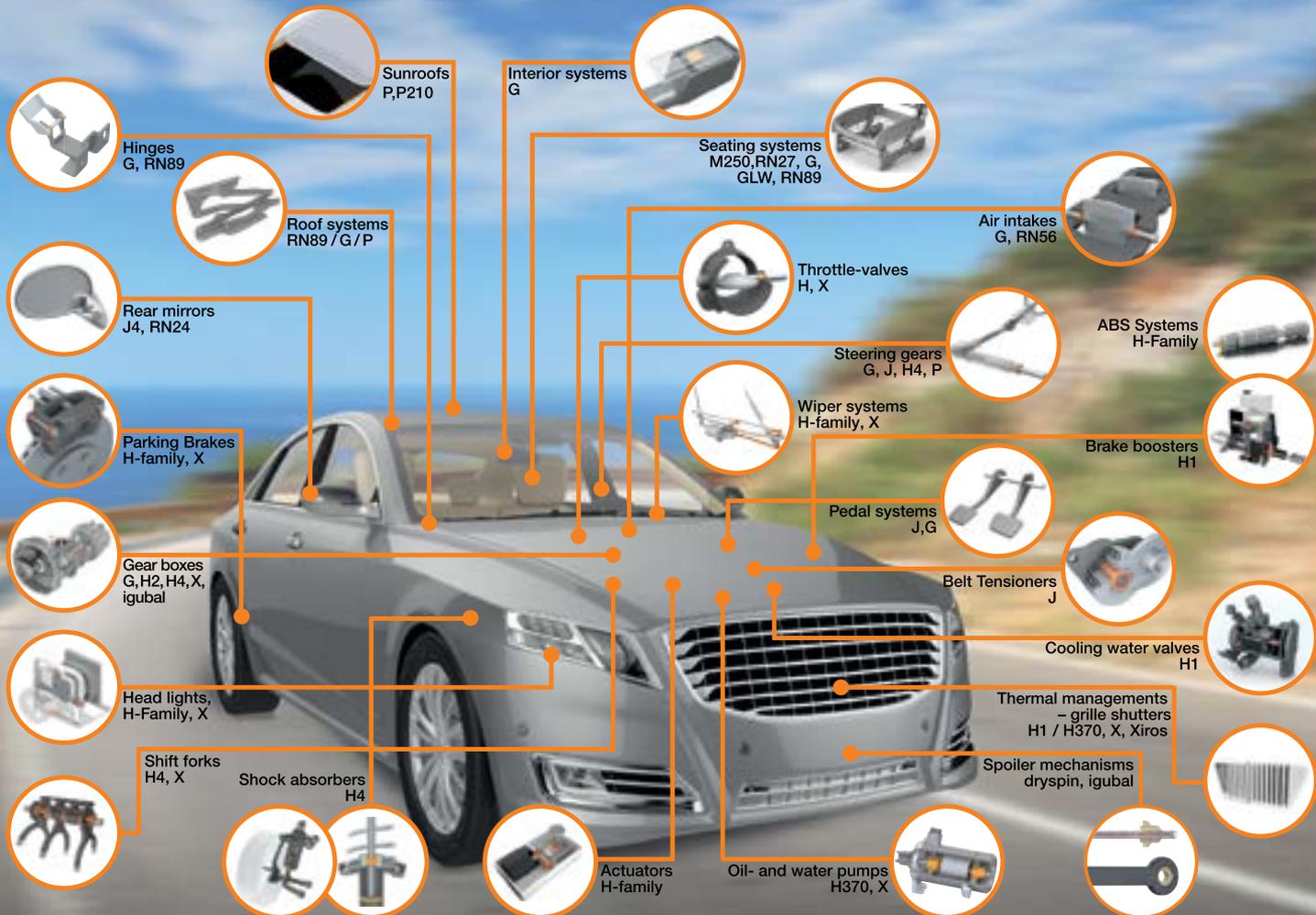
We have set ambitious and visionary goals to approach the Indian Market.

HIPP, today commands over 30 per cent share in the petrol run internal combustion engine-based power products market. Its technically advanced products such as portable generators, power tillers, water pumps and brush cutters offer unmatched durability and portability to its valued customers delivering superior product performance and less acquisition, operating & maintenance costs. For the last 36 years, HIPP has been the preferred choice of customers worldwide and has powered the dreams of over five million happy users by "Empowering them, To Do Better".

Honda has about 400 dealerships and around 60 Distributors. However, there are some areas we would like to expand our presence to cater to the customers' requirements. 

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By Shivendra Singh, Founder and CEO, Barton Breeze

## THE 'SMART' REVOLUTION OF INDIAN AGRICULTURE

India, which is predominantly an agricultural country, needs innovations that can ensure lower time-to-market for commodities lower carbon footprint, lower food waste and through the year consistent production without inflation due to scarcity. Read on to know how Hydroponic farming can be a solution to all these challenges and more.

**T**he current global pandemic has borne the vulnerability of our food sources. This is one of our best shots to hit reset on what and how we eat.

Scientists have been crying hoarse for decades that human actions push life on our shared planet towards disaster. Food production, transport, processing and waste are placing enormous pressure on environmental resources. By 2050, with the global population expected to reach nearly 10 billion, the requirement for food will be 60 per cent higher than it is today. But, at the current rate of ecological degradation, there won't be enough arable land left to meet this demand, according to the World Economic Forum. The result: a food security crisis and sustainability problem.



### DID YOU KNOW THE PROBLEMS INDIA FACES?

- The average head of lettuce travels over 1,500 kilometres to get to your table
- Increase in carbon-footprint
  - § India is importing more than 70 per cent exotic vegetables
- Ineffective conventional cultivation methodologies
  - § 70 per cent of the world's freshwater is used for conventional agriculture
  - § 70 per cent of water contamination comes from conventional agriculture.
- Low per capita food production in India
  - § 1970 - 1.0 kg food per person per day (India's population 56 cr)
  - § 2019 - 1.74 kg food per person per day (India's population 130 cr)

- Contamination and chemicals in India are 800 times more than the desired level

### HOW DO WE SOLVE THIS?

Bring smart farming solutions like Hydroponic to grow any produce in any season. Agriculture in India has always been governed by variables – weather, soil and seed quality, water availability, skilled labour, etc.

Plus, historically, the increase in food production in India has always been at the expense of the water supply. 70 per cent of the world's freshwater is used for agriculture. 70 per cent of water contamination comes from agriculture. This has to change.

### TECHNOLOGY SOLUTION FOR INDIA'S AID:

To cultivate more food with less space, we need new technology, new farming approaches, and processes. We believe that it is time to redesign the farming experiences.

The produce is healthier, fresh and more nutritious and has a longer shelf life, which helps in creating a healthier ecosystem. The technology helps save valuable water, land, and labour resources; moreover, the controlled growing system enables the production of food



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#### **IMMUNITY: THE NEW BUZZWORD**

Even those who talk about sustainability often use a different lens while consuming as individuals. Yet it's what we put into our shopping bags and on our tables that matter. It has a ripple effect throughout the entire food chain. The devastating aftermath of the pandemic should be a catalyst for us to expand our taste, knowledge and awareness and contribute to building a more efficient and sustainable food system. We underestimate the power of good choices and individual behavioural change in creating a healthier food system. Let us align our food habits with the well-being of the planet. Let us ask where our food is coming from and make our choices with more awareness. Let us consume with a mind, a heart and a conscience. Only then will we go from being 'junk foodies' to genuine chemical-free food lovers.

#### **ADVANTAGE OF SMART FARMS**

Each smart farm is backed with the expertise of the Chief Technology Officer, a dedicated R&D team, plant scientists, microbiologists, mechanical engineers and design engineers.

#### **CLOUD ARCHITECTURE AND DATA CENTRE**

Agri-tech companies collect hundreds of data points at each of their farms to its Data Centre, which allows it to easily alter its indoor precision control for taste, texture, colour and nutrition. The data also helps the company adjust variables like temperature and humidity to optimise its crop yields.

#### **USING ARTIFICIAL INTELLIGENCE AND IOT**

A software is developed where a device is clipped on the leaves and stem of each plant. The software is connected to the computer and informs the user when a particular plant needs more nutrients or minerals. Smart farms bring together farmers, design engineers and software

engineers to grow sustainable, safer and better-tasting greens. Here's how smart farming is changing the game in India.

#### **30X FASTER YIELD BY SMART FARMING**

State of the art climate-controlled smart farm uses vertically stacked growing beds, up to five levels high; they use less than 1 per cent of the space required by a conventional growing, a precious commodity in densely populated urban areas.

#### **90 PER CENT LESS WATER**

In our soil-less Controlled Environment Agriculture (CEA) farms, we can recycle and filter water for responsible resource use. As a plus, we don't waste water from runoff or excessive evaporation from the soil. We save 90 per cent water compared to conventional agriculture.

#### **FAST DISTRIBUTION**

Compared to traditional farming, it takes just 25 days to grow from seed to harvest, which averages 45-60 days. Since most farms are within the city limits, the average distribution time from harvest to table in 60 minutes, cutting down greenhouse gas-emitting travel time. The CEA farms themselves act like in-built cold storage for plants.

#### **PRICE POINT**

Because one can grow to produce on our indoor farms 365 days a year, we can get consistent pricing no matter the season.

#### **365 DAYS – GROW ALL YEAR AROUND**

Our growing season lasts throughout the year. Through storms or sunshine, winter or summer, Hydroponically grown greens can thrive in any area of the world, reducing climate change. This also translates into less food waste on farms and more fresh produce.

#### **CLOUD-BASED ARTIFICIAL INTELLIGENCE**

With cloud-based data analytics and farm output AI software, farmers can get their farm and production details sitting in the comfort of their homes or office. It measures important indicators that help crop planning and connects the food security ecosystem.

Food production in India needs to be increased by 70 per cent in the next 30 years, which would be impossible to achieve if we don't bring technology to agriculture. The good thing is that technology will allow us to increase performance and lower costs simultaneously. There will be a point where vertical farming costs will keep going down and will match with the traditional agriculture costs. 



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By Mayur Misra , Co-founder, Corrit Electric

## INDIA THE FUTURE GLOBAL MANUFACTURING HUB FOR EVS?

India is at a significant point of convergence with EVs and at a pedestal to become a global hub for its manufacturing. The article reasons why India could be a manufacturing hub for EVs.

**I**ndia is the world's fourth-largest vehicle market. The country is already speeding up its shift to domestic manufacturing and developing a robust EV value chain. In this decade, increasing investments and governmental backing will be critical in transforming India into a manufacturing EV hub. Electric vehicles are the future of mobility, and the Indian electric vehicle market is growing exponentially, so the potential is unlimited. With the changing times, consumer behaviour is also evolving. Traditional vehicles that act as a catalyst in deteriorating the environment, consumers are now more conscious and are inclined more towards electric vehi-



Mayur Misra

cles. Any disruption in the global automotive supply chain will affect logistics, duties, etc. This will eventually impact the economies of other nations. With the rise in demand for EVs globally, we need to ensure that supply chain management is intact.

### THE BENEFITS OF THE SHIFT TO EV

This EV shift for India not only supports the global cause of environment conservation but also benefits it on many fronts. India is packed with abundant renewable resources and skilled manpower in sectors like manufacturing, technology, logistics, etc., making India the prime focus globally. Indian manu-





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facturers are capable enough to make structured EVs that will be efficient and accelerate employment and promote exports. EVs will be the future of highly efficient transportation and have the most negligible impact on the environment. Because oil imports and environmental deterioration have long been a problem in this country, it is now critical that we develop an integrated vision for EVs.

Cheap labour is another driving force for global firms targeting India for the sustainable growth of their businesses. India also hosts a variety of weather conditions to provide ample testing platforms for EV manufacturers. This, in turn, is helping the R&D teams of the manufacturers to squeeze out the teething issues and make their brand ready for the global push.

EV in the spotlight

Though India hasn't made any policies to phase out fueled vehicles altogether, it aims to sell 30% per cent EVs amongst the total vehicle sales by 2030. Doing this will help India save fuel costs of around \$14 billion annually. People have already started preferring EVs over traditionally fueled vehicles, which is a good sign. With electric two-wheelers and three-wheelers becoming increasingly popular, this transition will be much smoother. The central government and numerous state governments remain dedicated to accelerating EV adoption and assisting EV start-ups. State EV rules and the battery-vehicle registration policy have been crucial in driving EV growth.

Multiple productions linked incentives for ACC batteries storage manufacturing and less GST, state incentives and FAME subsidies; the government is leaving no stone unturned in revolutionising the mobility industry. Furthermore, measures like FAME II and the recently announced scrappage policy and the emphasis on establishing charging infrastructure will contribute to emission reduction and sustainable transportation. Moreover, the government's push for greater localisation, as well as Atmanirbharta, are putting electric vehicles in the spotlight and paving the way for better days ahead. The government has also launched an e-Amrit portal that focuses on providing consumers and manufacturers with EV-related information that can help give a broad understanding of this industry.

According to the Society of Manufacturers of Electric Vehicles, 236,802 electric automobiles and 25,735 electric



two-wheelers were sold in FY20-21 (SMEV). The numbers have already gone up by multiple folds as more than 1 Lakh 2wheeler EVs were sold during last year. However, this increase in electric vehicle sales necessitates a corresponding increase in EV charging infrastructure.

#### ADDRESSING THE CHARGING PROBLEM

Charging infrastructure for EVs is the primary concern in the Indian market right now. The government is concerned about these issues around batteries, driving range, etc., and is making policies accordingly. According to current estimates, 80 per cent of the charging takes place in personal places such as the vehicle owner's home and, in some instances, the workplace. There is no guarantee that a driver will be able to replenish the charge if it runs out. These policies discuss the systematic infrastructure aiming to have at least 50 charging stations in each district. India focuses on creating an ecosystem for swappable batteries and fast charging facilities that can resolve the range issue with vehicles. The Indian government has already planned to offer subsidies to EV manufacturers by providing a 100 per cent tax (GST) subsidy.

India is on the verge of a major electric vehicle revolution, potentially becoming a global powerhouse for electric vehicles. The country has enormous potential to become an EV hub shortly and pull different countries around the globe to invest in India. With all the policies talking about providing incentives and subsidies to the EV manufacturers, India can become the world leader in the mobility industry and supplier of EV-related technologies all around the globe. According to Aven- dus Capital's analysis, India's EV market will be worth INR 50,000 crore by 2025, with the commercial and two-wheeler segments leading the way. 

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## FROM OLD TO NEW: IGUS MAKES E-CHAIN RECYCLING EASIER

Recycling is a key part of manufacturing sector. Read to know how igus has been changing recycling practises with its chainge recycling programme.



Since 2019, igus has been using its chainge recycling programme to give old energy chains a new life. Now, the motion plastics specialist is taking things a step further. To avoid industrial waste, igus is organising return delivery of worn-out energy chains - and returning them to the material cycle. Recycling begins at assembly.

Sooner or later, every machine and component reach the end of its service life. Manufacturing companies then face the question of whether to modernise or acquire new equipment. Sustainability plays an increasingly important role here. After all, according to the Global E-waste Monitors, 53.6 million tons of electronic waste were generated worldwide in 2019

alone. A more environmentally friendly upgrade for old machines is the so-called retrofitting. Instead of buying new machines, companies can have existing equipment converted or refurbished to meet the latest standards. However, this does not solve the problem of where to put discarded components.

### RECYCLING MADE EASY: THE IGUS INSTALLATION SERVICE PICKS UP OLD MATERIAL

For new installation, retrofitting, or maintenance, igus focuses on recycling instead of disposal - starting way back in assembly planning. The recycling service is offered automatically with each new assembly order



**“It is the goal of igus to save customers valuable time with the installation service while offering them a sustainable solution for disposing of old material. This measure is intended to further contribute to more sustainable use of limited resources.”**

Michael Berteit, Engineering Projects and Assembly Service Sales Manager at igus

and entails no additional costs or effort for the customer. igus takes care of the scrap material in four simple steps: first, igus removes the worn-out energy chain, then disassembles it into smaller pieces and packs it into big bags. Finally, igus organises the return transport and logistics. The installation coordinator commissions the forwarding company, which collects the discarded energy chains. That way, the customer has only to provide the scrap material for collection and load it. It is then taken away and recycled as part of the igus change programme. This service is offered for both igus e-chains and chains from other manufacturers. Customers receive a voucher-based on the weight of the chains. The discarded plastics are separated by type, cleaned and re-granulated so that the material can be reused.

The igus installation service saves customers installation time and costs. The customer gets everything from a single source (the manufacturer), including a 36-month guarantee on newly

installed energy supply systems. They also benefit from very short downtimes and longer service life. This means that in the long term, they suffer fewer failures. A special online tool even enables users to calculate the exact installation time for their energy chain system. “It is the goal of igus to save customers valuable time with the installation service while offering them a sustainable solution for disposing of old material. This measure is intended to further contribute to more sustainable use of limited resources”, says Michael Berteit, Engineering Projects and Assembly Service Sales Manager at igus.

### **IGUS RECYCLING PROGRAMME PICKS UP SPEED**

igus, which specialises in high-performance polymers, has launched change, a recycling programme for energy chains, which has already collected and recycled 32.3 tons of material worldwide. So far, 13 countries have participated in the programme: Germany, the Netherlands, the UK, Poland, France, China, Italy, Brazil, Malaysia, Hungary, Croatia, the Czech Republic and Spain - with the majority of returns coming from Germany and China. “We are very pleased that the recycling programme is proving very popular with our customers, and are confident that in 2022, we will be able to double at least what we have achieved so far”, adds Michael Berteit. igus uses the change programme to return old plastics to the material cycle, systematically promoting the circular economy. 

# “LEVERAGE INNOVATION TO BRING POSITIVE CHANGE TO ENVIRONMENT AND SOCIETY”

**Rajeev Chaba, President & Managing Director,**

**MG Motor India**, has been the face of the company since it inaugurated its first facility in Halol, Gujarat, in 2017. Under his leadership, the business has thrived despite the pandemic and other roadblocks. In conversation with The Machinist, Chaba talks about his journey, the innovations made, how the company is working on reviving itself despite the semiconductor shortage and more. Edited excerpts...

by Anvita Pillai

**W**ith the turbulent time automotive sector has been facing, it takes a leader with an iron fist and a people-first attitude to run, succeed and make a difference in the industry. **Rajeev Chaba, President & Managing Director, MG Motor India**, is undoubtedly one such leader in the automotive sector, making a difference with technology, innovation, and a people & customer-first attitude. He started his career in the automotive industry in 1990 with Eicher Motor after completing his Masters' degree from IIM Bangalore. He held senior positions with top global brands, including General Motors (GM) India, North Africa & Egypt, China and Man Capital LLC / Van Guard Logistics.

## **BUILDING BRANDS & CREATING BENCHMARKS**

When Chaba joined MG Motor India in 2017 with his three decades of experience, he had his eye set on making the company stand apart in the market. He understood what the company lacked at the moment was a vehicle dominated not just by hardware features but technology, too. With a game plan in mind and technology as the ally, under his leadership, the company introduced India's first internet-centric car – MG Hector. Its industry-first features, including iSMART and OTA updates, established the car as a benchmark for innovation and meeting customers' needs.

Although the company has been at the forefront of delivering the best to customers, it hit a roadblock due to the pandemic-induced semiconductor shortage. Chaba mentioned, “We witnessed strong demand from Indian buyers in 2021. However, due to the semiconductor shortage

across the industry, only two-thirds of the total production was achieved.” How was he planning to drive the company out of this problem? He revealed, “Though the shortage is expected to continue this year, we are maximising our efforts to cater to the growing demand and achieve around 70 per cent growth, resulting in 70,000-75,000 units in 2022. We continuously access and align our production, subject to the volatility of worldwide supply constraints.”

Through volatility, MG Motor India has not let go of its bullish nature to move forward in the Indian market. It has been investing and growing despite the concurrent effects of the pandemic. It has expanded its capacity and invested nearly Rs 5,000 crore — Rs 2,000 crore in the 2021-2022 budget, in addition to the investment of Rs 3,000 crore made earlier — to expand its plant's abilities. “The company primarily plans to enhance the Halol plant's capacity, from 75,000 to 1.2 lac units, by 2023 to meet the growing demand,” mentioned Chaba.



"Though the (semiconductor) shortage is expected to continue this year, we are trying to maximise our efforts to cater to the growing demand and achieve around 70 per cent growth, resulting in 70,000-75,000 units in 2022. We are continuously accessing and aligning our production, subject to the volatility of worldwide supply constraints."

#### THE "ELECTRIC" GAME-PLAN

A part of the allocated Rs 2,000 crore budget will also be used to launch a new EV next year and boost charging infrastructure. Chaba Chaba revealed that beside investing in upgrading the existing line of EV, the funds would be

channeled towards localising EV. He emphasised, "Our vision is to make the manufacturing facility at Halol an important EV hub in the country."

With India's EV four-wheeler business starting to pick up, the company is confident about making a mark in the industry despite the underlying market challenges. Chaba said the company is poised for 25 per cent of its business to derive from ZS EV (priced between Rs 10-15 lakhs) in the first quarter of 2023.

Chaba cited, "MG Motor India has been at the forefront of bringing innovative technology



chargers across the country previously. Now, under the 'MG Charge' venture, the company plans to install 1,000 AC fast chargers in India. "MG will install 1,000 EV chargers in residential localities across India in 1,000 days. As a result, MG will now have a 6-way charging solution for its customers and provide increased assurance and confidence toward EV adoption," he revealed.

Although the market is riddled with competition from EV four-wheeler makers, including players such as Honda and Tata Motors, Chaba is not too worried about MG's EV business in India. He said the brand's key focus is on buyers looking for a 'Smart Urban Mobility Solution'.

### MG'S SUSTAINABLE PLANS

MG Motor has been rigorously working on delivering sustainable end-to-end services and has been vocal about creating a sustainable automotive industry. Amongst achievements in this direction, the company recently secured a 675.3/800 score in the India Green Manufacturing challenge and has been recommended for 'Silver' - the second-highest category award. It has also acquired another milestone in its fight against greenhouse gasses by getting certified with 'ISO 14064-1 for Quantification & Reporting of Green House Gas (GHG) Emissions & Removals'. Besides, the company has acquired ISO certification in Environment Management System (ISO 14001 - 2015) and Occupational, Health & Safety Management System (ISO 45001 - 2018).

Chaba mentioned, "In 2021, we partnered with Clean Max Enviro Energy Solutions Pvt Ltd and became India's first passenger car company to adopt wind-solar hybrid energy to supply 4.85 MW power to MG's manufacturing facility in Halol. With this partnership, MG will abate approximately 2 lakh MT of CO<sub>2</sub> over 15 years, equal to planting more than 13 lakh trees."

Moreover, the company's #ChangeWhatYouCan campaign leverages innovation to bring positive change to the environment and society positively. The manufacturer recently became the world's first automotive brand to use ULTRAX Degreaser, a liquid alkaline degreasing cleaner developed by PPG Asian Paints. The degreasing pre-treatment chemical launch aligns with the brand's focus on making sustainable mobility greener, leading to a CO<sub>2</sub> reduction of 787 tons/annum.

Besides the ULTRAX degreaser, Chaba stated that MG Motor India conserves energy through low-temperature phosphate (VERSABOND) and high throw low cure cathodic electrocoating paint, leading to a CO<sub>2</sub> reduction of 325 tons/annum and approximately 388 tons/annum, respectively. "These new technologies will support the company to enable a cumulative CO<sub>2</sub> reduction of 1500 tons/annum," he said.

If not appropriately managed due to their



Since battery waste is a challenge for sustainable mobility, we believe battery recycling is the optimum way of bridging this void, making electric mobility greener.

and solutions to the country. We launched the ZS EV — India's first pure electric internet SUV in 2020 when the EV industry and the consumer mindset were at a nascent stage." Chaba explained the key to capturing the market and boosting customer confidence was building the requisite infrastructure before launching the vehicle. He mentioned, "Introducing the 5-way charging ecosystem, which included a plug-and-charge cable onboard, AC fast-charger (installed at home/office), DC superfast chargers at MG dealerships, public charging network and charge-on-the-go with roadside assistance (RSA), before the launch of the ZS EV helped us boost customer's confidence greatly."

Chaba said they plan to take the same route further ahead to grow their EV business. The company has worked with companies like Fortum, Delta, eChargeBays, Exicom, Electreefi, and Tata Power to introduce DC and AC fast

chemical composition, batteries can be highly toxic to the ecosystem, turning EVs into a threat to environmental sustainability. To ensure the company is not a part of the problem, Chaba stated, "Since battery waste is a challenge for sustainable mobility, we believe battery recycling is the optimum way of bridging this void, making electric mobility greener. We have partnered with many global and Indian companies for sustainable recycling, second life use and battery lifecycle management."

MG has so far partnered with Umicore and Tes AMM to ensure safe disposal, whereas, for second life management, the company has partnered with companies like Exicom and Tata Power. Further, it has teamed up with Attero to recycle MG's EV battery successfully. "We look forward to doing more work in this space to create sustainable, end-to-end solutions that will help us make an impact," he added.

#### SKILLING THE FUTURE OF AUTOMOTIVE

MG's core focus since its inception in India has been to bring the latest technologies and foster a spirit of innovation among young visionaries to pursue their dreams and make them future-ready. "The company has been engaging in multiple initiatives and partnerships to enable young students to develop relevant skills in futuristic technologies and become self-reliant, thereby empowering them for a brighter future and further strengthening the goal of fulfilling a broader vision of Skill India," explained Chaba.

To further MG's vision of CASE mobility, learning & skill development, and overall commitment to strengthening the mobility ecosystem, the company recently also announced its plan to extend cars to select engineering colleges in Gujarat. "The partnership will enhance technological skillsets in students under the MG Nurture initiative, thereby bridging the existing gap between the industry and academia in the auto-tech world. This will further empower students to carry out in-depth, hands-on research and garner insights into the intricacies of technologically advanced vehicles," he stated.

As part of the program, students will study a wide range of parts, technology, and systems, including fuel systems, engines, ignition systems, vehicle chassis & body engineering, and much more. "With this, tomorrow's innovators will be empowered with first-hand knowledge of major automotive systems. This will enhance their future employability and make them industry ready for MG or any other automotive brand," Chaba added.

To further take positive strides toward creating a robust innovation ecosystem in the country, MG Motors has also extended its collaboration with IIT Delhi by donating its top-of-the-line ZS EV to fuel the research and development of future EVs in India. Additionally, it has partnered with the Automotive Component Manufactur-



**Tomorrow's innovators will be empowered with first-hand knowledge of major automotive systems. This will enhance their future employability and make them industry ready for MG or any other automotive brand**

ers Association of India (ACMA) and launched 'Project Dakshata' in collaboration with Automotive Skill Development Council (ASDC) and Autobot India to educate and foster skill development in the EV & AI industry. He mentioned, "Such initiatives act as an ideal platform to brainstorm new technologies and motivate youngsters to become visionary leaders to carry the torch of innovation."

#### CREATING THE BEST CUSTOMER-FIRST EXPERIENCES

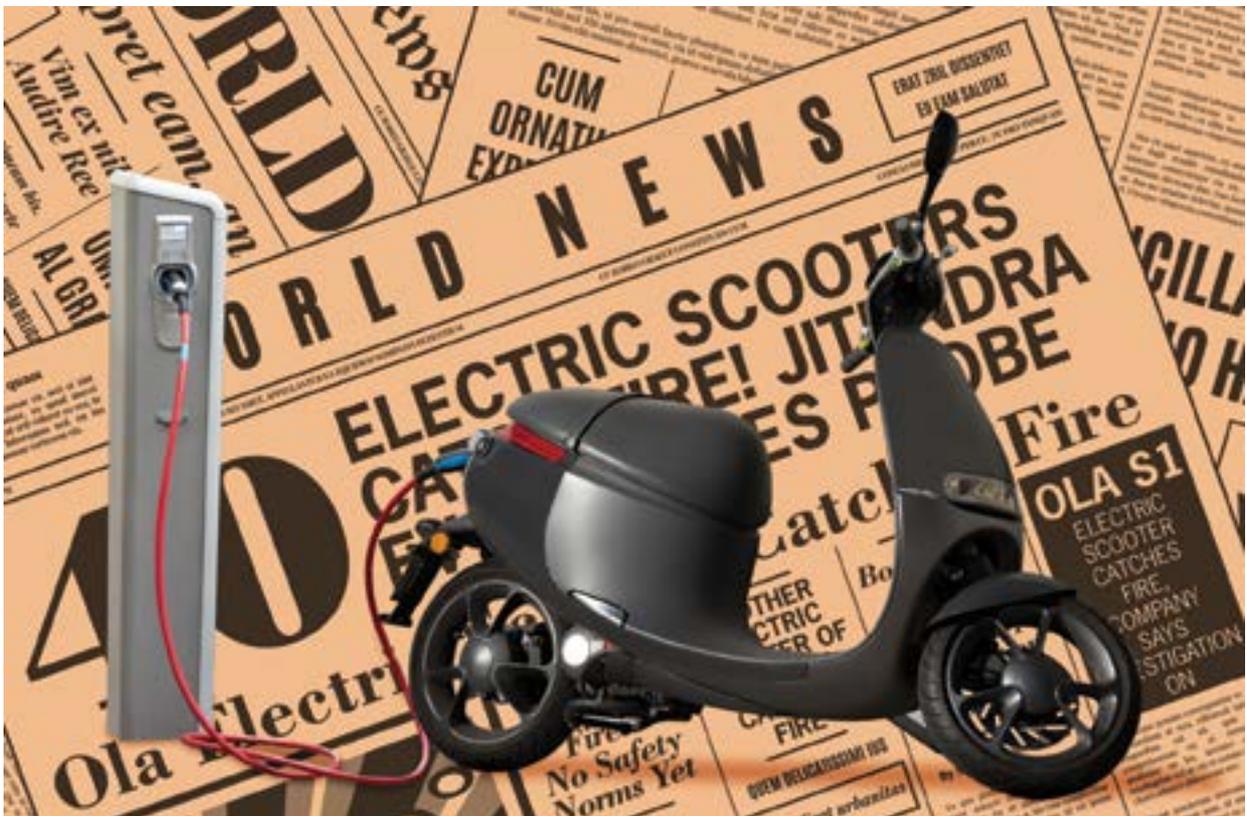
The year 2022 will be critical to MG's business as it is working towards ramping up the production output to cater to the growing demand for the recently launched all-new ZS EV and Astor Chaba revealed. Despite the market volatility, what comes first for MG is its customers. He added, "The brand has always believed in bringing innovative technology as per the evolving needs. Since 2019, we have launched four products and updated three to suit the new-age customer's demand."

MG has always been committed to going the extra mile for its customers. Now, Chaba is confident that MG will be able to make the experience of vehicle ownership even better for its customers. "From its inception, MG has always been committed to going the extra mile and delivering a convenient ownership experience to its customers. We are also working towards creating sustainable mobility solutions. Hence, I am certain we will continue to excite the market with a range of delightful products in the coming years," he signed off. 

By Anvita Pillai

## BURNING AWAY: WHAT WENT WRONG WITH INDIA'S 'WONDER' START-UPS' EV TWO-WHEELERS

Electric two-wheelers recently have been in the news for all the wrong reasons. With them catching fire rampantly across the country, it is important to understand what went wrong and what can be the remedy.



When the first news of Ola's two-wheeler catching fire showed up on my news feed, the incident took me back to 2010's incident of the prodigy innovation of Tata – the Nano cars – catching fire. As pure as the intentions were for bringing out low-cost vehicles for a family of four, ultimately, safety took precedence over price. Similar can be the inference for the EV two-wheeler start-ups today.

With start-ups such as Ola Electric, Okinawa Autotech, Pure EV and Jitender EV going up in flames across India over the past month, everyone has been trying

to understand what went wrong with the innovations of "India's game-changer start-ups". Well, the short answer is overpromising, under testing, taking shortcuts and getting blindsided in a booming market. For instance, on average, the testing period on an EV two-wheeler lasts anywhere between four to five years. However, OEMs such as Ola announced their two-wheelers for the Indian market in 2020 and delivered it in 2021.

While start-ups have been reasoning for benefit of the doubt, given that elements of two-wheelers are sensitive to external conditions doesn't simply sit right considering

other EV two-wheeler manufacturers, such as TVS, Bajaj, Ather, Hero Electric, among others, which are catering to the same market, have not witnessed any similar problems so far.

### THE EASE OF RUINING BUSINESS

The blame for these desultory two-wheelers hitting the market lie equally on the shoulders of testing agencies, such as ARAI and ICAD, and start-ups. While start-ups under-tested the vehicle, testing agencies, too, let loose in an attempt to give a growth momentum to the Indian EV ecosystem.

In the name of 'ease of doing business,' several essential regulations for safety have not been mandated and/or updated for Indian conditions. E.g., EVs working under the speed of less than 25 km/hr, i.e., the non-motorised vehicles (NMVs), do not require type approval. OEMs such as Okinawa, Pure EV, Jitendra EV tech, among others, are a few start-ups that offer two-wheelers under this category. **Maxson Lewis, Founder and Managing Director, Magenta**, explained, "The government allowed many EV OEMs to get into the market without any safety regulations. Many of them took shortcuts and restructured their systems to make the vehicle run at a speed of less than 25 km/hr. This got a lot of unregistered vehicles on the road." He continued, "In my opinion, the regulatory authorities did not see the big risks that came with allowing unsafe practices."

Moreover there also lie loopholes in testing components being used in the vehicle. For example, **Abhijeet Sinha, Program Director, Ease of Doing Business & National Highway EV**, said, "When you change a major vehicle component, you are obligated to get it tested by the authority. But currently, manufacturers are changing the components, but not being sent for retesting, considering it time-consuming." What amps up the risk of faulty vehicles reaching the



"If we don't invest in becoming safe, both in the batteries and charging, we are doing more damage than good for business. While the enforcement of mandates might increase the cost of the vehicle, it is a small price to pay against the life of a person."

*Maxson Lewis, Founder and Managing Director, Magenta*



"After manufacturing, every vehicle needs to be tested based on weather conditions, use conditions, and user behaviour. The lack is not in what the companies are importing or replicating, but before they put the vehicle up for use, there needs to be a confirmation that the vehicle is made for Indian conditions."

*Abhijeet Sinha, Program Director, Ease of Doing Business & National Highway EV*

market is that the products tested are not picked at random from the batch but are the ones presented by the manufacturers. Add to it, while replicating vehicles based on the foreign model is one thing, the manufacturers didn't tune the vehicle enough for Indian conditions. **Venkat Rajaraman, CEO, Cygni**, said, "The vehicles were replicated based on their working efficiency in countries, such as China and Europe. The Indian (EV) two-wheeler makers didn't account for Indian road conditions, temperature conditions, etc."

### 'LOT FOR LESS' HAMPERING SAFETY

It is no secret that India is a price-sensitive market, which wants a lot for a menial cost. Matching these expectations of delivering advanced features and high class services has led start-ups to take shortcuts on several fronts, like with vehicles and components being imported by manufacturers to India, more for less means going for sub-par quality of components being used. For instance, in the batteries used. A lot of cheap, low-grade cells are being used in the battery, and while there exists the AIS-038, AIS-048, etc., it does not, in any sense, stop the manufacturer from using low-grade cells for the battery.

While low-grade cells are one spectrum of the problem, another is the kind of cooling system installed. An essential element that can significantly help battery cooling is using an active cooling system. Whenever battery temperatures rise, an active cooling system uses fans cooling liquids, etc., to cool the vehicle down, Lewis explained. However, two-wheelers currently employ a passive cooling system, given that adding an active cooling system would spike the vehicle cost by another Rs 5,000-7,000 on average.

Another safety fail lies in the BMS currently used in two-wheelers. A BMS usually helps with monitoring the

health and performance of a vehicle. However, the gap in the information generated, documented and relayed to the customer and the lack of education/awareness to understand the data produced makes the current BMS unreliable for Indian conditions.

Another area where cost plays in is EV charging. While manufacturers have been blaming the fires on negligent charging habits, efforts to build a safe charging infrastructure and customer education on appropriate charging methods have been missing. Commenting on the current charging situation in India, Lewis explained, "Customers are currently using the three-pin plug sockets, which unfortunately the OEMs have been pushing, keeping the cost of chargers low. But it is a disaster waiting to happen."

#### THE COLLATERAL MARKET DAMAGE

The recent events have certainly made an impact on the market. According to a recent study by LocalCircle, the fire incidents have made Indians warier about buying EVs. The number of people who wouldn't buy EVs due to safety concerns has increased by eight-fold to 17 per cent in seven months through March. In the survey comprising 11,500 customers, only 2 per cent were likely buy the vehicle in the next six months.

Inadvertently, the other OEMs caught in the conundrum, OEMs such as Hero Electric, Bajaj, TVS, etc., whose products have been a testament to quality and safety so far, will likely bear the brunt of the situation. Not just credibility, the fires have also raised questions on the "Make in India" aspect, as the auto parts are imported, and the vehicles are only "Assembled in India". According to a statement given by the Director General of ACMA India Vinne Mehta in August 2021, nearly 70 per cent of the components to manufacture EVs are imported from other countries, including China and Taiwan.

When it comes to 'who to blame' for the testing fails, while testing agencies are, to a certain extent,



"Although changes are being made in the right direction, it is important to employ the right BMS in the vehicle. It is essential that no imported BMS is used in Indian two-wheelers"

*Venkat Rajaraman, CEO, Cygni*

at fault, the onus of testing and ensuring safe vehicle reaches the market majorly lies on the manufacturer. **Kaushik Madhavan, Mobility Practice, Frost & Sullivan**, emphasised, "I don't believe it is the responsibility of ARAI because there is only so much they can do. The primary responsibility of conducting enough tests lies on the part of the manufacturer/OEMs." He continued, "I feel that start-ups, such as Okinawa or Ola, did not test enough. Additionally, they put a lot of responsibility on suppliers and vendors rather than taking responsibility themselves."

Astonishingly, while no manufacturer took accountability for the incidents and continued to attest to the quality of vehicles in the market, a week within that of the road transport and highway minister Nitin Gadkari imposed heavy penalties on negligent manufacturing and defective vehicle, over 7,000 two-wheelers from manufacturers including Ola, Okinawa and Pure EV were recalled.

#### IS EV NOT FOR INDIA?

While burning incidents have created a commotion in the EV sector, it is too soon to vilify or consider it unsuitable for India. Similar to ICE and CNG vehicles, which have and still infrequently experience similar incidents, EVs need to be given a learning curve.

EVs are the need of the time and are here to stay. According to the recent Vahan Data, the number of EV two-wheelers sold has grown five-fold in 2022 compared to last year. Two-wheeler sales have gone up by 2.6 per cent this year compared to 0.8 per cent last year. Although the incidents are a setback, it is also the perfect time to bring a system into a very disorganised EV ecosystem. It is high time that startups enter the market with a safety-first approach



### QUALITY MANUFACTURING, QUALITY MONITORING

The manufacturers can begin with the most prominent part of the EV – its battery. The cells used in the battery are of utmost importance for its safe functioning. Rajaraman emphasised, “Today, we have a lot of low-quality cells in the market. The government must mandate that no low-quality cells are used at all or are used only after proper testing and certification.”

Batteries have nanotechnologies, making it inevitable that they are not anomaly-free; creating an environment where the discussion goes beyond ensures that we create a connected ecosystem where we can recall such batteries in real-time without endangering safety. Lewis suggested, “If we don’t invest in becoming safe, both in the batteries and charging, we are doing more damage than good for business. While the enforcement of mandates might increase the cost of the vehicle, it is a small price to pay against the life of a person.”

Besides battery and charging, BMS used in two-wheelers plays a vital role in the safety of a vehicle. Rajaraman emphasised, “Although changes are being made in the right direction, it is important to employ the right BMS in the vehicle. It is essential that no imported BMS is used in Indian two-wheelers” Further, these BMS need to not only collect information in real-time but keep a record of it and relay the information back to the customer. Manufacturers must understand that the customer is not an expert in understanding data relayed from the BMS. What can be useful is giving battery information that is “dumbed down” for customers’ understanding or



“The primary responsibility of conducting enough tests lies on the part of the manufacturer/OEMs. I feel that manufacturers, such as Okinawa or Ola, did not test enough. Additionally, they put a lot of responsibility on suppliers and vendors rather than taking responsibility themselves.”

*Kaushik Madhavan, Mobility Practice,  
Frost & Sullivan*

setting up consumer service centres that can reach out to customers almost immediately if any anomaly is recorded.

Additionally, while today every start-ups are trying for better energy density, higher cycle life, etc., there is no guiding principle of keeping safety a priority. Including elements such as thermal pads, gap fillers, active cooling systems, conductive adhesive, etc., can help make the vehicle safer.

### MAKING FOR INDIA

To build vehicles for Indian conditions, Sinha suggested, “After manufacturing, every vehicle needs to be tested based on weather conditions, use conditions, and user behaviour. The lack is not in what the companies are importing or replicating, but before they put the vehicle up for use, there needs to be a confirmation that the vehicle is made for Indian conditions.”

India is only stepping up its auto components manufacturing facility, and it will take some time for India to have a completely made product in India. So, it doesn’t matter if the two-wheelers or components are being imported, replicated, or assembled in India. What matters is dedicating enough time for R&D and fine-tuning it to Indian conditions.

### GOVERNMENT TIGHTENING REIGNS

Government bodies are updating their mandates slowly, but “there is only so much testing agencies can do” shouldn’t be an excuse for shortfalls on the government’s end. Strings now need to be tightened, especially since going electric has been a core agenda for India’s mobility growth.

Official bodies need to set up facilities to ensure the gap between mandates and actual testing before the product hits the market is bridged. To ensure a safer ecosystem adding a layer of testing & verification on a private level testing with independent organisations can be helpful. Additionally, levying heavy penalties on negligent manufacturing can also ensure much more cognisance from start-ups and companies in the market.

### GIVING A SECOND CHANCE

In the light of recent events, consumer sentiments towards products from start-ups have been titillation. While it was the perfect time for start-ups to prove their mettle, rebuilding trust could take time.

Start-ups need to take the incidents as an eye-opener, learn from them, rectify the mistakes and make their testing system airtight. Besides, focus also needs to be maintained on creating a robust EV ecosystem and educating top-down. While taking shortcuts is easy, it won’t keep them running in business for long. To share monopoly with major OEMs, customer-first approach needs to be taken.

Start-ups need to remember, ‘The quality is remembered long after the price is forgotten’ (Henry Royce). 

Subrata Karmakar, President and Head of Robotics & Discrete Automation Business – India, ABB India Ltd

## THE FUTURE OF FLEXIBLE MANUFACTURING – COBOTS

In a dynamically changing world, the role of collaborative robots (Cobots) is instrumental in accelerating the adoption of Industry 4.0 by transforming manufacturing systems and making production lines more efficient. Read to know how cobots can help industries in the journey of turning accelerating toward automation.

Industries are swiftly moving towards what many call 'the future of manufacturing,' as technologies are re-inventing to meet the requirements of the futuristic model. Automation and data intelligence have been proved as the way forward for the manufacturing sector, leading to the rapid rise of Industry 4.0. This new and improved outlook on manufacturing is an umbrella that encapsulates cloud computing, robotics automation, process automation, the internet of things, artificial intelligence, and much more. With Industry 4.0 transforming industrial operations, companies aim to increase productivity and improve utilisation by integrating robotics and automation to assist humans. Key development and the fastest-growing segment for automation in this sphere is the rise of collaborative robots, known as 'Cobots'.

Hidden behind barriers, industrial robots were his-



torically used as catalysts for dull, dirty, and dangerous tasks. But the onset of Industry 4.0 has prompted a shift in processes, bringing Cobots to the fore in many factories and alongside their human counterparts.

As the most prominent face of what the ongoing industrial revolution signifies and among other pathbreaking concepts like AI, machine learning, IoT and blockchain, Cobots bring in an added efficiency to factories, warehouses, and logistics systems, across sectors. These interactive machines occupy less space and can work alongside humans, making them ideal for repetitive tasks or those requiring precision for shorter batches, sans the need for intensive reprogramming.

### COBOTS TAKE OPERATIONS TO NEXT LEVEL

For a market of the scale and size of India, the opportunities to deploy Cobots are undoubtedly massive. Just like the rest of the world, Cobots are being hailed as the next big thing for the country's impending growth in manufacturing and the challenges that it will bring.

Buoyed by the Government's Make in India push, it is clear that manufacturers setting up shop in India will need to supplement the country's labour cost advantages with the precision, reliability and consistency that Cobots offer. This will be crucial to match global productivity and quality standards, which are imperative to propel India into the





big league of industrial excellence and establish it as an important manufacturing hub for many sectors.

Adoption of Cobots in India began much before the pandemic but has picked up an immense pace today. This has been driven by new challenges and uncertainties that are now being seen as a reality for businesses. Labour shortages and disruptions are aspects that manufacturers must consider even more in their production processes, with automation becoming an integrated must-have instead of a piece of fancy technology.

The introduction of robotics into the shopfloor guarantees the minimisation of human intervention in handling smaller tasks. It helps employees focus on production aspects that require complex decision making and judgement.

From incremental technology additions, the integration of Cobots can bring in a quantum leap in the way Indian manufacturers upgrade and improve efficiencies through digitisation. This offers a big boost to Industry 4.0 adoption. We are already seeing many sectors at the forefront of deploying Cobots to bring greater flexibility to their production processes. These early adopters include the healthcare, pharmaceuticals, logistics and F&B sectors.

#### **BALANCING FOR FLEXIBILITY AND PRODUCTIVITY**

Due to their design, Cobots are easy to deploy and integrate into existing manufacturing systems, making man and machine complement one another perfectly. Furthermore, combining Cobots into traditional production lines makes processes simple and easy, as they are intuitive and can complete basic tasks, freeing up the human workforce for specialised assignments.

As with any automation solution, the benefits of Cobots working alongside humans can only be realised with a committed approach that needs to be adaptive. This will inform how future factories will work in an ever-changing and unpredictable global environment. But for now, the lower costs, versatility, and simple programming of Cobots are enabling more companies to join the Industry 4.0 bandwagon, making human time more productive and conducive for the long run.

Cobots are much more advanced than traditional robots, with intelligent systems, high tech software, enhanced sensors, and the ability to link up to IoT and task-specific systems. A Cobot ensures complete precision for tasks that require pinpoint accuracy, dexterity, and strength.

Cobots' numerous applications and advantages make them the most ideal helping hands on any team. In a factory set-up, Cobots facilitate close collaboration with humans and detect changes in their work environment in real-time, allowing them to respond as needed. They are also designed for low payload applications such as handling small parts and inspection tasks, facilitating best-in-class safety, flexibility and keeping people safe.

#### **COBOTS: FUTURE OF FLEXIBLE & SUSTAINABLE MANUFACTURING**

In contrast to industrial robots, Cobots are smaller and more mobile. These robots are also simpler to program and have inherent safety to work alongside humans. These factors substantially benefit small and large businesses in various manufacturing and flow shop processes.

The role of Cobots in Industry 4.0 is fitting as collaborative automation means greater speed and efficiency, and the future of manufacturing is focused primarily on ensuring consistency of quality, flow, and optimal data collection.

Cobots also play a key role in minimising the environmental impact during the manufacturing of products by enabling accurate separation of materials during production and reducing waste at the disposal stage.

These cutting-edge Cobots are designed so that even beginners rapidly become experts, creating scope for implementing robotics automation beyond manufacturing and in places such as workplaces, universities, colleges, and even schools. As technology upgrades and develops new features, Cobots may never completely replace traditional robots in a large-scale manufacturing set-up. However, their versatility and ease of use negate the daunting perception of automation that has been around since its inception. 

By Rahul Kamat

## IS MANUFACTURING SECTOR VULNERABLE?

Cyber-attacks are not limited to a specific sector. Every industry is vulnerable to cyber-attacks, be it the crypto industry, banking, healthcare, retail, manufacturing or even the government. Some industries have made sure all their data and networks are secure, but others are catching up, putting processes in place and ensuring safety. However, there is still ambiguity about how far the guaranteed practices are safe. While this is the first one from a series of articles on the importance of data security and privacy in the manufacturing domain, this one focuses on best practices.



**T**he manufacturing industry is a critical driver of a nation's economy and therefore, sees a fair bit of attention from cyber attackers. As the domain pivots to Industry 4.0 and adopts 5G, IoT, and more, enterprises have seen an uptick in attacks with a majority of them coming from the software supply chain.

According to Gartner, 45% of organisations worldwide will have experienced attacks on their software supply chains by 2025, a three-fold increase from 2021. We are already seeing evidence of this trend in the manufacturing industry as cyber attackers are taking advantage of pre-existing security flaws from the supply chain network, infiltrating systems to spread malicious payloads throughout the organisation's software, and using exfiltrated data to launch ransomware attacks.

Such layered attacks, says **Huzefa Motiwala, Director - Systems Engineering for India & SAARC, Palo Alto Networks** are leading to disruption and long downtimes for manufacturing companies which is resulting in them losing millions of dollars



over and above ransom payouts. What's more, growing enterprise IoT networks are further complicating this scenario. "As per Palo Alto Network's Annual IoT Survey, 84 per cent organisations in India saw an increase in

the amount of non-business IoT devices connected to their business networks in 2021. This adds to an already extensive launchpad for cyber attackers to put their nefarious intentions into action.”

The concerns with data security were raised in 2020 with organisations being forced to depend on remote workers due to pandemic restrictions. According to the 2021 Global Threat Intelligence Report (GTIR), data breaches have increased by 300 per cent within a year. From the manufacturing industry standpoint, downtime adversely affects hundreds and perhaps thousands of workers resulting in downtime costs being potentially catastrophic. However, organizations are rapidly adopting the concepts of Industry 4.0. Data privacy can be strengthened by making the mandate of compliances such as ISO27001, CCPA and Cyber security IoT act.

“With the recent announcement by the Government of India on the emergence of the Data Protection Bill, India has taken a cautious approach to build a strong data



privacy regime. However, there is an immediate need for creating awareness and educating digital users across sectors,” feels **Anupam Kulkarni, CEO & Director, iaur Systems Pvt. Ltd.**

Within the Industrial Internet of Things, there is a lot of valuable information

stored. The digital transformation of the manufacturing industry requires a network of equipment, sensors and other devices that will further help to constantly analyze and collect data from their production processes. The data will enable to improve cost-effectiveness and efficiency in the manufacturing industry. Systems that use machine learning (ML), artificial intelligence (AI) and other emerging technologies will help businesses consistently improve their overall productivity. However, the huge data becomes a target for competitors and hackers, thus creating a need for better data security.

“It is, therefore, paramount that manufacturers leverage a centralized, integrated Cyber Fusion Centre-based approach that encompasses not only their IT systems but also their Operational Technology (OT) systems that are critical to the manufacturing processes,” said **Akshat**

**Jain, CTO & Co-founder, Cyware.** “This would give them complete visibility and control over all the security risks that exist in their infrastructure and enable them to implement the right processes for strengthening their data privacy,” Jain added.



## M&A DEALS AND DATA SECURITY

Organisations must make cybersecurity a key focus during the entirety of the M&As process. When conducting their due diligence pre-merger, emphasis should be laid on understanding how secure the target company’s environment is and how it approaches security controls, behaviours, and practices. When the M&A is put in gear, the focus should shift to include vigilance as, during this stage, risks multiply due to open networks, external threats from competitors, increased attention from cyberattackers, and more. The environment needs to be secured during the integration process and constant round-the-clock monitoring is essential to keep the organisation secure. Finally, in the post-M&A stage, the focus must grow to include security, vigilance, and resilience. Even though the acquisition is now complete, and it is business as usual, IT teams must be on constant threat watch to ensure the security of company networks, data, and assets.

According to **Sudip Pal, Business Head, Dev IT Group** data privacy regulations and mandatory breach disclosure laws have the potential to significantly impact post-merger valuations. With operations in transition, high-value data is often vulnerable. “Threat actors target

### STRENGTHEN YOUR DATA PRIVACY, HERE IS HOW!

**Threat Planning** – Planning is essential for enterprises that have sensitive data as it could ruin their reputation due to exposure via cyber-attack. Companies need to collect all types of data and integrate it with a system to manage and store data with limited access.

**Information Security Policy** – Cyber security policy will enable companies to address several needs like giving insights on the possible vulnerabilities and creating awareness of potential risks. It can further help employees to be better equipped and prevent any incidents. The clear guidelines on the acceptable use of all digital assets and data in the company can address issues that arise in the ever-changing cyber and data privacy landscape.

**Conduct Cyber Security and Data Privacy Awareness** - Investing in cyber and data privacy awareness training is one of the most significant activators of cyber security readiness for an organization. Educating employees and other stakeholders on the risks while teaching best security practices will help to reduce them from becoming easy targets via hacking, computer phishing, or malware.

**Conduct phishing simulations** – Phishing simulations help companies to train their employees to avoid downloading unknown files and clicking on malicious links. This will further help to create a safe environment.

**Monitor systems** - An anomaly detection system that is essential for successful and efficient network supervision.

**Response planning** – This will allow the company to limit the damage and remediate the situation effectively.

**Recovery planning** – An effective recovery strategy can make the difference while allowing for less financial impact and a quick comeback.



M&A activities because they offer the potential for short-term and long-term rewards. Chief Information Security Officers (CISOs) are key to protecting the assets and brand reputation of acquirers. CISOs should play a significant advisory role in all activities of the M&A lifecycle. More than one in three said they have experienced data breaches that can be attributed to merger integration,” he added.



That said, **Vijay Pravin Maharajan, Founder & CEO, bitsCrunch** thinks that it is always better to have privacy and data security as an integral part of decision-making. “Things get complicated when these data privacy and security & risk management are seen as separate technical or legal

constraints.”

For **Vishal Shah, Co-founder, and CEO, Synersoft Technologies Pvt. Ltd** in M&A deals, the level of cybersecurity practices and internal threat mitigation practices would be different organisation-wise. “If M&A happens for horizontal integration, more or less, the nature of liabilities will remain the same. The idea-Vodafone merger can be a good example. If M&A happens for backward or forward integration, the nature of liabilities will be different. It needs careful analysis and a strategic perspective,” he explains.



### BEST PRACTICES

In this new age of the digital revolution, new risks emerge every hour of the day. Reputational and monetary risks are high if businesses don't have an appropriate cyber security plan. When creating a security management strategy, there are numerous best practices that businesses can consider to prevent incidents and be prepared for any cyber-attacks. A comprehensive cyber security program is the key to modern-day business survival.

To improve cybersecurity and data privacy organisations are focusing on managing, automating, and prioritising their cybersecurity journey. One step an organisation

must focus on is gaining total asset visibility – because you can't manage what can't be found. Utilising an automated platform to discover connected devices and software will enhance the visibility of overall assets and aid in data protection.



To maximize user privacy while maintaining secure corporate data, according to **Liam Ryan, Vice President-Sales & Marketing APAC, Ivanti**, businesses should implement unified endpoint management (UEM) approach that fully supports all devices

accessing your network. UEM architectures usually include the ability to establish device hygiene with risk-based patch management and mobile threat protection.

**Subha Lakshmi, Product Marketing Manager, ManageEngine** draws a five-point agenda for the industry. Here they are:



- Only collect and store necessary information.
- Inform the customer beforehand about what data you collect.
- Don't store critical data like credit card or payment information without the consent of the user.
- Disclose security breaches to affected customers immediately.
- Perform internal and external audits to streamline processes and procedures and align security

“When it comes to medium to large brands in the Indian ecosystem we see a fair bit of maturity when it comes to ERPs and CRMs being used - in tandem with a data security architecture, policies and procedures. These are often led by the big international ERP providers who have led the awareness for security policies. So the awareness and the seriousness this topic is getting at the board room level is heartening,” concluded **Murali Balan, Co-Founder, Tenovia**.

### THE LAST WORDS

As per IBM's report on Cyber Security Intelligence Index, the manufacturing industry is one of the most frequently hacked industries. With the interrelatedness of the smart factory technologies and industry 4.0 adoption; cyber threats are among the most ubiquitous, as smart factory environments expose technology, people, physical processes, and intellectual property to these risks. However, there are a few critical elements in terms of data security like Data privacy at rest, movement and use, data confidentiality, data anonymization, data residency, data electronic discovery (e-discovery) and data lifecycle management to prevent any kind of data security incident. 🚫

## BREAKING RECORDS, BRINGING GLORY: DIE AND MOULD INDIA 2022 A GRAND AFFAIR, BREAKS RECORDS

The 12th Biennial Die & Mould India International Exhibition organised by the Tool & Gauge Manufacturers Association of India (TAGMA) came to an end on April 30. From the latest technologies and innovations to new launches, visitors witnessed it at the four-day mega event. A glimpse of the occasion...

**W**ith significant growth forecasted and the emergence of many sectors in India, the Indian tooling industry is expected to see double-digit growth in the coming years. After a gap of two years, the much-awaited 12th edition of the Die & Mould India International Exhibition, organised by TAGMA, was inaugurated on April 27, 2022, at the Bombay Exhibition Centre, Goregaon, Mumbai.

With over 300 exhibitors from more than 10 countries covering an area of 19,200 sq m, Die and Mould India's exhibition was larger than life and filled with enthusiasm. The exhibition was inaugurated by Prabhakar Kadapa, Partner & Director at Mudita Strat-Aegis Consultants, in the presence of Guests of Honour Vidyadhar Limaye, Senior Director at IAC Group; Raghava Badhya T V, President & Director, Makino India; D M Sheregar, President, TAGMA India and D Shanmugasundaram, Vice President, TAGMA India.

Sheregar mentioned, "The 2022 edition is a grand success. I spoke to all the exhibitors, who were all happy with the outcome. We also organised a B2B pavilion



received well by toolmakers and the user industry. As we can see many opportunities evolving, it is time for us to channel our resources and enhance our capacity and capabilities. We must work on skill development, stim-

ulate the government for industry-friendly policies and adopt futuristic technologies." The four-day event showcased various technological developments for the booming die and mould industry. The event provided a platform for toolmakers to learn from the user industry while highlighting

opportunities and challenges.

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

Speaking to Machinist Ravi Rana, Vice President, Micromatic Machine Tools – an exhibitor at the event – said, "AceMicromatic is proud to have had the opportunity to showcase its range of milling products and services in the 12th edition of TAGMA-Die Mould show 2022, Mumbai. A very successful Die-Mould show organised by TAGMA demonstrated the vibrancy of our manufacturing sector. It also shows how the Indian market is evolving, and we at 'AceMicromatic Group' can give suitable machines to its customers."

The exhibition saw over 38,000 visitors, from which nearly 52 per cent were decision-makers from industries like automotive, aerospace, die mould, machine tools, heavy engineering, plastics, packaging, consumer goods, toy, medical, etc. It also witnessed participation from over 10 OEMs in its B2B pavilion.

Breaking its record, TAGMA saw an increase in the exhibitor count by 26 per cent from the last edition and a 15 per cent increment in floor space.

With the grand success of Die & Mould India 2022, the forthcoming years are sure to create tremendous opportunities in the Indian tooling industry. 



Venkatesh Kulkarni, Head – Technical Services, Renishaw Metrology Systems Limited



## 1,000 REASONS PER SECOND TO SCAN ON YOUR CNC

Probing and contact 3D scanning is a game-changing solution that when many customers see the value addition offered by the system, they never look back to traditional touch-trigger probes.

When nearly 50 years ago, the kinematic touch-trigger probe was invented by Renishaw's founders, no one knew the impact it would have on the machine tool and manufacturing industry. As with all technology, probes have evolved. While touch-trigger probing meets the needs of users wanting to automate simple set-up and precision inspection, scanning measures a whole new level by inspecting form, surface condition, and detailed dimensions at an incredible speed. Significantly increasing part throughput, reducing scrap and detailed in-process measurement are some of the many clear benefits of on-machine scanning.

The OSP60 probe with SPRINT™ technology is a full 3D (XYZ) on-machine scanning probe which unlocks significant possibilities for machine tool users. This cutting-edge technology was developed for 10 years. Since its launch in 2013, the accuracy, reliability, and repeatability of the OSP60 probe have been proven across a range of industries. Customers across the aerospace, automotive, medical and energy sectors continue to reap the benefits of unparalleled speed in probing and contact

3D scanning. It is such a game-changing solution that when many customers see the added value offered by the system, they never change back to traditional touch-trigger probes.

### But what is a 3D scanning probe?

The OSP60 probe can continuously measure up to 1,000 points per second in XYZ simultaneously. So, depending on the resolution that you want, it can measure as fast as preferred; even at G0 speeds in some cases. SPRINT technology can give the machinist the necessary confidence that a workpiece has been machined within tolerance extremely quickly and accurately. Similar to a coordinate measuring machine (CMM), it reads the encoder or linear scale values from the CNC and compensates for any potential errors. It can even scan rough surfaces like castings. Thanks to numerous innovations, it can achieve real-world repeatability better than  $\pm 1 \mu\text{m}$ .

Being able to check part geometry while a part is still fixed on the machine tool is priceless. Without on-machine scanning, the finished part is typically measured off-line and any problems would be identified after the

machining process. If problems were detected, in most cases, by then the part would have been identified as scrap, and if not, it would need to be fixed on the machine for a second time. It is well known how difficult it is to set up an already machined part.

Another key advantage of SPRINT technology is the ability to check the surface finish quality of a part. It can detect the waviness that has been either machined intentionally or caused by tool wear, breakage, chattering, vibrations, lack of coolant on the cutting tool or a combination of these.

#### **How does SPRINT technology work?**

Installation of the on-machine scanning system starts with mapping machine tool characteristics such as toolpath errors and latency. An advanced calibration process, which takes only a few minutes, ensures reliable and accurate probe performance on the machine. This delivers  $\pm 1 \mu\text{m}$  repeatability on a capable machine.

#### **What sort of software is required to use SPRINT technology?**

A variety of software packages is available with the OSP60 probe to make the best use of collected data. The more advanced of these software packages is connected to the CNC machine and the probe in real-time. The software receives the data collected by the probe and the positions sent by the encoders or linear scales from the machine. This combination provides accurate surface data points or a 3D model of the scanned surface. For the most advanced applications, this data can be used in adaptive machining of the cast, welded, printed, or machined parts. After scanning the current form of the part, the software adapts the nominal toolpath to the real shape of the part. This automated process happens in seconds. A variety of software toolkits, designed through many years of real-world collaboration with numerous successful users, is available for a wide range of industry applications and controllers.

#### **MACRO MODE ON**

If you want to stay ahead of your competition that is already heavily engaged in using this technology, it's worth knowing that the OSP60 probe can be used in 'macro mode' for both touch-tigger and scanning operations. There are multiple shapes and processes available in easy-to-use macro packages for various types of CNC controllers. These are programmed through G-Code, so no CAD/CAM knowledge is required. The macro-based tools dramatically reduce probing cycle times. For instance, in the automotive industry, bore measurement and surface quality verification can be completed in just a few seconds.

#### **3D SCANNING PROBE ON A MACHINE TOOL**

Machine health performance is a key factor in producing consistent, high-quality parts within desired tolerances.

Renishaw AxiSet™ Check-Up software has long been combined with the industry-standard QC20-W ballbar test to check and optimise machine performance. These tools are used at planned intervals or in response to a problem, and sometimes need the expertise of an external machine service contractor. SPRINT technology now offers a rapid and automated 'pass or fail' health check, in-cycle. This monitors any changes or deterioration in linear and rotary axis performance, such as rotary axis actual pivot points, and can be completed in a matter of seconds, before or during each machining process. This can even be done by machining a small cone on the workpiece itself and skimming it off after the machine health check process is completed. Effectively, the machine can be verified before machining each part. This can help eradicate scrap parts produced due to machine wear and tear, thermal expansion, and similar problems.

While offline verification (typically via CMM) will always be required for a sample of parts, SPRINT technology brings full in-process control and verification to the shop floor.

#### **How will it perform inside a machine tool?**

The OSP60 probe is extremely robust. Thanks to its patented spring system and thorough sealing, the probe



is designed for harsh environments such as the inside of a machine tool where there are constant vibrations, hot chips, coolant, oil, and other debris. The probe is certified to IPX8 level which means it can be fully submerged in coolant. It is advised to use coolant while scanning with the OSP60 probe to reduce friction, stylus wear and ball pickup for maximum scanning accuracy.

#### Is customisation possible for special applications?

Although there are many toolkits and macros available out-of-the-box, SPRINT technology is also very customisable. Bespoke cycles, processes, and toolkits can be modified for the user's application to utilise the full potential and advantages of this cutting-edge technology. SPRINT technology is supported on a wide variety of CNC controllers.

In essence, SPRINT technology offers a one probe solution for touch-trigger, scanning, surface finish monitoring, adaptive cutting and rapid machine health checking.

#### SOME NOTABLE APPLICATIONS OF SPRINT TECHNOLOGY INCLUDE:

Chamfering a cast or a welded part. Having an even chamfer all-around a cast workpiece where the dimensions are not accurate, can be very challenging. Some companies resort to chamfering manually which can result in damaging the part and scrapping the workpiece, which often is very expensive.

- Scanning a welded section on a freeform surface.
- Scanning blades, bladed disks, impellers, and other complicated forms.
- Scanning engine blocks and cylinder heads for surface quality and bore measurement.
- Scanning the drive train of electric vehicles.
- Scanning medical prosthetic parts to verify a match to the precision design tolerances specified.
- Scanning valve blocks or ball valve components rapidly.

#### IN A NUTSHELL...

SPRINT technology increases productivity, reduces cycle times, and helps eliminate scrap. Touch-trigger probes collect their points individually, so, although they can be optimised with fast measurement, they will never match the 1,000 points per second collected by scanning. That's why once a company starts using on-machine scanning, it revolutionises its experience of probing. It saves time and cost and effectively makes more money for the company.

*For more information, visit [www.renishaw.com/sprint](http://www.renishaw.com/sprint)*

If a company wants to stay ahead of the competition in this rapidly changing world, implementing new methods and using the latest technologies is vital.

To thrive in this current highly competitive market, investments should be made toward automation and technology. It is no longer enough to add additional machines to increase the production yield; modern machining is about manufacturing intelligently. Increasing the number of machines will increase the occupied space, the number of skilled operators required, energy consumption, and multiple machines mean multiple processes to control and monitor. By implementing the latest innovations in automation, the number of machines can be optimised while simultaneously increasing productivity. This has been proven in the field on many occasions by the companies that are using SPRINT technology.

In the machining world, where seconds matter, using a touch-trigger probe in a cycle with hundreds of measured points requires a lot of time, while with SPRINT technology, this can be achieved in a much shorter time. Users have experienced total cycle time (machining and probing) reductions of 30% per cent as a result of using the scanning probe. So, it's no longer the size of your production facility that matters, but the intelligence of your production capabilities. Intelligent machining enabled by fast and accurate probing can result in huge rewards in terms of cost savings and making money. 



## LVD INTRODUCES FULL-FEATURED TUBE LASER CUTTING MACHINE

**L**V D's TL 8525 is amongst the most advanced tube laser cutting machine in its TL series, which opens the door to a world of versatile tube and profile processing. It possesses optimised features, including a 45-degree 3D tilt-axis cutting head, a 6-position front loader, a wide X-axis cutting range, and the ability to cut tubes up to 8500 mm long, at a maximum part length of 3000 mm, up to 250 mm, diameter.

The TL 8525 is built for high productivity and can accommodate a broad range of applications, complex, large and heavy tubes. The 400 mm Z-axis efficiently handles the processing of larger profiles.

The machine maintains the compact footprint of other TL models and offers the advantage of accessibility on all sides. Because loading and unloading are handled on one side, the machine can fit in a small space or against a wall.

To provide the widest range of use, the TL 8525 is equipped with key features as standard, including a 45-degree 3D tilt cutting head that delivers high-precision bevel cutting and can be used for weld-preparation cuts thick-walled tubes. Its 6-position front loader loads up to six tubes and offers six positions for up to 250 mm



tubes. The system can be loaded with different types of tubes in different sizes and be interrupted during processing to add a new tube to handle both small batches and long-run production. The 1190 mm X-axis cutting head range permits processing along a greater tube length, wasting less material to make tube cutting

more productive and profitable. The TL 8525 automatic tube loading, automatic tube centring and automatic set up and adjustment of the chuck and steady rest offer highly automated, reliable operation. The TL 8525 comes equipped with a 2-kW fibre laser source; a 4-kW laser is optional.

## COOPER CORPORATION INTRODUCES 5KVA TO 250KVA GENSET

**C**ooper Corporation, one of India's leading engine manufacturers, has introduced a brand-new world-class Genset range ranging from 5KVA to 250KVA for the western market to ensure a reliable power source.

The company's in-house research and strategic alliances with partners, such as Ricardo PLCUK, have introduced robust Gensets to provide best-in-class backup power solutions with minimal CapEx and OpEx spend. The range goes from 5KVA to 250 KVA powered by 2-, 3-, 4- and 6-Cylinder Cooper engines. The compactness of the generators accrues enormous cost savings for the customer in terms of space requirements, especially in areas where space is a luxurious investment.

Recently, the company launched its 5 KVA compact Genset -Cooper Bolt Mini. The Cooper Bolt Mini Genset is a versatile engine that produces higher power and is the most compact in size compared to its competition. It is also the most

fuel-efficient in the market compared to other players. The 125 kVA Genset is a beast when it comes to high performance. The Genset applications include hotels, restaurants, and office buildings. This low-noise, compact engine is in high demand both domestically and internationally. The 140 KVA is a liquid cooling diesel Genset with 6-cylinders that ensures companies and industries never experience power disruptions during production hours. Compact in size, the 160-kVA diesel generator for industrial usage can provide a great deal of power for an extended length of time. This Genset can push itself even in harsh weather conditions and provide consistent performance for long durations with a high block load capability. With the 200 kVA Genset, industries and

other civil works such as highways, railways, metros, etc. can operate at total capacity without interruptions in their production schedules. Rugged and fuel-efficient, the Cooper 250 kVA is the most potent diesel Genset, capable of powering huge office buildings, malls, theatres, and industrial sectors.

These Gensets power applications range in various industries, including automotive, Gensets, marine, defence, construction equipment, and agriculture. These engines are designed to meet all future emission norms.

The all-new series of Gensets comes with the Cooper assurance of quality and maximum uptime. With a nationwide network of professional service dealers with adequate spare parts stock and ready to provide prompt after-sales service support.



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# At Japan's historic New Product Awards Winner of the highest prize



## Best 10 New Product Awards — The Masuda Award

The Best 10 New Product Awards is an award system established in 1958 by the Nikkan Kogyo Shimbun, a leading industrial newspaper in Japan, with the aim of encouraging the development of excellent new products that contribute to the improvement of Japanese technology. Every year, from the products developed and put into practical use that year, dozens of products are carefully selected and commended, and the Masuda Award is given to the one recognized as the best among them. Okuma has won a Best 10 New Product Award 17 times, and the MA-8000H will be Okuma's first Masuda Award.

## Why the MA-8000H Won

Standard for the MA-8000H are Okuma's Thermo-Friendly Concept and "ECO suite plus" energy-saving technologies that allow machines to autonomously maintain high accuracy and decarbonize — at high accuracy levels — during production to reduced emissions. Moreover, Okuma's "sludgeless tank" reduces the frequency of coolant tank cleaning and an AI Machining Diagnosis Function prevents tool defects to enable continuous long-run operations, and provide flexible labor saving automation.



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# *SPACE CENTER* **MA-8000H**

Pallet: 800 × 800 mm, XYZ axes: 1,400 / 1,200 / 1,350 mm

## OPEN POSSIBILITIES

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